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Foreword by ETH Zurich Rector Sarah M. Springman

How can we prepare our university graduates for a future that is increasingly uncertain, a future that will demand problem-solving on a global scale, a future where paradigms can change within days or weeks?

The COVID-19 pandemic, emerging at the back end of 2019 and charging into and through 2020, acutely foreshadows this uncertain future, and brought sweeping changes on a global scale. Just like in most universities around the world, ETH Zurich's staff and students had to undertake heroic, unprecedented measures to uphold teaching and research, while doing our best to keep members of our university safe. What would have been an extremely innovative and engaging international conference entitled "The Future-Ready Graduate", with over six hundred participants from all around the world, who would have been giving hundreds of presentations at ICED 2020, had to be cancelled: *just like that*.

We had planned to host a highly interactive forum to discuss educational development strategies that foster the skills, attitudes and competences required by university graduates to face an uncertain future: critical thinking, life-long learning, communication, improvisation, intercultural intelligence, data-driven and science-based decision-making, agility, adaptability, and timeless qualities such as integrity, curiosity, resilience and stamina. Cancellation of ICED 2020 was extremely sad for the international educational development community, and, on the face of things, a setback.

The conference was prepared before the pandemic hit. However, these ICED papers have all been coloured by the events of 2020, and many have been visibly adapted to take into account the year's ongoing lessons. They provide a truly fascinating record of the educational developments that have evolved throughout this period. In publishing the ICED 2020 conference proceedings, the hard work of all contributors has been honoured.

At the heart of all challenges lie exciting and often unthinkable opportunities that can stimulate astonishing paradigm shifts. So, it has been in 2020. The current crisis, even when it is "over", will have brought about irreversible changes to the way we live, work and interact globally. It remains to be seen how the world will learn from its sobering experience. But what new ways forward has the pandemic shown us?

The measures taken by ETH and higher education institutions around the globe – for example, putting teaching online at the speed of light, accompanied by didactic, technological and social considerations, have enabled an unprecedented, unparalleled learning experience. They have catapulted us into a new age. Here one might argue that although the conference was cancelled in its intended form, its reflections have, due to COVID-19, become more relevant than ever!

Higher education has been subjected to enormous disruption, with unforeseeable consequences. However, "unforeseeable" does not mean "unshapeable". As educators, we are being called upon to shape post-COVID higher education actively and dynamically. Are *we* ready for this future? We hope that the ICED 2020 proceedings, viewed in light of what we have learned in 2020, will help us to gather our thoughts and develop tools that our graduates may use to be ready for whatever the future holds.

We wish you a great read.

Professor Sarah M. Springman CBE FREng
Rector, ETH Zurich

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Preface

The International Consortium for Educational Development (ICED; icedonline.net) promotes educational and academic development in higher education worldwide. ICED is a network of networks with (currently) 26 members representing national and regional organisations focused on promoting good practice in higher education. The objective of ICED is "for the public benefit to advance education worldwide by promoting, sustaining and increasing individual and collective knowledge and understanding of all aspects of educational development in higher education."

ICED aims to link networks and individuals with a common interest in academic development across the world. We do this in several ways, including an annual Council meeting attended by a representative from each member network and a conference held every second year. Unfortunately, like many of the individual member network conferences and events, the 2020 conference that was to be held in Zurich, Switzerland, was a casualty of the global pandemic.

The biennial conference is an opportunity not only to present our scholarship and practice but also to create the space for networking and conversations outside of the presentation sessions. It is an opportunity for academic developers from new and emerging networks to learn from more established networks on how to progress their networks and the work of their members. First time participants meet the leading scholars and practitioners whose work they have read and follow, in a friendly, welcoming and sharing atmosphere.

With the conference only being held every second year, participants eagerly look forward to this coming-together of colleagues from across the world. With the cancellation of ICED 2020 in Zurich, the four-year wait to meet up and share our scholarship feels like an eternity. While we have embraced new ways of conversing and maintaining connections, the personal conversations, networking and sharing that happens at conferences are vital to keep our community connected.

This publication, made possible by the 2020 conference planning committee, is a way to maintain those connections. It is an opportunity to share the practice, research and ideas that would have been presented at the conference. I encourage you to engage with the papers in the spirit of what a conference enables – extended conversations with the authors, networking, sharing, learning and collaboration. This publication also ensures that the work of the authors, the reviewers and the planning committee is recognised and applauded.

Despite language, cultural and higher education system differences, we all have a common goal, face very similar challenges and undertake our work informed by a common scholarship. We openly collaborate and share resources. The crisis in higher education that the pandemic has created has highlighted the value of academic development and the work of academic developers all over the world. Perhaps in this way, the pandemic will leave a positive, lasting legacy for academic development.

On behalf of the ICED Council and those who had planned to participate in Zurich 2020, I extend our thanks to the conference planning committee not only for making this publication possible and for undertaking all the work necessary to realise it, but also for all the work that went into planning what was shaping up to be an innovative and very successful conference. Your work is greatly appreciated and this publication is tangible evidence of that work.

Allan Goody
ICED President

Introduction by the ICED 2020 organisers

In this special issue of the ETH *Learning and Teaching Journal* we are proud to present the proceedings of a conference that never was: ICED 2020.

In fact, however, ICED 2020 "was". Much thought went into it on the part of many people, who spent years conceptualising its theme, soliciting and selecting abstracts, and planning the physical conference itself. After the conference was cancelled, more than 100 undaunted authors from around the world took their planned presentations, workshops and posters and turned them into the proceedings before you. These address a myriad of topics ranging from "Whose future? Which graduate?" to the views of recruiters in the domain of knowledge work, peer tutoring programmes in South Africa, the integration of transferable skills into existing curricula, "future literacy" and futures research, and the reflections of displaced Syrian academics. Contributors include Nobel prizewinner Carl Wieman and the incumbent president of ICED Kasturi Behari-Leak (the opening and closing ICED 2020 keynotes, respectively). They also include the ICED 2020 Student Ambassador group and the members of the interdisciplinary panel.

What "wasn't" were the personal interactions; the meals taken together; the coffee breaks in the ETH Main Building; the spontaneous conversations struck up in the hallway; the sightseeing in beautiful Zurich and Switzerland (Swiss chocolate enjoyed in its native environment!); the alphorn music and the gala dinner; the friendships and collaborations revisited or begun; and much more. We are so sorry not to have spent time with you.

However, what still is, is the scholarship. May this compilation be a lasting record of the conference that wasn't – and yet was.

For all of their efforts we thank the Rector of ETH Zurich and a distinguished international scientific committee, who donated their precious time to the endeavour; the ICED Board, who was the conference backbone; the Swiss Faculty Development Network, who supplied invaluable input and support; and all members of and helpers to the ETH organising team, who were the boots on the ground.

The ICED 2020 conference organisers:
Philip Barth, Karin Brown, Katherine Hahn Halbheer, Gerd Kortemeyer, Joy Schuurmans Stekhoven, Benno Volk

Editorial note:

The articles in the proceedings were adapted from what would have been papers, workshops and posters presented orally by an utterly diverse international group of authors. All were accepted presenters, and as such peer review had already taken place at the abstract submission stage. These facts, and time and budget constraints, determined the editorial concept for this *LTJ* proceedings issue, which is to be regarded as only lightly copy-edited. Submitters were informed from the outset that they were responsible for the quality of their own English. Individual contributors were given latitude in choosing either UK or US English, and divergent usages of grammar, spelling and punctuation were tolerated, as long as consistency was maintained within each article. For the visual consistency of the whole, a compulsory template was provided. Contributions were first checked for appropriateness; they were then proofread and – where necessary for comprehensibility – lightly corrected. Any substantial alterations were referred to the respective author(s) for approval. No changes were made without a reason; the bottom lines were general adherence to the template, and comprehensibility and consistency within each article. Some minor post-template standardisation was also applied to certain sections (e.g., References).

ICED 2020 proceedings:

Instructional design based on the problem-solving decisions of scientists and engineers

Carl Wieman[1]

Stanford University, Department of Physics
382 Via Pueblo Mall
Stanford, CA 94305

Argenta Price[2], **Candice Kim**[3]

Stanford University, Graduate School of Education
485 Laseun Mall
Stanford, CA 94305

Abstract

We have explored the detailed process by which skilled scientists, engineers, and doctors ("experts") solve authentic problems—the problems they are called upon to do in their work. Such problems are far more complex than typical problems used in university courses and exams. We find there is a set of 29 decisions that experts make in the solving process, a set which is nearly universal across the 31 experts and 10 disciplines we examined. These decisions provide a very useful framework for measuring problem-solving expertise. Here we focus on how they can also be used to design instruction that will improve students' problem-solving skills. This instruction gives them practice at making many such decisions in realistic contexts, a necessary step to learning to be good problem solvers, and hence, good scientists, engineers, and physicians. Practice they do not get in traditional instruction.

1 Introduction: The nature of expert problem-solving in science and engineering

We have been studying how skilled practitioners ("experts") in science and engineering solve authentic problems in their work. These are problems with far more complexity than have been used in previous research on problem-solving and expertise, or that students typically see in their courses. Such problem-solving skill is arguably the most important goal of education in science and engineering, but little is known about the details of the problem-solving process as used by experts, or how best to teach it. We have been able to characterize the problem-solving process in detail for the first time (Price, et al., 2020) in terms of the set of specific decisions experts make in the decision process. This provides a new and valuable framework for both teaching and measuring expertise in authentic problem-solving. Here, after introducing the basic concepts, we will discuss how to design instructional activities that will more effectively teach the authentic problem-solving skills that will be needed by students when they enter the technical workforce. Such activities require the student to explicitly practice making these problem-solving decisions used by experts, with guiding feedback.

In previous work (Jones, Madison & Wieman, 2015), one of us (CW) discussed the general design and classroom implementation of effective "active learning", built around the idea of having students carry out "deliberate practice" (Ericsson, 2018) learning in the classroom. This

[1] cwieman@stanford.edu
[2] argenta@ stanford.edu
[3] candicekim@stanford.edu

involves the students practicing and getting feedback on the specific cognitive actions used by experts in the discipline. This approach has been shown to be highly effective in teaching physics from the most introductory courses (Deslauriers, Schelew & Wieman, 2011), to advanced undergraduate (Jones, Madison & Wieman, 2015), to the most advanced graduate (Lepage, in press) courses. It has also been shown to be effective in many other disciplines and by many other authors. (In many cases they will use different labels, but the concepts are the same.) While the Jones, Madison, and Wieman (2015) reference discusses the details of implementation and the general principles for the design of the instructional activities, it leaves it to the instructor to figure out what the "expert" reasoning processes are that the student needs to practice and learn, and hence what the specific questions or tasks are that students should complete.

This paper provides further guidance to instructional design by identifying a detailed and specific framework for those expert reasoning processes. At the time of the Jones 2015 work, we never thought that such a framework was possible, that the details of the problem-solving process would have some very general characteristics in common, but most of it would be somewhat dependent on the individual and quite dependent on the discipline and topic. In recent research we carried out a detailed analysis of the problem-solving process of 31 experts spanning 10 disciplines of science, engineering, and medicine used in solving authentic problems in their discipline. We analyzed the process in terms of the specific decisions they made. We discovered, to our surprise, that there is very little variation in terms of the decisions. There is a consistent set of 29 decisions that these, and likely nearly all, experts in science and education make in solving problems, and a consistent way they organize their knowledge for making those decisions. Here we show how these decisions can provide much more detailed guidance to make the design of educational activities easier and more effective. This design provides students with practice and feedback in explicitly making these expert problem-solving decisions in realistic contexts.

Here the label "expert" refers to a skilled practitioner, such as the typical professor in science and engineering at a good research-intensive university or the typical experienced engineer or scientist at a well-established company or government research laboratory. In other words, high level but not extraordinary performers in the technical workforce. In our work, we have also included experts in medical diagnoses. Authentic problems are ones these experts solve as the core of their work, and involve research, design, and diagnoses. Such problems involve a high level of complexity, substantial investments in time, and have no clear route to a solution, and at the beginning it may not be clear that there even is a solution. These are characteristics that are missing from nearly all problems that university students will encounter in their coursework. The set of 29 decisions that our sample of experts used consistently across problems in science, engineering, and medical diagnosis included answering such questions as: "What are the most important factors in the situation?"; "What simplifications or approximations are appropriate?"; "What information is needed to answer this question?"; "How credible in this information?"; "What conclusions can be justified by this information?"; and "Does this solution satisfy all specific and general criteria for a good solution? What are potential failure modes, either literal or logical?" In traditional S & E course homework and exam problems, seldom do students have to answer questions like this, and for that reason they are often not prepared to perform as well as they might in the S & E workforce.

We find that the experts nearly always call on specialized disciplinary knowledge to make these decisions, and that knowledge is organized in a particular way. It is in the form of "predictive frameworks", a mental model that incorporates all the key information and concepts and the relationships between them in terms of underlying mechanisms, while excluding unimportant details. Such a framework allows the expert to run mental simulations as to what behavior would be expected under different conditions, and how that behavior would change when various parameters in the model are changed. It also organizes the information into "chunks", thereby reducing demands on the working memory, as has been previously observed in expert-novice comparisons (Ericsson 2006).

As a side note, our work argues strongly that there is no such thing as "critical thinking skills" that transcend all disciplines, as some have claimed (Arum 2009). While it is essential that a person recognize and be able to make all of these 29 decisions, if they are to be an expert problem-solver, actually making any of these decisions in an expert fashion requires disciplinary knowledge. Recognizing what knowledge is relevant and applying that knowledge appropriately in the context are important learned expert skills. Even if a person knows they need to make a decision such as "What factors are important?", they would never be able to make such a decision correctly without having substantial disciplinary knowledge and being able to decide which information would apply in the specific context given. Tests that claim to measure general "critical thinking skills" independently of any disciplinary knowledge, such as the Collegiate Learning Assessment, are fundamentally flawed in their failure to recognize that the correct application of knowledge is an essential element of solving any authentic problem and hence of any meaningful "critical thinking". Thus, any meaningful test of critical thinking will be discipline specific and the results will depend strongly on whether or not the testee knows the relevant content.

2 Assessing expert problem-solving

This framework of decisions and predictive frameworks has given us a template for designing assessments of student problem-solving skills that can be readily mapped onto different disciplines. We explain this in some detail, as it is closely related to the template used for instruction. The primary goal of these assessments is not to rank students individually, as in the typical course. Instead it is to compare every student with an absolute standard—how similar are they to how a skilled practitioner solves a realistic problem? While this can be used for feedback to individual students as to how they can improve, more often it is used to look at the aggregated results from an entire class or program to determine how effectively these students are being educated to perform like skilled practitioners, and where the strengths and weaknesses are in their education. The assessment gives a realistic problem context and then has students make the decisions we have identified that are used by experts. We then examine how well their decisions and the reasoning behind each decision matches with an expert's.

The assessment template involves first deciding on the realistic challenge: in medicine, a sick patient they need to diagnose; in engineering, a design problem; or in science, a phenomenon to explain or control. The assessment will then have the student answer a series of questions that correspond to particular problem-solving decisions from the expert decision list. The choice of the particular challenge context and the details of the questions determine what disciplinary knowledge is required and the level of complexity of the question, i.e. how many different factors need to be taken into account. Those are adjusted to be suitable for targeting particular courses or overall program learning outcomes. In some cases, to make the assessment more constrained and hence more practical due to constraints on time or scoring complexity, the problem will involve "trouble-shooting", where the student is given a trial solution which contains multiple deficiencies by design. They are put in the position of a manager evaluating and improving the design of an intern. Consistent with the decision set and authentic problem-solving, at different points students will be asked what information they need to solve the problem, and at other times during the assessment they will be provided with new information to see how they can evaluate and use that information.

Such assessments are extremely revealing, showing dramatic differences between experts and students, including serious weaknesses in many areas that students have supposedly been taught. The results demonstrate the profound difference between learning particular content, items of information or calculational procedures that are probed by the typical course exam and recognizing how and when to use that knowledge to make decisions in solving problems. Across an increasing number of different disciplines (medicine, mechanical engineering, chemical engineering, earth sciences, physics) we see large differences between expert and student responses, both in the decisions they make and the rationale they give for

those decisions (which are also part of the assessment). Although typical, this is not universal. Students' scores on the assessment questions are strongly correlated with what instruction they have received, and higher on the assessment questions where their instructional activities involved making decisions of that specific type.

3 Teaching expert problem-solving: Practicing making decisions

In this case the teaching is nearly identical to the assessment. In both cases students work through a realistic problem, making decisions and justifying them in the process. Their responses are compared with the generic responses that a skilled practitioner would give. The only real difference is the conditions in which the student is working. Rather than being isolated and without any feedback, as in the assessment, in the teaching they are regularly interacting with other students and the instructor to get feedback, new information, and assistance to support their learning.

Teaching a student to be an expert problem solver in a discipline requires them to practice making these problem-solving decisions, with guiding feedback to improve their decision-making capabilities. That implies they must also learn the relevant disciplinary knowledge in the form of predictive frameworks that are necessary in making such decisions. Thus, the design of effective instruction has a large amount of overlap with what we have described for the authentic assessment. For students to learn to solve authentic problems they need to work through a problem in an authentic context, practicing making the various problem-solving decisions experts make. As discussed in Holmes, Keep, and Wieman (2020), the most effective scaffolding is provided by telling them what decisions they need to make, but leaving it to them to make the decision, followed by reflection and feedback on their decision.

The design and implementation of the most effective instructional activities needs to include all elements of teaching expertise as discussed by Wieman (2019). This involves several elements not discussed here, including the need to have the activities at the correct level to connect with and build on the learners' past experiences; use a context and format to motivate learners to work hard to master the desired learning; and respect the limitations on the brain's working memory and so avoid all unnecessary cognitive load.

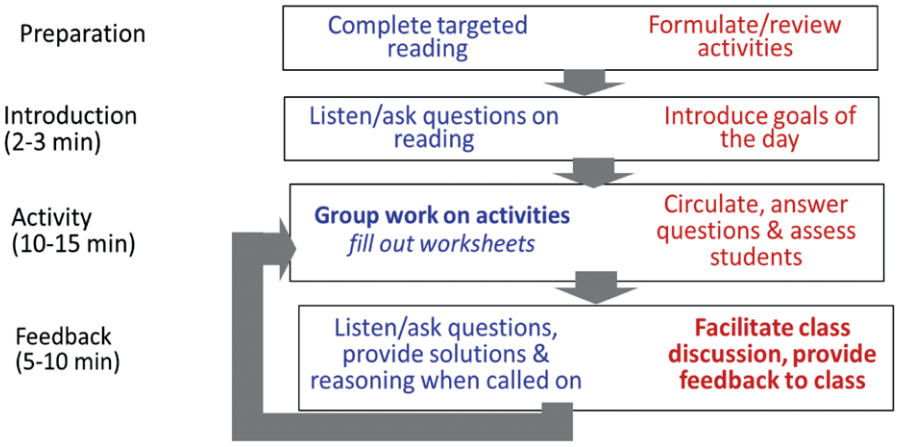

Figure 1. Structure of instructional activity, with very approximate timing to be used in class. The last two boxes will be repeated with new questions until the activity is completed. From Jones, Wieman, and Madison (2015)

In terms of implementation, the practice of and feedback on the instructional activities follows standard active learning teaching methods described in Wieman (2019) and by Jones, Madison, and Wieman (2015) (see Fig. 1). Students have individual deliverables, usually worksheets they must individually complete and turn in that involve answering a number of challenging questions that reflect decisions they must make and justify. The pre-class

preparation will also often be the same as described there, but it may vary with the discipline, task, and instructional level. Students do some individual work first in class thinking about the questions, and then work as part of a small group to figure out answers that are too difficult for them to do by themselves. The group also provides additional information and feedback on the reasoning of individuals. The instructor monitors their efforts by listening in on these conversations, asking probing questions to individual groups, as well as by answering questions from groups and providing new ideas and information as needed. Most importantly, the instructor will provide timely specific feedback on the work. This will help guide their thinking by explaining where and how their reasoning is incorrect and how to change it (Schwartz, 2016a). This feedback is provided at the level of the individual, the group, and the class, as appropriate (Schwartz, 2016b).

This feedback also includes "just in time telling" (Schwartz, 2016b), where students are provided with new information/content, often through short lectures or sometimes readings, only after they have struggled with the problem, and then recognize they needed additional information and ideas to make progress. In this way, they are first "prepared for future learning" (Schwartz & Martin, 2004), and so are much more likely to structure the material they learn in terms of a predictive framework such as an expert would use, organized around how and when that material is useful for solving problems.

3.1 Components of the design of the instructional problem

Here we describe a general design for creation of the questions for students to answer. The instructional design is based around giving students explicit practice with feedback on making the set of decisions an expert would make in solving the problem. Although it seems almost unnecessary to say it, our research (currently in the process of being written up and published) supports common sense. Across multiple disciplines, we see that students get more expert-like in the decisions they practice making in a realistic disciplinary context in courses or other relevant experiences, and they remain very novice-like in how they make those decisions they have not practiced, even though they have covered all the content needed.

First, the students are given an authentic context and the overall goal of the task. Examples are: diagnose patient illness; a mechanical design to accomplish a particular purpose and relying on a particular technology; design of a chemical production process plant; figure out how strong the components of a structure like a bridge must be, etc. You may find it advantageous in some circumstances to give students a potential solution or design to troubleshoot, rather than to figure out a solution on their own with no guidance. This can constrain the solution space in pedagogically useful ways. Many of the expert decisions involve evaluating and improving potential solutions, and so such "trouble-shooting" problems can allow authentic practice of many expert decisions. They allow instructional activities to focus on these decisions in cases where there is insufficient class time for students to carry out a full solution, or they carry out such a range of different possible solutions that it would be difficult to keep the class coherent.

Below we list the types of questions students would be asked to complete. Where it seems useful, we list specific examples of what these might be in particular disciplines. In keeping with the universality of the set of expert decisions, many need no examples because they are so obviously applied everywhere, such as thinking of related problems one has seen previously and using information to decide between alternative solutions. Below that we list the set of decisions from the list of 29 that are being probed.

1. What features are the most important? (includes what information and concepts are relevant and irrelevant, how to best visualize the context). *This could be asked in the contexts of diagnosis of a patient in medicine or a malfunctioning science apparatus or experiment, or a possible engineering design. In these cases, as in the real world, students would be give a rich set of information, some would be relevant and some not. Students*

would be asked to identify what of the information available was most important for solving the problem (or critiquing the design or potential diagnosis), and what further information did they need, and why.

2. What previous problems have you seen that are similar and relevant? What insights for solving this problem can you get from them?

3. What simplifications or approximations can you make, and why? *E.g.: In a science context this would normally involve a variety of factors that are neglected in the process of choosing simplified but accurate, and hence most useful, models of the problem context. In engineering design, it would involve recognizing what elements of the design are unimportant.*

4. What are tentative possible solutions/diagnoses/designs? *Students will likely require some guidance in answering this question as an expert would, namely roughing out possible approaches and making basic evaluations of feasibility, without attempting to carry out a detailed solution.*

5. How would you go about deciding on which solution is best? *E.g.: Experts carry out detailed plans at this point, laying out the solution process they plan to follow, including noting the greatest uncertainties and setting priorities, most students spend very little time on this step. As appropriate to the circumstances, students should be called upon to lay out a detailed plan. If they need scaffolding to help learn how to do this, provide worked examples, and possible plans for them to compare and critique to help them learn the important elements that should be included in a good plan.*

6. What additional information do you need to decide on a solution, and why? How will you use this information? *This is really a subpart of the planning, but you may or may not want to lay it out as a separate step to give it emphasis.*

Provide additional information to students. (This should include relevant and irrelevant information to give them practice at distinguishing between the two, as the real world is always filled with both kinds.)

7. Interpret and apply this information to refine your solution.

8. Narrow down your set of possible solutions.

9. Reflect on the problem-solving process you have followed and decide whether it is productive and will likely lead to a good solution, or whether you need to step back and think how the problem-solving process needs to be modified to be more effective.

Possibly provide additional information to students, targeting more specific features of likely solutions.

10. Which is the best solution, and why?

11. How can you test this solution based on disciplinary-specific criteria, and how well does it pass those tests?

This list is for illustrative purposes only, and to keep it reasonably short it does not include all of the decisions that a student needs to learn to make in solving problems in a particular discipline. Notably, it did not include any decisions related to the collection, evaluation, and application of data. For many types of problems those are very important, but they can be easily inserted into the general template that we have given here, as desired. Depending on the instructional context and goals, particularly the time available and the background

experience of the students, you may want to ask only a subset of the questions we have listed, or add or substitute other questions from the full set of 29 listed in Price, et al (2020). Almost all of these are easy to include just by making those decisions items the student has to complete in the context given.

The problem described required decisions to be made on:

- the key features
- what prior solutions can be applied
- what simplifications and approximations are relevant and justifiable
- potential solutions
- plan for determining the solution
- plan for gathering information to test between possible solutions
- how valid/reliable information is
- how the information compares with expected results
- what conclusions are appropriate based on the data
- how well the problem-solving approach is working
- if previous decisions about simplifications and predictive frameworks need to be modified
- the best solution
- how well the chosen solution holds

4 Conclusions

What we describe above does not include teaching all the elements a person must master to be a skilled practitioner in these fields. First, because of the instructional constraints, the thoughtful instructor will need to make decisions and tradeoffs depending on the circumstances. This will make it impossible to cover the full set of decisions multiple times with different types of authentic problem, as is likely necessary to achieve true mastery. We would argue that by the time students are at an intermediate and advanced undergraduate level, students need to be practicing nearly all these skills in the context of their fields of specialization. The only exceptions are the few involving choice of problem, dissemination, and larger relevance. Arguably, graduate students need to be practicing and learning the entire set. Second, there are a small set of skills needed in the workforce that are not reflected in our list of problem-solving decisions, most notably social skills, such as working effectively as part of a team and elements of communication not covered in the decision list. These should not be neglected. Instruction designed around practice with feedback on making the set of expert problem-solving decisions may not teach everything you want students to learn, but it will cover far more than they are likely learning now. In work in progress we have implemented this approach in three different courses covering a very wide range of levels and disciplines, and preliminary results look good. Such instruction will provide unique and important preparation for becoming an expert scientist, engineer, or clinician.

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ICED 2020 proceedings:
The future(s)-ready graduate: Whose future? Which graduate?

Kasturi Behari-Leak[1]

Centre for Innovation in Learning and Teaching
University of Cape Town
Rondebosch 7701
South Africa

Abstract

In what would have been the closing keynote of the ICED 2020 conference, I would have asked us all to critically reflect on the conference theme "The Future-Ready Graduate" to acknowledge the need to be "future-ready" in higher education, and to take the future seriously in light of impending challenges such as climate change, sustainability goals, access and success, inequality, and so on. I would have reminded us to take our gleanings from the conference to shape our pedagogy, curricula and assessment practices in our own contexts. All this because the emergence of the future-ready graduate depends on how we as educators, academics, academic developers and other stakeholders are prepared to engage with a future that envisages a life that goes beyond conventions and traditions into multimodal careers and alternative workplaces – but also a life beyond injustice and depravation so that people can become self-reliant and self-determined. Time and place are always important, I would have said! New future contexts are dependent on who we are in our current contexts, so we need to look at these critically to decide how to work towards a future that is sustainable and beneficial for us all.

1 Introduction

In writing this piece, I am inclined to pose the same meditations and provocations, albeit through a different lens: COVID-19. What does "future-ready" mean now? How do we proceed in the face of such grave disruptions to teaching and learning? Despite our intense engagement to date with pedagogical theories, concepts, frameworks, taxonomies, approaches and philosophies, we may argue that nothing has prepared us adequately for the complexity of this unprecedented crisis. So how *do* we learn from a future that is emerging right now before us, in the present?

The "future-ready graduate" theme is perhaps more relevant now than a year ago, when it was first conceptualised. Then, even the not-so-distant-future of ICED 2020 seemed like a very long time away because the word "future" has incredible power to project itself as time still to come, removed from the present and as something to deal with later. This meaning is bolstered by literature and movie genres that tend to represent the future as dystopian, Armageddon-esque, sci-fi and fantastical. The COVID-19 pandemic, however, is very real and by bringing the whole world to a standstill in 2020, has disrupted our sense of the future, in fact of time itself, by catapulting us into an unknown, unprepared-for reality, thrust upon us

[1] kasturi.behari-leak@uct.ac.za

from nowhere. We learnt quickly that the future is not *out there* in a distant time capsule but that it is *in here,* always entangled in our present and past and must be part of how we envisage our educational work going forward. To be future-ready is to be able to work with time in this iterative way and to be ready to respond to any or all contingencies thrown at us. What it means to be "future-ready" now, whether as a graduate or academic, provides us with an opportunity to reconceptualise the past, integrate with our present realities and conceive of future possibilities across our contexts, and to recognise how these temporalities work in never-ending, interrelated cycles through time.

2 Opportunities

The crisis has afforded us an immense opportunity to think creatively, innovatively, sustainably, collaboratively but above all, urgently, about teaching, learning, assessing, evaluating, facilitating and engaging differently. Educators and students have embraced the steep learning curve wholeheartedly and new ways of thinking, being and doing, under extreme conditions of social distancing, lockdown and shelter have emerged as examples of resilience and agency in online classrooms. Such are the dispositions and attitudes needed for future readiness, we may argue.

The pandemic also brought into stark relief the unequal playing fields in higher education as the pivot to online education brought to the surface the huge fissures between privilege and pain, with those students unable to access data and connectivity being left behind in the onboarding agenda. For many educators, this has sharpened our gaze and practice, making it incumbent on us to embrace a socially aware approach to teaching and learning in the "new normal" of remote and distance education. The crisis also offers us a unique opportunity to understand the digital in/exclusion and the spectre of digital datafication which must be brought into the conversation as we think anew and afresh about our traditional practices in light of current demands. We need to use our critical awareness and praxis as a catalyst for a community-oriented relational future, based on humanitarian eco-systems rather than individualistic ego-systems (Scharmer, 2018).

3 Future(s)

The pandemic has disrupted our stability in ways that might make it important to think of the future in the plural. Conceptualising not one but many futures requires us to be open to the idea of different variations and directions that may unfold over the next few years (Selwyn et al., 2020). Preparing the "future***s***-ready graduate" should compel higher education to consider different future realities for graduates, each linked to the specific social, economic, political, environmental, technological and legal nuances in different domains rather than future oriented conceptions that totalise and obscure specificities. One-size-fits-all innovations and solutions tend to blur the unequal playing fields, discrepancies and gaps in the material realities that COVID-19 has caused to re-surface. To assume that everyone can make the leap into the same future at the same time is to negate the identity, agency and context of those not equitably equipped to envisage a 4IR or AI reality together or at all, especially when poverty, hunger, housing, shelter and education are the harsh realities and crises that people have to manage daily. It is difficult to envisage a future together when there are glaring disparities in our realities that make it nearly impossible for individuals to self-actualise in commensurate ways. The future might not be one common reality for all but a multiplicity of creative options that speak to different material realities in the global North and South. The "futures-ready graduate" must be able to work with diversity across our global contexts in ways that enable thinking about the future as responsible agents for change and justice going forward.

4 Futures Thinking

"Futures Thinking", an emergent discourse and scholarship in higher education, encourages us to innovate, redesign and modernise in tandem with the technological future of work, which is becoming more adaptable, flexible and agile by expanding our repertoire to include robotics and artificial intelligence in various industries. While the world of work, industry, research and other stakeholders are propelling us into a new age of 4IR and in a sense defining the future for us, we need to understand for ourselves what the future means, from our own geographies and biographies. When educational policy makers turn the focus on access, skills and employability, we might be duped into thinking we are actually creating future pathways by "dealing with" inequality, but the "negative externalities" (Lewis, 2020) or side effects of the Third Industrial Revolution show that pollution, global warming and climate change, deforestation, species extinction and massive and growing global inequality are manifest. How do these impact on the revolution we now want to champion, and who picks up the collateral damage as each epoch dreams up its next revolution? Who picks up the global tab on inequality?

5 Meditation and mediation

Who we are and from where we speak (Moyo, 2011) are important markers of enunciation that cannot be homogenised, universalised, essentialised or reduced in any consideration of future-readiness. We have to work with it all, the good, the bad and the ugly, if we want to create ambient conditions for an emerging future that is ethical, just and accountable. This evokes questions such as whose futures are served by current innovations and interventions and who gets to decide on what the future should be, what the world should look like, and who should be playing a key role in shaping such a future. Whose futures are we talking about anyway, and what future are we "ready-ing" our students for? Does being prepared include respect for humanity, sustainability, inclusion, social justice, citizenship, reflection, interdisciplinarity, and so on? These are key considerations that universities must engage with to educate the futures-ready graduate in relation to economic, cultural and social realities.

The present crisis thus provides us with important meditation and mediation moments to think about the future in innovative and socially inclusive ways. The irony is not lost on us when Gordon (2020) points out that COVID-19, which is predominantly a respiratory dis-ease, mirrors the dis-ease experienced by the #BlackLivesMatter movement and millions the world over who also say "I can't breathe." What does the future look like from this perspective where social injustice suffocates and maims? What will bring equivalence to make the future available to and viable for all, not as a commodity to be bartered and traded but as a living value that we all can work with integrity towards, in healthy and equitable ways? Teaching and learning have a critical role to play in disrupting the compliance, reproduction and stasis in our universities, but this needs to be done with urgency. As Selwyn et al. (2020) argue, the 2020s is the time "to better theorise the links between developments in technology, inequality and education, while also striving to actively design technologies that facilitate more equitable futures for all" (page 2). While we need to be open to different responses to becoming "futures-ready", how do we prepare students for a changing world if we as academics, teachers and researchers have little propensity and motivation for change ourselves? The Brazilian educator Paulo Freire reminds us that "our action in the world is largely determined by the way we see ourselves within it, and that a correct perception necessitates an ongoing reflection and critical consciousness, only achieved through praxis: action and reflection in order to transform it" (1990, 66).

6 Conclusion

The future need not be paralysing, but a productive catalyst for creative and innovative answers to our current complexities. The future need not be a runaway object over which we

have no control, if it is framed to take all needs and contexts into account. Our multiple perspectives, voices and collective agency are important to envision a pluri-versal reality in which we enjoy the benefits of a strong community but also stretch each other to think outside the proverbial box. We have a huge opportunity to create the conditions for collective sharing, co-creation of knowledge and collaboration instead of being individualistic, separatist and competitive. By reflecting on critical aspects such as how the university community deals with knowledge, whether students are consumers or producers of knowledge, the importance of the curriculum for the future, the methodologies that will help to prepare our graduates well and so on, we can imagine the future together and prepare ourselves for change.

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ICED 2020 proceedings:

A future unlike our present. Contributions from the ICED 2020 Student Ambassadors[1]

Gabriel Reyes[2]

Columbia University, USA

Natalia Pérez-Luco Alarcón[3]

Pontificia Universidad Católica de Chile, Chile

Shuoyang MENG[4]

University of Tokyo, Japan

Olufunmilayo Arogbokun[5]

University of North Carolina Chapel Hill, USA

Ali Leota[6]

Victoria University of Wellington, New Zealand

Goitsione Mokou[7]

University of Cape Town, South Africa

Introduction

Students around the world were invited, in 200 words or less, to respond to the following prompt:

What does the Future-Ready Graduate look like to me?

What follows are the individual answers of the students who were subsequently selected as Student Ambassadors to join the conference.

[1] The ICED 2020 Student Ambassadors were nominated by the ICED networks and selected in a competitive process with an eye not only to individual talent but to the creation of as diverse and international a group as possible. Their tasks at the ICED 2020 conference would have been to participate in a student panel discussion (plenary session); to attend the conference and record their thoughts daily; and to provide their verdicts at the close of the conference, from the student perspective. Their participation would have been fully funded. Not being able to host this wonderful group due to conference cancellation is one of the organisation committee's deepest regrets. Note: Joy Schuurmans Stekhoven was ETH Zurich's Student Ambassador and provided invaluable, regular input and help to the conference organisers from the student perspective and beyond. We thank her for her great efforts.

[2] g.reyes0225@gmail.com
[3] npperezluco@uc.cl
[4] mengshuoyang1019@g.ecc.u-tokyo.ac.jp
[5] oarogbok@live.unc.edu
[6] ali.hf.leota@gmail.com
[7] goitsione.mokou@gmail.com

Gabriel Reyes

As the first in my family to attend college, a significant challenge to my success was a lack of information pivotal in order to be "ready for my future." However, I realized that this information is not equitably accessible. Through my experience educated in an impoverished immigrant community in New Mexico, I've observed a significant lack of resources to support budding scholars who endure poverty. As a result, this provides additional barriers for low-income students to maximize their education and to progress academically and professionally into the future. Hoping to play a role in supporting low-income students in education, I am a first-year graduate student at Columbia working with Drs. Kim Noble and Daphna Shohamy exploring how poverty affects brain development and its impacts on learning and academic achievement. I was inspired to pursue a career as an educational neuroscientist after I observed a drastic shift in my future when resources—academic, professional, and personal—became available to me in college, but many students continue to lack access to the knowledge integral to succeed in today's society. Thus, I intend to devote a lifetime to investigating how experiences and resources contribute to different academic outcomes and how to ameliorate any gaps for those reared in poverty. The goal of my research is to provide insights on equitable teaching pedagogies, generate academic initiatives, shift educational policy integral to prepare students from the most economically vulnerable communities to equally be "future-ready" graduates.

Natalia Pérez-Luco Alarcón

Globalization, new technologies, fast specialized scientific advances and global warming – all these among other phenomena are changing the world as we know it at an exponential rate. These factors have influenced interpersonal and international relationships, both of which are increasing in complexity. Today there is a globalized multiculture as a product of the broad number of diverse people from across the world, who interact constantly through social networks and migratory processes. The objectives for sustainable development, reception of refugees from countries in humanitarian crisis, worldwide mobilizations such as gender inequality and the care of the environment are some examples of this.

How do professionals prepare for a world that is in constant change, that finds itself with the urgency of changing habits in order to take care of the planet and whose challenges are becoming more and more complex to embrace?

The great challenge for the teaching of future-ready graduates lies in strengthening competences that are not found in books nor in scientific journals, such as creativity, leadership, the ability to work in interdisciplinary teams and apply a systemic approach to the diagnosis and resolution of problems. It also lies in the development of communication skills to transmit knowledge and reach agreements, the ability to think critically about local and global realities along with a high level of social commitment, and to take into account the common good to build a society based on sustainability. As future graduates, we must be able to adapt to new challenges, be resilient agents of change able to work with other disciplines and innovate together to solve complex problems. For this, teaching that uses active methodologies that connect students with local and global social challenges is fundamental. Service Learning is a leading methodology for addressing these challenges.

Shuoyang MENG

There are three core missions that modern universities are expected to implement, namely teaching, research and public service. Correspondingly, future-ready graduates are expected to develop three kinds of capacities. Firstly, through teaching activities in the classroom, they should not only acquire professional knowledge and skills, but also build the ability to learn initiatively, which is important for keeping up with the fast pace of the knowledge society. Secondly, future-ready graduates, especially the ones at post-graduate level, should develop their innovation ability through participation in academic research activities. Despite the rapid development of the world, we are still faced with uncertainty that leads to disturbance, so future-ready graduates are expected to propose new insights, ideas or solutions with their innovation ability. Lastly, with learning and innovation ability, future-ready graduates should establish a sense of social responsibility, which means they should make contributions to the solutions of social problems like social inequality, public health and political issues etc. Such future-ready graduates will be the essential driving force of society and the sustainable development of the world will be effectively realized.

Olufunmilayo Arogbokun

Though the specifics of how the world is changing are difficult to pinpoint, common themes emerge. Among those themes are technological innovation, interdisciplinary and intercultural collaborations, and valuing community engagement. These same themes are often woven into university mission statements and goals for their graduates. Nonetheless, I have started to wonder: do unintended byproducts of academic course structures hinder the future-ready graduate from developing personal characteristics necessary to thrive in the future? I ask because as I contrasted my own university experiences, I noticed differences in course design and teaching approaches which created differing byproducts – not all of which were helpful.

During my undergraduate education, I studied abroad at Queen Mary University of London for one semester. My classes abroad were rigorous, but not as time demanding, which allowed time for community engagement and cultural exploration. Additionally, my grades abroad mirrored the pass/fail spectrum that I see in my graduate studies, rather than the intricate grading scale of A+, A, A- and so forth. In contrast, during my American undergraduate experience, myself and other students often felt an emphasis placed on letter grades and student rankings. Though my achievement abroad was still evaluated with grades, the student impact can differ as the two grading spectrums reflect the student differently (i.e. a “pass” is interpreted as satisfactory while the letter equivalent of a “B” often carries a connotation of lacking).

While demonstrating achievement is important, course structures and an emphasis on grades are impacting who students are becoming. Common byproducts of these structures are students who are anxious, non-collaborative, and hyper-focused on grades rather than learning course material for practical societal implementation. I believe that further investigating the unintended impacts of course design and teaching methods on students will be particularly helpful for educational developers as we discuss the future-ready graduate.

Ali Leota

One of the greatest treasures a student holds is the stories and knowledge of the cultures they bring with them along their educational journeys. As a proud Pacific young person navigating the world of academia, I want to help shift away from the deficit narratives of Pacific people by sharing our indigenous practices to benefit all people.

When I reflect on my Samoan culture we are often guided by the proverb, "*o le ala i le pule o le tautua* —the pathway to leadership is through service." The future-ready graduate is someone who is ready to take up the challenge to serve by utilising their education experiences as a tool to support their family and give back to their community.

A future-ready graduate is able to bridge communities together and collectively build foundations to ensure future generations can thrive and be confident. Being future-ready is about getting involved and using education as a lens through which to understand and explain our histories – all of our histories, not just those of the dominant cultures. A student that is proud of their identity, and is able to weave this with their learning environment truly is the future-ready graduate.

Goitsione Mokou

I am particularly interested in the future-ready graduate within the context of the Global South, with special regard for the Global South as a place from which to make meaning. The future-ready graduate within this context is appreciative of the rich meaning making activities within their own communities, working with communities as co-creators of knowledge; towards social transformation.

Within the context of the colonial university, the future-ready graduate in the Global South is necessarily committed to decolonisation and epistemic justice. They are committed to working towards contextually relevant research and theorisation of both local and global phenomena and, more importantly, to working toward healing those communities who remain dis-membered by colonial slaughter and other equally gruesome discursive practices within the disciplines of the colonial university. Working from within the zone-of-nonbeing, they necessarily disrupt.

This future-ready graduate cares deeply about the world and the relationships between their own field, practices and technologies, and the lives of the communities which inform or otherwise benefit from them (or not). With an orientation towards Being, they possess an earnest respect for all humanity and the whole being of the person (mind, body and soul). They in themselves and in their practice are not divorced from the body and the soul, and so reject the mind-body split.

The future-ready graduate within the context of the Global South ought to be able to use technology in a manner which seeks to re-member, reconciling the mechanical and the cognitive by centring Being and the becoming of persons and communities.

In conclusion

While much progress has been made by way of technological advancement in establishing networks and communities across the geopolitical landscape towards an imagined global community, this progress has not been able to quell the growing inequality in and vulnerability of our world. We find ourselves in a global community characterised by difference. Beyond the markers of difference which are influenced by our varying localities and questions of identity, there is a marked difference in our access to and ability to participate in this global community.

The future-ready graduate is entering into an unequal space where the power relations are skewed towards maintaining the interests (and inherent practices) of those who uphold/occupy the status quo. In imagining the future-ready graduate it is important that we bear in mind that there is no singular ideal, and neither is it necessarily desirable. Equity need not mean sameness; in the same way that the imagining of that which is global need not mean the negation of the local.

The future-ready graduate is also entering into a vulnerable space. Not only is the planet in the balance but the contemporary age of colonial modernity realised through the discourses of a white supremacist capitalist patriarchy (that is, racialisation and industrialisation) has raged a perpetual war against those deemed not white, not male. Genocide and epistemicide along with brutal practices of industrialisation have stripped earth and flesh.

Equity, service and re-imagined relationships with earth and flesh are some of the key sites of engagement when we imagine the graduates of the future. More needs to be done to provide access and resources to underprivileged students. A more radical approach is necessary: one that is informed by an inclusive, rather than a deficit model. Equitable pedagogies, radical shifts in policy and a decolonial orientation to the academy are a few examples of what is needed to imagine an academy and a world beyond colonial modernity, a future unlike our present.

A deliberate effort to bridge the gap between the academy and broader society are also important. Graduates need to be innovative in using their acquired and experiential knowledge to work meaningfully within communities. It also empowers communities to be agentic in deploying their knowledges and experiences in addressing present issues and imagining a different future.

Sustainability and practices that are good for the environment are chief concerns for our future-ready graduates.

This will all require a disruption of the current values and practices of the western academy. While cognitive skills remain important in realising disciplinary discursive practices, emphasis on the affective skills is necessary in allowing us to begin to meaningfully and critically engage those values and practices which have contributed to our present realities.

ICED 2020 proceedings: The ICED 2020 interdisciplinary panel discussion

Geneviève Feraud[1]

United Nations Conference on Trade and Development (UNCTAD)
1211 Geneva, Switzerland

Simon Henein[2], **Roland Tormey**[3]

Ecole polytechnique fédérale de Lausanne (EPFL)
1015 Lausanne, Switzerland

Abstract

The ICED interdisciplinary panel brought together two international leaders from industry and academia – Geneviève Feraud and Simon Henein – to discuss what the future-ready graduate is, and what changes are needed if higher education is to rise to the challenge of educating the future-ready graduate. They discuss the ways in which globalisation, digitalisation and changing modes of knowledge production challenge traditional approaches to university education. They identify what this means for students, universities and faculty development.

1 Introduction

The ICED interdisciplinary panel brought together two internationally recognised leaders from industry and academia – Geneviève Feraud and Simon Henein – to discuss what the future ready graduate is and what changes are needed if higher education is to rise to the challenge of educating the future-ready graduate. Their discussion is presented here in the form of an interview conducted, transcribed and edited by Roland Tormey.

2 What is the future-ready graduate?

Roland Tormey: From what perspective do you approach the question of "what is the future ready graduate?"

Geneviève Feraud: My PhD was in Business Administration with a focus on the use of technology in business administration. I did one postdoc at London Business School and one at Harvard Business School, and I spent ten years working in banking – I was Chief Information Officer for a large French bank. Then I moved to academia, where I taught on technology in business administration. I've now been at the UN for almost twenty years, where I am focused on capacity-building, education and technology, and now specifically looking at developing countries and how we can help them.

When you say the future-ready graduate I ask, "what does it mean to be ready?". The "future-ready graduate" is, for me, someone who is "ready to be ready": the current pandemic has, in a few months, dramatically changed our perspective and we know that the future-ready graduate will need to have a very solid basis of skills, but what she or he needs to master is

[1] genevieve.feraud@unctad.org
[2] simon.henein@epfl.ch
[3] roland.tormey@epfl.ch

the ability to constantly adapt. For me, instead of "readiness" I would prefer words like "adaptability" or "agility": the possibility to understand that we are now in a world of turbulence. We are not in a situation of certainty, and have moved beyond uncertainty – we have reached a situation of "partial ignorance", where we cannot even predict what the risks are, nor calculate their probability. So for me the future-ready graduate is someone who will have the "soft" skills that will enable her or him to adapt.

RT: Simon, you've been working on the idea of the "body/mind split" in higher education.

Simon Henein: Yes, I've been working on this in collaboration with some colleagues in psychology and education at the University of Neuchâtel. I teach micro-engineering at EPFL – more specifically, I teach second-year students how to design mechanisms. This is one side; the other side of my teaching is more artistic and in the field of humanities. I started an elective class for Master's students about three years ago called "improgineering", which is about using improvisation from performing arts like dance, music and drama as a tool to discuss the collective process of creating something in engineering. With my colleagues in Neuchâtel, we've been looking at the writings in the form of learning or reflexive diaries which emerge from students taking this course. One of the striking things they write is about the role of the body in the learning process. The body plays a central role in what they experience, what they learn and what they remember. It is a means to connect what they learn to their past history; if they can remember things they have physically lived in the past and connect them to things they are experiencing physically in the present, it allows them to bring the knowledge into their own lives – it is no longer something external to them, but internal. And it is also a means to connect to others. They connect to the body of the professor, to their colleagues, so it is a collective network of embodied people; the group emerges from the bodily connections. This is what emerges from the students' texts. So it is really interesting how the body seems to be central to the learning process. And this is quite different from the traditional notion – going back to Descartes – that the mind lives on its own and just needs the body to allow it to be transported from place to place. And universities have largely followed this track, which says that the body is really secondary, or even an obstacle: we can forget about the body – just sit on a chair during your classes; you can go jogging afterwards. Universities tend to invisibilize the bodies of students and teachers and thus miss fundamental aspects of learning and teaching processes.

3 For what future should they be ready?

RT: Can I project us into the future and ask about the future our students will live in? One way of looking at potential futures is to look at current trends and project them into the future. Since 2006, the World Economic Forum has produced a Global Gender Gap Report, which includes data on the economic power gap between women and men. At current rates of change, the global economic gap between men and women will not be closed until the year 2277(!) Of course, I take gender inequalities as just one example of inequalities: in recent times, for example, there has been a great deal of focus on the "Black Lives Matter" movement. From your perspective, what skills do our graduates need in a world that has been and may continue to be characterised by such inequalities?

GF: I think that the first thing is that they need to be aware of it. This is not always the case. What often strikes me when I interact with Western graduates – European and North American – is that they may not be totally aware of the situation worldwide. This applies to inequalities which exist and in many cases are getting worse, but also to issues like global warming. In Western countries we are able to protect ourselves more or less from such impacts, but in the rest of the world that is not always the case. Some countries, some islands, will disappear with the rise in ocean water levels – we already know that.

There is another important issue: the types of job and work graduates will have. The nature of jobs is changing. There might be a growing inequality between some people who will be able to have interesting, highly skilled work, and others who will have difficult work at a very low skill level if they have a job at all. Alongside this is the growth in the informal economy and its impact on lives and economies.

Graduates will need curiosity. They will need to be able to go beyond what they see in front of them – if they are to see the reality. Because reality is quite different from what many graduates can perceive. I'm always surprised when I see graduates coming from different parts of the world, to see that they have many different representations of reality. But we can use that. When we show students, for example, the divide in digital access between Europe and the least developed countries, they are very surprised. We can use this ability to be surprised to help them become more and more open.

SH: I think it is a question of "feeling the other". If you don't feel the other then you can leave him or her to suffer without acting. It is a question of perceiving the other as a person. The question is how to make this happen.

The idea of getting students to go abroad to study is fantastic, because there is no way to see the other as a person by staying where you are. But even there, once you are in a different country with a different culture it is not easy to enter that culture. I grew up in Egypt – I spent the first eighteen years of my life in Cairo – and I think people totally underestimate the huge distance between cultures. You only become aware of it by going there and entering it, which is difficult. It is really easy to go somewhere and still "stay where you are". It is not enough to go somewhere: you have to meet people, interact, share a bedroom, a house, a meal. And it takes time. And here we go back to the skills required to be able to meet and interact with other people. And once you do that, you will not be able to live with inequality as it is. You will have a very strong drive, once you feel the person. Otherwise there is not an internal incentive. If it is just an external intellectual motivation then it won't drive me. But if I see the person and if I feel the person, then I will have a drive that I cannot stop. I will suffer if I don't do something. So I would bring the issue back to a person-to-person connection.

4 How can higher education prepare them for this?

RT: Does this mean study abroad needs to become a normal part of all university education? Because not all countries have normalized that practice: in the US, for example, about 20% of social science and business students study abroad, but as few as 3% of engineering students study abroad.

GF: Yes, but going abroad is not enough. If you send a student abroad and she or he is going to work with students who are effectively from the same culture and who study in a similar way, then that it not enough. I think that graduates should be taught how to solve problems together with people from other cultures. As we see more and more problem-solving in education, it is important to solve them together with people from other cultures. Exactly for the reasons Simon explained: in a multicultural team, you will see that people do not see problems in the same way and that they don't solve problems in the same way. And that difference makes teams very effective. At the UN we have tons of stories of people coming from totally different cultures and being extremely efficient together. Our world is becoming increasingly complex. And you know the law that says a control system needs to have the same level of complexity as the system it regulates: you need to have complex teams to be able to solve complex problems. As a manager, I have often observed that multicultural teams are very effective.

SH: I think part of the problem is that we are stressing the students. If you ask students what their lives are like, you'll generally hear that they are in such stress from the very beginning

that they have no room to address any of the central issues we are discussing here, except perhaps with societies, clubs, and their friends. It appears that the university is not helping that; it is blocking it. The students speak about "alienation". Things that we don't want in their professional lives, we are already building in during their student lives. They say it was better when they were younger. They entered university and it stopped – it killed those possibilities. I think we are squeezing them. That is maybe good in that they learn more stuff, but it is harder to keep that alive now than before. I say "keep alive" because that is the term that students use. And we are actively destroying it. We don't want to destroy it, but that is what we are often doing. I read this in the writings of my students – so this is not just my perspective.

What I am trying with my improgineering course is to propose something concrete that is an example of what is possible. Indeed, we first need to realise that it is possible to do something. Often if university teachers find some of their students intellectually bright but asocial, they will live with it and either say they were born as they are, or that this was the responsibility of their parents or school teachers. So we should realise first that it is something that you can maybe not "teach" but you can "work on" at the university. Once you trust that, you look for teachers who have the skills to make evolution happen. And that requires guts, because it is new; you are crossing many borders; you are doing things that are not "normal": so I teach barefoot, I dance with my students. It is not normal for an engineering professor, it shocks you yourself, it shocks people who look at it. But the shock doesn't last long. Maybe a couple of weeks – you have to accept that and then everyone forgets about it and you can focus on the ongoing transformations. We are blocked for cultural reasons, and we can unlock some of these blockages easily if we dare.

So I don't have answers, but I have an example: improgineering could be taken as a reference for other initiatives. I've met others who are using the same fractures in the system to allow the flowers to come up. It is possible to make it happen especially as the demand is strong from both ends: from the students and from the industrial fabric, as you're consistently hearing from Geneviève and me today.

GF: If I were in charge of developing higher education, I would dream of a fine-tuned balance between technology and humanity. I would teach my students Artificial Intelligence and Emotional Intelligence with the same level of importance and the same level of mastery. In the future the graduates will need to master the digital world, but they will need to balance and mitigate that. When you look at higher education systems in the world today, most of them are heavily characterised: either you are an engineer or a scientist, in which case you may know little about sociology, psychology, philosophy for example – or vice-versa. This dichotomy should disappear. All graduates need to be able to at least understand both sides. Which is why I'm so interested in Simon using theatre techniques with engineering students, because we need a higher education system which has fewer silos and more balance in terms of the knowledge and ability to think that students acquire.

SH: I think, yes, we have so much new knowledge and we want it to grow. But it is like a tree: as the branches of computational thinking and digital knowledge grow, we need to grow the roots of "embodied" thinking. In a digital world – especially now during the pandemic – we have become increasingly disembodied. We are talking but I can't see how you walked into the room, so I need something to compensate for that. We need to bring some balance.

5 What supports do higher education teachers need to achieve this?

RT: Simon, you talk about teachers being willing to be uncomfortable. Geneviève, you talk about working with other disciplines and that is also uncomfortable for teachers because it pushes them outside their comfort zones. So I'm wondering if part of the challenge we have is a teacher development challenge – we need to help teachers become better at being uncomfortable.

SH: We don't learn knowledge, or a domain; we learn a person. For me, as a student I can substitute the name of the course with the name of the professor: I didn't just learn "Optics", I learned "Dändliker", who was the professor who taught that course at EPFL. I absorbed the teacher when I learned. So it is about a relationship with someone: learning is a relationship. This would be one element to prioritise.

For teachers, it is important to bring some of their particular personal lives as a professional into their teaching. To bring more of their passions into their teaching. That is a second element.

And thirdly, as students study, they should realise that that they can be a source of knowledge. We don't want them to learn; we want them to produce knowledge. We should start that from the beginning. To do so, the professor should be in a position where she or he is producing knowledge and learning, and then the students mirror this and learn and produce knowledge themselves. So instead of dropping knowledge from above onto students, you put yourself in a learning situation, you put yourself at your own limits and you let the students watch you searching and learning. Of course, your limits aren't theirs because you are older and more experienced, but they see you learning and this creates a very different relationship. You become peers. The only difference is the greying colour of your hair, but otherwise you are peers and you are doing the same thing, each according to their own limits.

And then a last thing: in order to make them realise that they are a source of knowledge, what they produce should have a cultural impact. So if you do with your students things that you will then produce for the outside world – it can be a book, a video, an exhibition, a performance, anything visible – then they realise that what they do has a cultural significance. If you show them that, then they realise they are already in interaction with the world. It is no longer "I study, then I have a job". They are already doing things that impact on society. It is no longer that they are just doing a set of exercises which will be read by no-one except a teaching assistant. Now what they are doing will be seen by the world, will be in interaction with the world – and they will have feedback from the world.

GF: Of course this might make the teacher uncomfortable, but knowledge creation is a co-production, knowledge creation is a conversation. The status of knowledge itself is changing dramatically. The conditions of the production of knowledge have already changed. When I was doing my PhD the way in which knowledge was produced is very different than today: for example, big data has changed the way in which scientific knowledge is produced. So the old idea of "owning" knowledge is not a source of authority anymore. What is a source of authority is being able to understand how knowledge is produced.

Maybe it also depends on where the authority of the teacher comes from. I have spent part of my life being a teacher and part being a manager. Where does your authority come from? In both situations the answer is the same: it comes from the fact that people trust you. And you know that students can accept the fact that you just don't know, providing you are sincere and transparent, and you can work together to find the solution. So I think that – as the production of knowledge changes – teachers will lose their position of authority based on their substantive knowledge and will gain a position of authority, or respect, from being able to say "I don't know, it is changing, and we are going to find together what we can do."

SH: Some teachers want to stay on their podiums – a posture which can actually be reinforced by students feeling comfortable and reassured by having a source to follow. But, as a teacher, if you step down they may step up; I am convinced they do. Once you step down, they rise. Once you trigger this, it is fantastic. And then you disappear a bit as a teacher, which is good. Maybe today students don't need the teacher who knew the truth about electromechanics or optics anymore, because there is a lot they can learn on their own by digital means; maybe what they need is someone who can create a frame in which they can rise, express and make things their own.

RT: There is a huge amount to think about in what we've just discussed. What would be your final words, to conclude this interview?

GF: I also think that graduates – whatever they want to do after university – need to have experience in both the private sector and in the public sector. I think it is fine if there is a very bright engineer who wants to work in a high-tech company, but I also think that this person will be advantaged if they understand the challenges being faced by a farmer in a developing country. The gap between the private and public spheres is disappearing and students need to be able to look at things from different perspectives. To take the example of digital identity: to understand this, we need to understand both the private sector interest in making a profit and the policy and rights challenges. I would also say that for our graduates, we need a tighter blend: between a very strong disciplinary knowledge, and at the same time have a fine sensitivity, for example, to ethics, and an understanding of humanities at large; we need that combination.

SH: Like Geneviève at the beginning of our interview, I wondered about the title: the "future-ready graduate"; I would favour the "resilient graduate" as an alternative title, as it addresses both our present vulnerability as well as our future. From an engineering point of view, resilience is a complex and powerful concept. If you look at what it means for a bridge or a city to be resilient, you will find all the things we need to develop in our students. If we make them resilient it will be helpful for them as individuals, but also for society. The term is also key in psychology and this is strongly relevant. It calls for returning to the forging of students as a whole person as a central responsibility of universities, far beyond traditional knowledge and skills transmission.

Diversity and the future-ready graduate

“My future is not your future.” Diverse groups have differing educational needs and goals, and defining the term “future-ready graduate” requires us to reflect not only on technology but on factors such as gender, indigeneity, economic status and location. In some cases the role and meaning of education itself need discussion. How can our global community move into our shared future in ways that not only address future technological and economic needs, but also honour differences?

ICED 2020 proceedings:

Partnerships and career development learning: Creating equitable shared futures

Kylie Austin[1], Sarah O'Shea[2], Olivia Groves[3], Jodi Lamanna[4]

University of Wollongong
Wollongong, Australia

Abstract

Quality career guidance, or career development learning (CDL), has the potential to lessen the gap in educational and employment outcomes of students from different socioeconomic backgrounds, but current approaches to CDL have been criticised as being inadequate. This paper explores the role that multi-stakeholder partnerships can play in providing access to career skills, knowledge and experiences for students from all backgrounds that enables them to achieve their educational goals and position themselves as tomorrow's "future-ready" graduates. Drawing on interviews and qualitative surveys with students, parents and key stakeholders in Australian career development, we explore the benefits and challenges of linear partnership models and make recommendations for more holistic approaches.

1 Introduction

The world of work is changing rapidly. These changes are variously perceived to result from globalisation, artificial intelligence and technology (Education Council, 2019; FYA, 2018; OECD, 2016; Torii, 2018). These transformations mean that the future-ready graduate must have the career development and employability skills to navigate a novel work reality as well as the work experience, knowledge and attitudes that employers seek. Traditionally, shifts in skills demands have disproportionately affected workers with lower levels of education, and the rewards of the work reality that are approaching are unlikely to be bestowed evenly among the workforce (Torii, 2018).

Quality career guidance, or career development learning (CDL), has the potential to lessen the gap in educational and employment outcomes of students from different socioeconomic backgrounds (Australian Government, 2013; Bajada & Trayler, 2014). CDL is defined as "learning about the content and process of career development or life/career management" (McMahon, Patton, & Tatham, 2003, p. 6), an activity that may be fostered through appropriate and intentional career services and programmes. However, current approaches to CDL in some countries, including Australia, NZ, the UK and the US, have been criticised as being inadequate (Brown, 2015; Economic Education Jobs and Skills Committee, 2018; Moote & Archer, 2018; Yates & Bruce, 2017). Identified problems which can impact access and quality of career education include resourcing; teacher qualifications, knowledge, and attitudes; equity; and regulation (Andrews & Hooley, 2017; Economic Education Jobs and Skills Committee, 2018; Yates & Bruce, 2017).

Innovative models of partnership between schools, tertiary providers and industry are well positioned to offer equitable, integrated and relevant CDL for diverse groups of students. Partnership activities aim to broaden students' understanding of the world of work and enrich

[1] kaustin@uow.edu.au
[2] sarah.oshea@curtin.edu.au
[3] ogroves@uow.edu.au
[4] jlamanna@uow.edu.au

school learning through creating concrete experiences that help to develop career aspirations and an understanding of pathway options (Torii, 2018, p. vi). This is particularly important for young people from low socioeconomic (LSES) backgrounds who may not have ready access to the social networks often needed for future employment opportunities (Torii, 2018).

The aim of this paper is to outline the ways in which partnerships can best support the CDL of students from LSES backgrounds. The following section provides a brief overview of the study from which the findings were developed.

2 The study

This research was conducted in Australia in 2019-2020 as part of the project "Higher Education career advice for students from LSES backgrounds". The aim of the research was to understand how school-embedded models of CDL provision could be expanded beyond traditional modes such as help from career advisers and counsellors. This would inform a set of best practice principles and a guide to partnerships (Austin, O'Shea, Groves, & Lamanna, 2020) which could be used across the sector to improve CDL for students from diverse backgrounds.

Amongst other activities, the project collected data in the form of qualitative surveys and in-depth interviews, involving 125 university students and parents of young people from LSES backgrounds as well as key stakeholders in Australian career development.

3 Findings

This section explores the benefits and challenges of a model of partnership work that emerged as prominent in schools which cater to students from low socioeconomic backgrounds, and then offers recommendations for a more effective approach.

3.1 School driven CDL partnerships with individual partners

The primary approach to CDL partnerships revealed in this study was what we are describing as a "hub and spoke" model – that is, a model which had the school at the centre of the partnership and universities, non-for-profit organisations, vocational education providers, government agencies and industry as individual stakeholders connecting linearly with the school.

An advantage of this approach was increased exposure to authentic CDL opportunities beyond the school environment which provided students with experience, familiarity and the development of a sense of belonging in, for example, university life. Such experiences largely helped students to conceive that *"…university… is for them, and it's not just for certain students who traditionally have accessed higher education"* (Joseph, University Outreach Coordinator). School career advisers concurred, one of whom explained how this exposure assisted in getting students "…*out there*….[so they think] *'Oh yeah, I could do this*'" (Nicola, School Career Adviser).

Furthermore, a number of participants in the study, including classroom teachers and career advisors, identified how partnerships allowed each school to achieve more than they could in isolation and maximised available resourcing. The organisation of work experience was repeatedly offered as one key challenge in terms of workload, as Tia, a School Careers Adviser, highlighted:

> …*teachers don't have time to go out and engage with businesses but we know the businesses don't have time to engage with multiple schools or multiple teachers at the same time. So, it's an area that really needs dedicated resources*. (Tia, School Careers Adviser)

Whilst it is acknowledged that CDL is under-resourced in schools, partnerships with other organisations can result in dedicated resources to enhance the CDL opportunities on offer to students.

However, whilst affording opportunities for students to experience authentic CDL, the "hub and spoke" partnership model can lead to narrow insights about particular pathways or professions. This approach occurs when schools only partner with a limited number of tertiary education providers or industry contacts, rather than taking advantage of the full spectrum of opportunities available. Cheryl, a School Careers Adviser, described the difficulty that she had in engaging with all of the stakeholders in the local community:

> *…council down here don't do very much at all as a careers network… it is very difficult to actually engage a lot with industry down here because the industries that are here are not suitable for students at high school level*. (Cheryl, School Career Adviser)

Therefore, whilst individual partnerships exposed students to opportunities outside of the school environment, student exposure to a wide range of pathways and professions was limited and dependent upon the individual career adviser's ability to engage with those stakeholders and/or the willingness of the stakeholders to engage with certain schools.

Indeed, "hub and spoke" partnership models rely on the professional network of the individual career adviser to develop relationships with various stakeholders. Bianca, a Career Adviser, described how she had contacts "…*that are specific to various racial groups – Aboriginal contacts and if we had females, I know that there's a lot of female contacts out there for trade"* (Bianca, School Career Adviser). Career Advisers described how their contacts actively "tap their school on the shoulder" for CDL opportunities. *"[I] often get phone calls from local employers saying 'you got anybody who wants'….*" (Michael, School Career Adviser). Therefore, access to CDL opportunities largely relied upon the social capital and networks of the career adviser, rather than a purposeful and coordinated approach to ensuring students had access to a wide range of CDL opportunities. Clearly, networks need to be more than linear individual to individual relationships, but "web-like" networks that expand the opportunities available to students (Putnam, 1993).

3.2 Recommendations

Drawn from analysis of the findings, a selection of recommendations are offered to increase the effectiveness of CDL provision through partnerships.

1. CDL should be provided as part of collaborative, multi-stakeholder partnership managed by a separate organisational entity who acts as a broker or pivot point.

2. CDL opportunities should be co-designed between stakeholders so that CDL opportunities can be tailored to the needs of student groups.

3. What "makes" a good partnership should be more clearly articulated to stakeholders including schools, industry bodies, universities, community bodies and other providers to guide the development and implementation of CDL partnerships.

4 Conclusions

Partnerships can increase opportunities for students and their parents to access information and experiences, tailored to aspirations and needs at critical moments in their educational journeys. Multi-stakeholder "whole of community" partnerships provide increased opportunities for students to explore "career clusters" rather than specific pathways or professions and do

not rely on the social capital and networks of individual career advisers. By undertaking "whole of community" multi-stakeholder approaches to CDL partnerships, CDL can be tailored to the needs of the local region and reflect the differing needs and goals of diverse learners. Through establishing separate organisational entities, such as regional education centres, to act as a pivot point or broker for multi-stakeholder partnerships, they are able to coordinate partnerships across universities, industry and vocational education providers to present schools with a multi-stakeholder partnership model. This approach to partnerships provides a strong foundation for students to achieve their educational goals and position themselves as tomorrow's "future-ready" graduates.

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ICED 2020 proceedings:

How does Université Paris-Saclay support pedagogical transformation and innovation to prepare for the future of education?

Isabelle Bournaud[1]

Project manager, Educational Initiatives and Innovations, Université Paris-Saclay
Associate Professor, Université Paris-Saclay
France

Lionel Husson[2]

Project manager, Educational Initiatives and Innovations, Université Paris-Saclay
Professor, Université Paris-Saclay, CentraleSupélec
France

Valérie Camel[3]

Project manager, Educational Initiatives and Innovations, Université Paris-Saclay
Professor, Université Paris-Saclay, AgroParisTech
France

Elisabeth Dufour-Gergam[4]

Director, Education Department, Université Paris-Saclay
Professor, Université Paris-Saclay
France

Abstract

The Université Paris-Saclay integrates in its strategic plan the importance of supporting pedagogical transformation and innovations aimed at the continuous improvement of education and training, student success and actors in professional development.

Its Education Department is committed to a proactive policy of providing incentives through a range of complementary actions. For several years now, it has encouraged a collective dynamic in order, on the one hand, to offer times for inter-institutional sharing of these teaching experiences, and, on the other hand, to provide financial support for numerous transformative initiatives. It is also very dedicated to the dissemination and promotion of individual and collective successes related to pedagogy.

Several structuring actions are carried out to support pedagogical transformation: setting up a working group, creating a specific mission, allocating a budget, organising an annual pedagogical day and thematic workshops, supporting innovative projects, training for new teachers as soon as they are recruited, accompanying the deployment of the competency-based approach, creating a chair of action-research in pedagogy, communicating and publishing.

This paper (adapted from the original poster) focuses on the support of innovative projects.

[1] isabelle.bournaud@universite-paris-saclay.fr
[2] lionel.husson@universite-paris-saclay.fr
[3] valerie.camel@universite-paris-saclay.fr
[4] elisabeth.dufour-gergam@universite-paris-saclay.fr

1 Introduction

The Université Paris-Saclay (UPSaclay) integrates in its strategic plan the importance of supporting pedagogical transformation and innovations aimed at the continuous improvement of education and training, student success and actors in professional development. UPSaclay incorporates various institutions, a diversity of students, disciplines and curricula. The arrival of several of its institutions on the same site and its future Learning Center constitute an opportunity for questioning and rethinking our educational spaces in consideration of the processes of pedagogical transformation (De Ketele, 2010).

2 "Educational Initiatives" working group

In 2014, the Education Department of UPSaclay set up the "Educational Initiatives" working group, made up of institution representatives, in order to share experiences and teaching practices, and, in consultation with others, to launch various actions to initiate and support pedagogical transformation.

3 "Educational Initiatives and Innovations" Mission

In order to enable these actions to grow more widely, and to facilitate inter-institutional coordination, an "Educational Initiatives and Innovations" Mission attached to the Education Department was created in 2016, with a dedicated budget. It contributes to strategic orientation in terms of pedagogical transformation, the coordination of transversal actions and the animation of the community. It also organizes and coordinates calls for projects (CfP) that finance educational initiatives.

4 Annual pedagogical day and thematics workshops

The JIP (Journées Initiatives Pédagogiques: Days on Educational Initiatives) are organised every year in November. This event brings together all those involved in pedagogy: teachers, teacher-researchers, educational engineers, educational advisers, etc. The exchanges are based on a theme that is informed by the intervention of **international experts**, feedback and workshops to put the event into practice, as well as a pedagogical village that allows participants to discover pedagogical initiatives and projects, and to exchange with their promoters. Participation in this community of practice allows actors to develop through informal learning, and thus contributes to pedagogical transformation (Daele & Dumont, 2015).

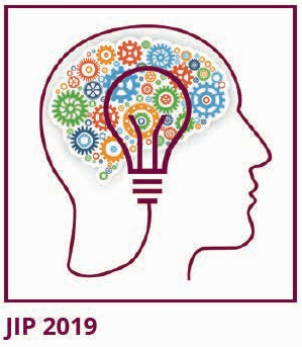

Figure 1: Illustration of the latest annual Pedagogical Day JIP 2019 (November 2019): ***Facilitating learning: I teach or I learn, I'm concerned!***

5 Calls for projects (CfP)

UPSaclay organizes annual or contextual calls for projects (CfP) that finance educational initiatives. Several types of project are supported, as illustrated in Table 1.

 *CfP "Dare"*	Supports pedagogical initiatives aimed at promoting student success or innovative pedagogical experiences that may or may not include digital technology.
 *CfP "Transform"*	Supports the implementation, deployment and/or appropriation of experimental pedagogical devices and the wider dissemination of projects successfully deployed on a small scale.
 *CfP "Innovative Labs"*	Supports projects for the creation or development of existing platforms for innovative labs.
 *CfP "Digital for Distance Learning"*	Supports the creation of distance learning systems that promote the success of students, of MOOC promoting the scientific expertise of the UPSaclay and of original MOOCs in terms of the pedagogical quality of the materials and/or the pedagogical approach chosen.
 *CfP "Educational Initiatives – Health"*	Supports educational initiatives in the context of health education reforms.

Table 1: Types of CfP on pedagogical projects

In five years, 137 projects have received financial support to a total amount of approximately €5 million. For each type of call and session, the selection process ensured an impartial and thorough review of the projects. The juries include experts (approximately 80 in total) and various actors involved in the educational transformation of institutions within UPSaclay.

These projects end with a report describing achievements and milestones. A feedback session is organized during the annual UPSaclay pedagogical day (JIP) to encourage spin-offs and the sharing of practices, as well as new initiatives. An external communication is also launched, with publication at the end of 2019 of the 1st volume of a series of booklets highlighting projects, and at the beginning of 2020 a posting on the UPSaclay website.

Figure 2: Cover of the booklet (first volume) promoting successful educational projects

Figure 3: Extract from the booklet showing key figures on project support

6 Other major actions

6.1 Training our new lecturers

The training system set up includes a training seminar on pedagogy and tutoring during the first year of operation. A shared training catalogue is also offered to all of the University's teachers and teacher-researchers. Improving our teachers' skills and sharing a common pedagogical culture is a key step towards pedagogical transformation (Lalle & Bonnafous, 2019).

6.2 Writing curricula according to the programme approach, competency-based approach

The aim is to bring the training providers into a reflexive posture with regard to the competency approach, and to take a significant step towards restructuring the training courses in this spirit. Supporting the deployment of project approaches, such as the implementation of the programme approach, is another key step towards pedagogical transformation (Loisel et Sulimovic, 2019).

6.3 Creating an action-research chair on pedagogical innovation

One of the objectives of the establishment of this chair is to enrich the transfer of research in educational sciences to pedagogical practices.

More information:

https://www.universite-paris-saclay.fr/formation/initiatives-et-innovations-pedagogiques

7 Conclusions

The institutional support of the University shows its major commitment to the pedagogical transformation strategy. It allows the development of a long-lasting dynamic which is essential for continuous improvement of education and training, the success of students and the professional development of those involved. It also provides the actors and the institution with the means to continue to develop and adapt to ever renewed challenges, including the major ones that the COVID crisis brings.

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ICED 2020 proceedings:

"You going to uni?": Imagining futures from the perspectives of regional students

Janine Delahunty[1]

National Centre for Student Equity in Higher Education, Curtin University
University of Wollongong
Northfields Avenue
Wollongong, NSW 2522, AUSTRALIA

Abstract

In Australia, only 20 percent of regional people in the 25 to 34 age range have a degree qualification. This is less than half the rate of their metropolitan counterparts (Taylor, 2019). While the number of regional students in higher education has increased steadily (NCSEHE, 2020), they are far more likely to withdraw. To understand factors contributing to early departure, this project sought to explore aspects of "being regional" from the perspectives of regional students themselves. They rarely lack motivation towards their hoped-for futures, yet often contend with equity-related challenges. "Possible selves" theory (Markus & Nurius, 1986) enabled focus on students' strengths and motivations, amidst the realities of educational disadvantage. Equitable educational achievement requires faculty development that responds to evidence-based understanding of the lived complexities of students.

1 Introduction

Early departure of regional students from university is concerning. There are wide-ranging ramifications, particularly for Australian regional communities, which make a formidable contribution to the national economy (Regional Australia Institute, 2017). This study focused on the complexities of university participation for regional students, to understand the phenomenon of early departure. Given the diversity and scope of regional areas in Australia, a one-size-fits all approach would not suffice, nor would "collective or mythic constructions of these environments" (O'Shea et al., 2019, p. 3). Thus, a national approach was needed to gain perspectives from a wide range of students from varying regional locations. This would provide more nuanced insights into student experience, which would then form the basis from which to develop targeted resources and retention strategies.

Given the broad diversity within the regional student body, it was important to take account of how students were working towards hoped-for futures, in the context of educational disadvantage. "Possible selves" theory was used, approached with an intersectionality lens on matters of equity.

2 Theoretical approach

"Possible selves" refers to how people conceive themselves in the future and take meaningful action towards their goals (Markus & Nurius, 1986). It focuses on the motivational effect of actions taken towards what is hoped for, as distinct from merely fantasy or dreams. A possible self may also include selves-to-avoid (e.g. me *not* in retail, me *not* as a labourer*)*, which can exert strong influence on the actions taken to avoid particular futures (Delahunty & O'Shea, 2020).

[1] janined@uow.edu.au

Intersectionality accounts for the multiple and compounding realities of disadvantage that reflect the circumstances of many regional students. Regional/remote location is one of six equity categories[2] in Australia as distance from major cities is recognised as a contributing factor to educational inequity. As well as regional/remote location, many regional people function within other equity groupings, so the influence of multiple disadvantage is not difficult to imagine. This often has a compounding effect that impacts upon educational opportunities and accomplishments. In addition, many students are the first in their families (and sometimes their communities) to attend university, so pursuing HE is often novel, even "alien".

3 Method

3.1 Data collection

The regional student voice was critical to this study. Student perspectives were explored using qualitative methods to draw out some of the complexities of HE participation. Preliminary findings from thematically analysed survey and interview data collected in the first round of data collection are presented here. Open questioning, informed by possible selves, was designed to elicit detailed responses on students' conceptions of their futures and aspects of their HE experience. The same questions were used for the survey and interview, with interviews enabling deeper exploration of ideas.

3.2 Participants

Students (n=55) from nine Australian universities participated, from across all discipline areas, age ranges (from 18 to over 51), stages of study and modes of delivery. 50 completed the survey and five were interviewed. From a list of ten demographic/equity indicators (HE equity categories plus others), and seven "other responsibilities", students were asked to select all that reflected their circumstances, with the option to comment or clarify if desired (Figure 1). The majority (n=51) chose more than two equity categories as well as other responsibilities. Four cases in Figure 2 give a sense of these complex realities.

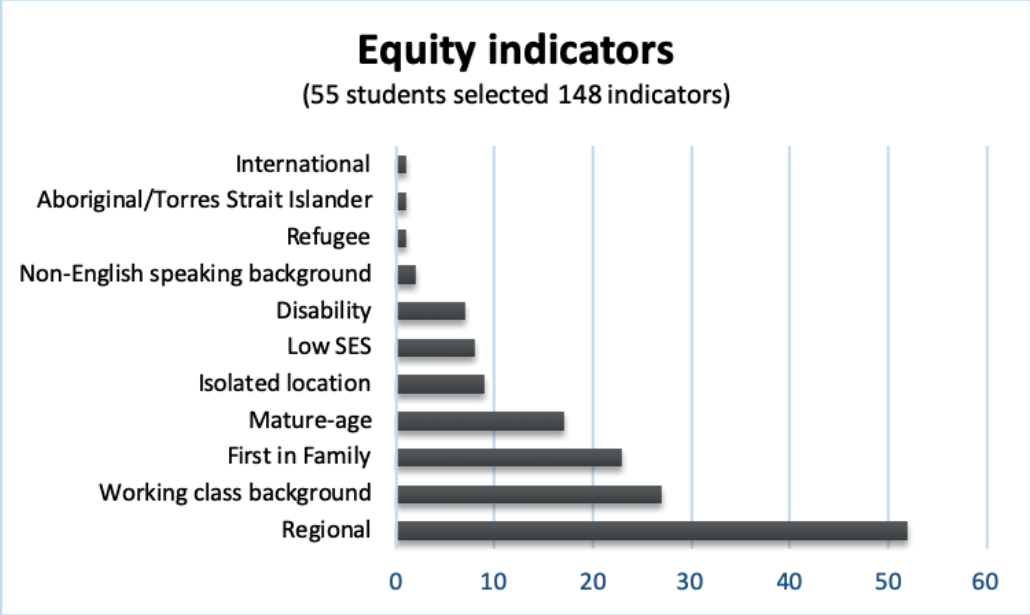

Figure 1: Self-selected equity indicators

[2] There are six HE equity categories in Australia: students from regional and remote locations; low socioeconomic locations; non-English speaking backgrounds; identifying as Aboriginal/Torres Strait Islander; with a disability; women in non-traditional areas.

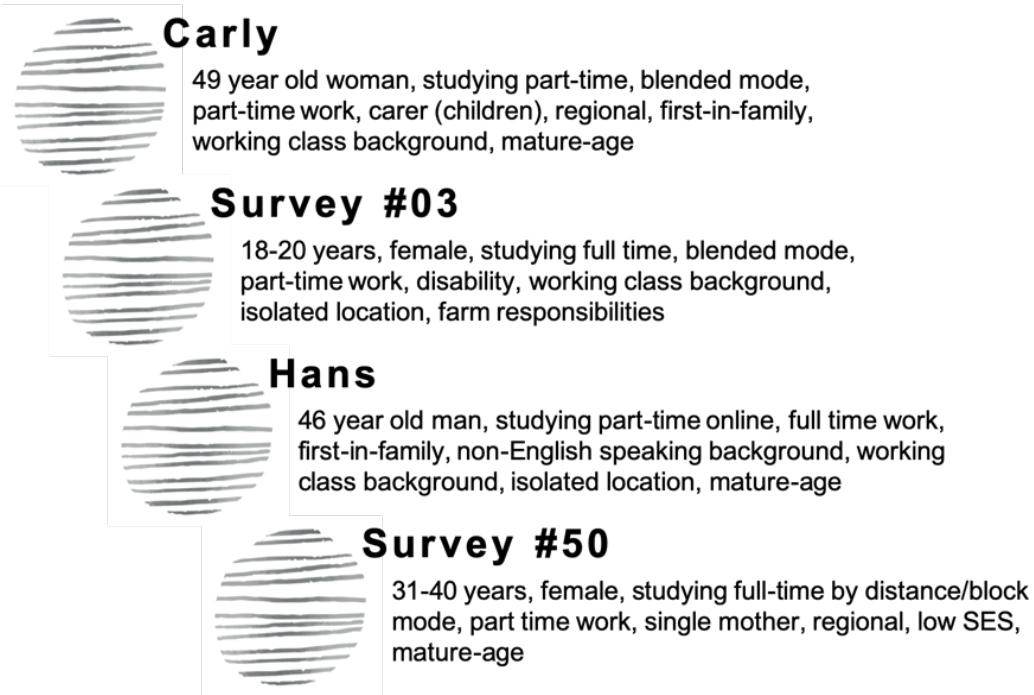

Figure 2: Four regional students: examples of complex realities

4 Complexities of university participation

Preliminary findings show that decision-making is multifaceted, and far from a simple yes/no response to *"You going to uni?*". Main themes included pragmatic decision-making (related to financial concerns, moving away, transport etc) as well as emotional concerns (such as social costs, sadness, excitement, as well as potential for new friendships/opportunities/experiences). Imagined futures often involved decisions to uproot, reimagine and readjust to unfamiliar life trajectories (Delahunty & O'Shea, 2020). Some decided to to remain in their communities; for others moving away was not an option. Decisions to study often involved choosing online courses or travelling long distances to campuses:

> *Travelling distance is a requirement…not everything is at your doorstep. (#21)*

The future selves that students were working towards ranged from broad conceptions in terms of contributing to their communities or society as a whole, to very specific goals:

> *I want to do something meaningful, help others, provide for family and leave them in a better position than I was. (#12)*

> *I want to become a psychologist to help people. I went through dark times myself and I know how much my psychologist helped me. (#20)*

Multiple complexities were revealed as students described their experience of university study alongside "everyday" normalities:

> *To be honest, it has been a bit difficult juggling the life of being a mum, income earner for my family, my community work + running around after a teenager, but I make it work. I no longer have a social life, and that is fine. In 2026, I get my life back. (#15)*

Feelings of guilt also peppered responses, particularly as students balanced commitment to study with other, often non-negotiable, responsibilities including sustaining relationships:

> *I feel some guilt about taking time out from my caring role in order to study. I also feel stressed sometimes trying to balance study and work and not spending enough time with my husband. (#19)*
>
> *The pressure that I put on myself of whether I'm being a good mum and good wife – that was probably my biggest concern. ("Chloe")*

These regional students clearly do not lack aspiration or goals for their future, thus non-completion needs to be understood around the complexity and emotionality of what going to university actually means.

5 Conclusions

This glimpse into the complexities of being a regional student is a brief, but compelling, testament to these students' tenacity and motivation. As students worked towards educational goals, this was often accompanied by other responsibilities and multiple challenges that could not be cast aside simply because they were at university. While institutional investment is essential, so also is faculty development. All must work together towards developing effective and equitable ways to support students from diverse backgrounds and help reduce the risk of early departure.

The effect of compounding disadvantage can only be *really* understood through asking students themselves about their experience and the kinds of support that have been most beneficial. Together with staff well-versed in best practices and relevant literature, this kind of first-hand understanding places faculty development in a far better position to (re)contextualise support and influence policy. Adapting, or adopting, strategies and best practice in teaching is more likely to be effective when authentically informed by those it is designed to support. Students' insights can be gathered in a number of ways and modes, limited only by the imagination. Other approaches which draw powerfully on the student voice, such as students-as-partners (Matthews, 2017), should also be considered.

While regional students bring qualities of determination and resilience, developed through life experience and work ethic, this is often an untapped resource in faculty development. Support which has had input from its beneficiaries will not only be relevant, but also give kudos to the value that such diversity brings.

Acknowledgements

I would like to thank the students who shared their experiences and perspectives so generously. The study was funded through my 2020 Equity Fellowship from National Centre for Student Equity in Higher Education.

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ICED 2020 proceedings:

Sharing the wisdom: Applying cycles of experiential learning to engage in cultural humility

Jane L. Fowler[1], Mark P. Lynch[2]

School of Human Services and Social Work, Griffith University
University Drive
Meadowbrook, Qld 4131, Australia

Abstract

This paper reflects on how teachers and students from different cultures engaged in a mutual process of learning in a post-graduate counselling program. Drawing on the work of Knowles (1990) and Kolb (1984), principles and cycles of adult and experiential learning were intentionally and explicitly applied to engage in cultural humility. As a result, an educational experience ensued whereby students became teachers and teachers became students as they collectively engaged in processes that enriched the learning of all involved.

1 Introduction

Papua New Guinea (PNG) is recognised as one of the most dangerous countries in the world to live in (Human Rights Watch, 2017). Gender-based, domestic, and intimate partner violence is commonplace. HIV/AIDS, drug and alcohol abuse, gambling and child abuse are rife. Yet, despite the prevalence of such severe individual and social problems, PNG is limited in its current ability to provide quality counselling services. Because only a small percentage of counselling practitioners in PNG have received specialised training, the majority lack core knowledge, skills and competencies and do not use therapeutic approaches in their work (DFAT, 2017).

One of several steps taken to address this problem was the introduction of a 12-month Graduate Certificate in Counselling (the program), specifically designed for a cohort of 25 PNG counsellors. The program was delivered in Queensland, Australia, over four intensive months of lectures, workshops, skills practice and site visits. The program was not only designed to develop and improve counselling knowledge, skills and competencies, but addressed current and prevalent social issues and challenges in PNG by including the most appropriate and relevant counselling theories and practices for those issues.

The higher education teachers that led the program had extensive experience and expertise in the design and delivery of counselling programs and in the application of the principles of experiential learning and teaching. Indeed, their typical approach to designing learning activities was based on the principles of adult learning and Kolb's (1984) experiential learning cycle, which places the learner's personal experience as central to the learning process (Kolb & Kolb, 2009). The program for PNG, however, tested and extended their typical approach to design and delivery. Indeed, their expertise in counselling (content) and experiential methods (process) had not previously been applied in such an unusual teaching and learning cultural context.

[1] j.fowler@griffith.edu.au
[2] mark.lynch@griffith.edu.au

Most literature on cultural diversity in the learning and teaching space falls into one of two categories: (1) students coming from different and various social and cultural backgrounds and joining in a dominant-culture classroom; or (2) teachers who have taken either a temporary or permanent overseas assignment (e.g., Hofstede, 1986). The situation reflected on here, however, presents a third and less typical cultural context, specifically a cohort of same-culture students who, as a single class, undertook a 12-month post-graduate program in another country. This cultural context, despite intensive preparation by designers and teachers, took the process of experiential learning to new levels.

As a result, an educational experience ensued whereby students became teachers and teachers became students as they mutually and collectively engaged in an exciting cycle of experiential learning and cultural humility.

2 Experiential learning and cultural humility – in theory

In their seminal article, Tervalon and Murray-Garcia (1998) explored cultural humility in the context of physician-patient relationships. They described cultural humility as the continual process of self-evaluation and self-critique of one's own cultural assumptions and behaviour, together with a lifelong commitment to engaging with and learning about other cultures in an endeavour to develop mutually beneficial partnerships with individuals and communities. The authors either directly mentioned, or implied, the importance of factors such as communication (and in particular listening) to understand what aspects of a particular culture are important at any given time; remaining other-oriented; bringing into check power imbalances; and developing respectful working relationships. Thus, cultural humility is an ongoing *process* of learning about culture/s, not an *outcome* or end point of having learned or developed competence in a particular culture.

Moving the context to teacher-student relationships, and particularly in an adult learning environment, Tervalon and Murray-Garcia's (1998) description of engaging in cultural humility has considerable similarities to engaging in experiential learning. Indeed, some of Knowles (1990) assumptions, on which Kolb's (1984) experiential learning cycle is based, are that learners are motivated and self-directed, reflective and self-critical, and practice-oriented; that they believe in the equality between teacher and learner; and that they like to be respected. These assumptions fit well with Tervalon and Murray-Garcia's cultural humility process involving self-evaluation and self-critique, lifelong commitment, bringing into check of power imbalances, and mutually respectful relationships.

Taking the analogy further, it seems plausible that Kolb's (1984) experiential learning cycle provides an ideal framework for purposefully and intentionally engaging in cultural humility. Kolb's model involves learners engaging in a four-stage cycle – engaging in an experience, reflecting on the experience, learning from the experience, and then applying their new learning to a new experience. Put simply, it is a cycle of doing, reviewing, thinking, and planning (before doing again). Like cultural humility, it is an ongoing process, rather than an outcome, of learning. Consequently, "teachers" and "learners" became engaged in explicit experiential learning cycles to engage with cultural humility.

3 Experiential learning and cultural humility – in practice

As teachers who are committed to the values and practices of experiential learning (see Section 2), we engaged in our typical practice of designing and delivering our courses by placing the learner's experience as central to the learning process (Kolb & Kolb, 2009). In practice, this played out by drawing on and applying the knowledge and experience of the PNG students to the counselling theories and skills we were teaching. For example, in teaching questioning techniques we would reflect on a particular counselling scenario experienced by a student in PNG and draw out the questioning techniques they had used, learn more about the principles of effective questioning, plan for how to use those techniques in the future, and

role-play the techniques for a new experience. We consider this to be experiential learning at a basic level. Through this process, students learned more about questioning techniques (as part of the curriculum) and teachers learned more about the application of questioning techniques in PNG, thus developing a deeper understanding of cultural nuances associated with particular counselling skills.

A further, and possibly higher-level, principle of adult and experiential learning is to engage in problem-centred approaches (Knowles, 1990). This played out in practice during the "struggles" on the part of students and teachers to integrate theory and practice in the PNG context. For example, when teaching how to facilitate a counselling session (through phases of developing rapport, hearing the story, prioritising and planning, and closing) students pointed out that they did not have time to do that in their counselling; that they often had "10 minutes to advise the client." We engaged in collaborative problem-solving, weighing the pros and cons of a well-structured counselling session and how that might be facilitated within the perceived and/or real confines of the PNG context. This was a deeper level of experiential learning through which students learned the importance of this concept for effective outcomes for their clients and teachers learned more about the individual and organisational challenges of counselling in PNG.

But the real experience in cultural humility was not about *what* we were learning and teaching, but *how* we were learning and teaching. On a daily basis, we reflected on and sought feedback from the students about the content and process of the program. Understanding the importance of and respect given to elders in the PNG culture, we engaged in dialogue with older students about their traditions and ways of learning and sharing wisdom. Understanding that cultural changes are taking place in PNG, we ensured that younger voices were heard and responded by adapting some of the pre-determined curricula to include topics that were identified as being currently and culturally relevant. We fostered a community of inquiry where questions asked by and of students and teachers, particularly in relation to culture, formed the basis of our learning. A deeper understanding of the PNG culture facilitated effective and respectful conversations, and vice versa (Chang, Simon, & Dong, 2012). And it was at this level of experientialism that we engaged in a deeper level of cultural humility.

4 Conclusions

This paper has presented an experience whereby the work of Knowles (1990) and Kolb (1984) were intentionally drawn on to engage in a process of learning and cultural humility. The key learning from this experience, for teachers and academic developers, is that curriculum design (content) and delivery (process) needs to be open to and flexible regarding the "experience in the room", particularly to the cultural knowledge and expertise of learners. Further, it is through this flexibility in both content and process that cultural differences are honoured and deep mutual learning can occur.

Acknowledgements

We thank all the students from whom we learned.

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ICED 2020 proceedings:

Future ready tutors: Articulating and evidencing tutoring skills for employment outside the university

Amanda Gilbert[1]

Centre for Academic Development, Victoria University of Wellington
PO Box 600, Wellington 6140, New Zealand

Bernadette Knewstubb[2]

Faculty of Education, Victoria University of Wellington
PO Box 600, Wellington 6140, New Zealand

Abstract

Many academics began their careers as tutors or teaching assistants, but the number of tutors working today mean that this is not a viable path for all. In this paper we describe a tool developed from a New Zealand funded project exploring "invisible attributes". We discuss how the tool, originally designed for students, might help tutors to explore and document skills and attributes gained through tutoring which might be applied in the wider workforce.

1 Introduction

In many universities, tutors take on the majority of small-group, face to face teaching, particularly in first-year classes where numbers are large. They lead small classes, deal with questions about study and assessment and help students to navigate the vagaries of the university's systems. Many tutors also deal with students who are experiencing hardship or who require personal support of some kind.

Our institution, a medium-sized New Zealand university, employs between 600 and 700 tutors annually. Many academics began their careers as tutors or teaching assistants, but numbers mean that an academic career is not viable for all tutors today. We have tracked the experiences of our tutors for many years and found that, though many aspire to an academic career, a large percentage have no intention to continue teaching (Sutherland and Gilbert, 2013). This has led us to consider ways in which we can help tutors to understand and document their experiences to enhance their future employability outside higher education.

Our training of tutors is founded on Boyer's (1990) notion of scholarship (Hall and Sutherland, 2013) supported by a values-based approach that focuses on respect, responsibility, fairness, integrity and empathy. This forms a good foundation for a career in academia, but we have argued that it also supports those who wish to take their careers in a different direction (Sutherland and Gilbert, 2013).

Tutors often report that tutoring leads to maturing of understanding in their disciplines and, subsequently, an improvement in grades. However, tutoring experience extends so much further than grades. It is these other skills, the interpersonal and unmeasurable aspects of tutoring, that we wish to encourage tutors to explore and document. In this paper we show how

[1] Amanda.Gilbert@vuw.ac.nz
[2] Bernadette.Knewstubb@vuw.ac.nz

the SEEN framework, a method for describing students' skills and attributes (Kensington-Miller et al, 2018), has been adapted to be applicable to tutors.

1.1 From invisible to SEEN

The SEEN framework was defined as part of a NZ funded project which focused on "invisible" attributes that students develop throughout their university careers (Kensington-Miller et al, 2018). Attributes are "invisible" in that they are not formally assessed and are difficult to measure or describe. The SEEN framework was applied in the creation of a tool that provides a structure for articulating skills that do not appear on university transcripts. It comprises four domains of description of the attribute: Specify, Explain, Embed and Nudge. Each domain is described in terms of aims/objectives, teaching or learning activities, and observable behaviours (see Figure 1).

Name of attribute	Learning objective	Teaching or learning activities	Observable behaviour
SPECIFY	What is an example of (A) in your discipline?	How do teachers develop (A)?	Can students identify an example of (A)?
EXPLAIN	What are the relevant features of (A)?	How do teachers help learners to understand (A)?	How do students describe (A)?
EMBED	How would a student be able to demonstrate (A) in the classroom?	How do teachers help learners to do (A)?	How do students demonstrate (A) in the classroom?
NUDGE	How might a student be able to apply (A) outside the classroom?	How do teachers help learners to apply (A) more generally?	How might students demonstrate (A) outside the classroom?

Figure 1: The SEEN Framework

The tool has been used with students to help them describe specific attributes they have developed, and with staff, both to identify their methods of teaching important attributes in their disciplines and to describe their own academic development in terms of attributes (Gilbert and Knewstubb, 2018). Tutors, many of whom are students who teach, sit between these two groups; attributes may arise from their teaching but are documented with respect to tutors' own development. We were interested to see how this would work in practice.

Completion of the tool relies on the identification of salient attributes. With teaching staff, this involves a discussion around their values based on an understanding of their disciplines. In the original project, academics and employers were interviewed about key disciplinary attributes. Identified attributes were often discipline specific, but similar attributes were evidenced in different ways (for example, cultural awareness in law and dance were described very differently). Elements of the framework were expanded on through reflection and discussion. The completed tool/framework provides a clear description of how an attribute was developed.

For students, the procedure is slightly different. Important attributes may be signalled to them either by teaching staff or prospective employers, or identified from their own reflections. In workshops with students, we have used a series of questions to help them identify valued attributes. Questioning addresses skills that they have already observed in themselves as well

as those they need to develop. Their reflections become the basis for completing a simplified version of the tool.

2 Describing tutors' attributes

Tutors develop a range of skills that will benefit them in other work environments. As with students, they need to reflect on their experiences and consider where and how the benefits might lie. In our workshops we begin by asking them to work in small groups to identify a skill or attribute that they believe helped them to become a tutor, and one that they have developed through their tutoring. We then ask them to reflect on how tutoring has changed them personally. Groups share ideas and we create a wordcloud using Mentimeter© to highlight common ideas and prompt further reflection. We then ask the tutors to focus on one attribute that is important to them and to complete questions based on the SEEN Framework (see Figure 2).

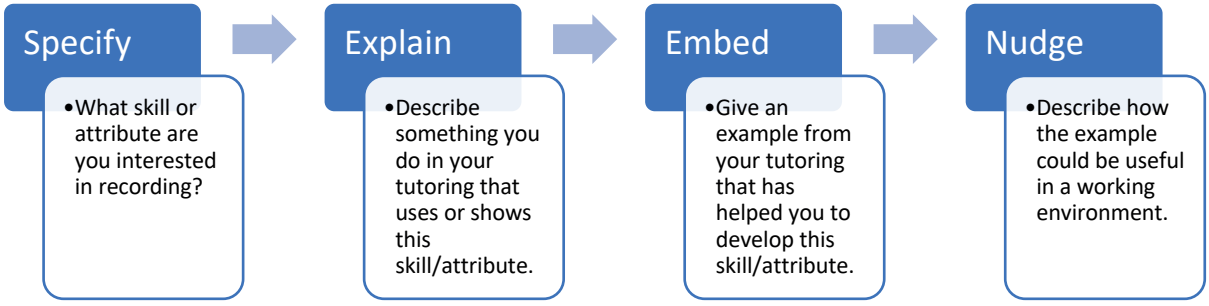

Figure 2: Questions enabling description and documentation of an attribute developed through tutoring

In the second part of the workshop we ask tutors to choose a different attribute, either from the wordcloud or from their own reflections, that they wish to focus on, and to answer further questions based on the SEEN framework (see Figure 3).

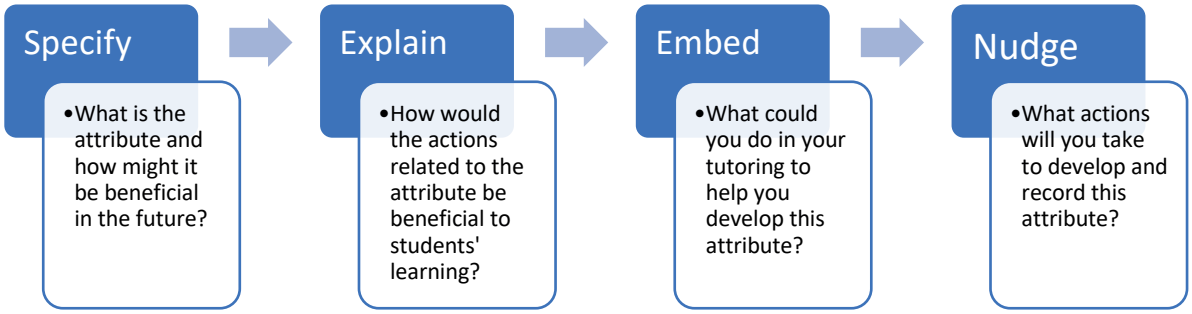

Figure 3: Identification and planning for an aspirational attribute.

3 Tutors' examples

The tool has been trialled in a series of workshops with tutors, usually in the context of a professional development day offered at our university. The following are examples of outcomes achieved during one of these workshops.

3.1 Accountability

Mirjam is a tutor in the Business School. She has been tutoring for some years and is considering entering a human resources position in a government department. She selected accountability as an important attribute developed during her time as a tutor. In explanation, she highlighted the importance of being accountable to her students to support them in their learning. She felt this was embedded in her tutoring by her providing information about expectations and discussing goals with her students as well as providing timely feedback to them about their progress. She considered this attribute to be important in her future employment as it related to trustworthiness and implied care and responsibility for others.

3.2 Resilience

Ben, a relatively inexperienced tutor, did not have a clear idea about his future employment goals but was clear that tutoring had made him more resilient. He related a story where a student questioned his judgement about an assessment topic and responded aggressively to his explanations. He described how he reflected on the situation and was able to resolve it without loss of face on either side. He believed his experience would help other students in future as he was able to model resilience to them. He chose to focus on resilience rather than conflict resolution because he wanted to focus on his own development and to draw attention to the strength he had drawn from managing the situation. He believed he was much better prepared to deal with any challenging situation as a result of his experience.

Overall, tutors recognized the importance of identifying and recording invisible attributes. For them, key attributes included resilience, versatility, collaboration and diversity awareness. Having the ability to explain how they came to develop these and to provide evidence supporting them is a vital part of acknowledging the value of tutoring as part of the university experience.

4 Conclusion

Our aim has been to help tutors begin the process of documenting attributes that they have developed or aspire to develop through their teaching which might be applied in future work. The SEEN framework is useful because it provides a clear structure for reflecting on and describing aspects of tutoring which can translate to other contexts. A resource for tutors that can be utilised as part of their professional development is currently being developed. We consider this to be an important part of our responsibility to prepare our tutors for a future either in universities or in the wider workforce.

Acknowledgements

We would like to acknowledge the original members of the “Invisible Attributes” Project.

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ICED 2020 proceedings:

Tutoring of young people with disabilities: Experiential learning that prepares tutors for an inclusive professional and civic perspective

Lionel Husson[1]

Professor, Disability Referee
CentraleSupélec, Université Paris-Saclay
France

Abstract

CentraleSupélec is a leading French engineering school which addresses disability with a global perspective and strategy. It has set up a mentoring programme for young people with disabilities. Its aims are multiple: to help disabled young people, through tutoring, to promote their access to higher education and their projection towards a professional project linked to their motivations; and to prepare CentraleSupélec students, as tutors, for diversity issues, while developing their adaptability, responsibility and managerial skills more generally.

In addition to fostering the satisfaction and progress of those tutored, the tutors' feedback and progress illustrate how the confrontation with disability changes their personal perspectives and prepares them to take into account this singularity in their professional lives.

1 Introduction

CentraleSupélec is a leading French engineering school which addresses disability with a global perspective and strategy. CentraleSupélec supports people with disabilities, both students and staff. In accordance with our values and the goals of economic and human progress, CentraleSupélec sets up initiatives to support the inclusion and improvement of people's conditions, and the professional integration of people with disabilities.

The Disability Mission is coordinated by the Disability Referee, who is responsible for a global strategy of commitment and action. Its main missions are:

- Facilitate the transition to school for students with disabilities.
- Propose pedagogical devices that can transmit to all pupils an aspiration to advance society on the issue of disability.
- Participate in a culture of equal opportunities and inclusion through awareness-raising activities for both students and staff.
- Promote the consideration of disability as a subject for training and research.

This paper presents a specific initiative: the tutoring of young people with disabilities, its objectives, how it works, what is at stake for the tutors, and the benefits it brings.

[1] Lionel.Husson@centralesupelec.fr

2 Access to education and employment for persons with disabilities

In France, less than 3% of people with disabilities succeed in obtaining a graduate degree or higher diploma. This situation is the result of several factors, which include psychological and cultural obstacles; self-censorship; a privileged orientation towards short professionalizing courses; and others.

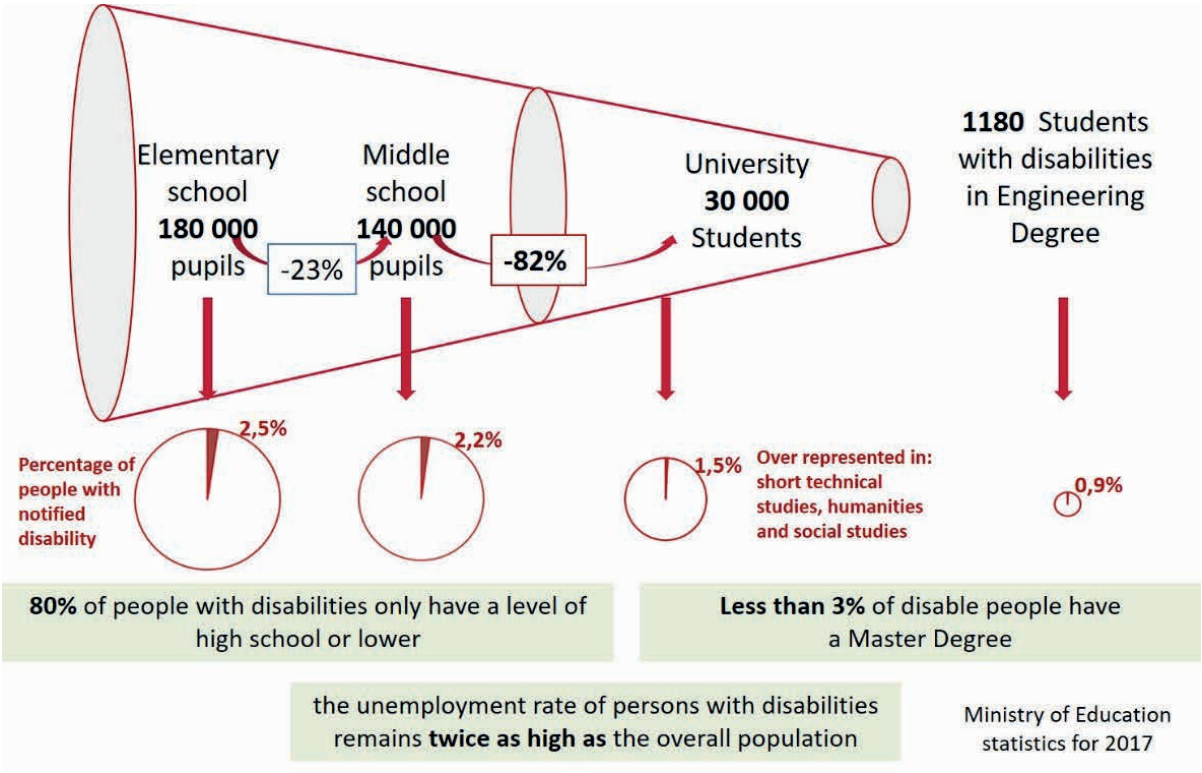

Figure 1: Access to education and employment for people with disabilities

3 Tutoring program

Since 2013, CentraleSupélec has run a tutoring programme for young people with disabilities. Its aims are multiple: to help disabled young people (middle school, high school or university students), through tutoring, to promote their access to higher education and their projection towards a professional project linked to their motivations, and to prepare CentraleSupélec students, as tutors, for diversity issues, while developing their adaptability, responsibility and managerial skills more generally.

The programme runs weekly throughout the school year, in the form of either individual tutoring or group personal development sessions. The tutors are educated regarding disability and trained in coaching (hybrid training and role-playing), and are accompanied (by referees and experts) throughout the school year. In this experiential learning situation the relationship that develops between tutors and young people is essential, as is taking a step back from the experience (Kolb, 1984). In addition to the tutoring sessions with young people with disabilities, the tutors participate in focus group sessions, write a learning diary, produce a report and make a final presentation.

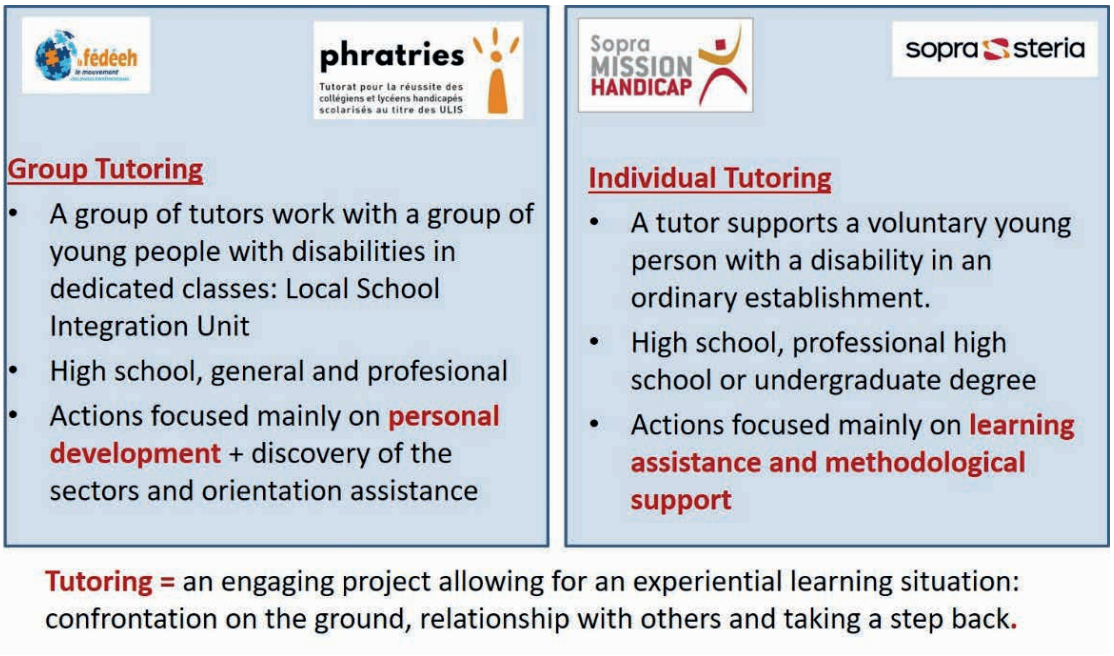

Figure 2: Two types of tutoring

4 Evolution and formalization of this activity as a learning unit

In 2015 CentraleSupélec began to create a new engineering degree course according to the programme approach and the skills approach. This curriculum has been in use since the 2018-2019 school year. We then undertook to rethink the mentoring programme in order to integrate and develop the targeted skills of the new curriculum. An elective teaching unit, it has been validated in collaboration with the Programme and Education Department. Its learning objectives, training content, tutor monitoring and evaluation are being redefined. Formalization work focuses on taking into account, for evaluation purposes, evidence of the values and transversal skills targeted (Biggs, 1995).

5 What is at stake for the tutors

Preliminary work was presented in (Husson, 2020), focusing on the one hand on the starting points of the tutors and on the other on their feedback from the experience.

5.1 Starting points of the tutors

All students who commit to the programme are volunteers. Their previous exposure to the subject of disability varies greatly: some have never been in contact, to their knowledge, with a person with a disability; others have met a person with a disability during their school years; and others have a close relative with a disability. Most of them are curious about disability, and some show a stronger commitment to the issue and wish to participate in other activities to the benefit of people with disabilities. All the tutors express the same motivation: to help, be useful, and achieve action in solidarity.

5.2 How the tutors experience the curriculum

Tutors are voluntary. They express satisfaction, offer positive testimonies, and describe strong experiences and feelings of personal fulfilment and meaning. They communicate on their tutoring, in their resumes and with their peers. Whenever possible, tutors extend the tutoring for a further year.

Concerning the work required in addition to the tutoring training: at the beginning some tutors are reluctant to write a learning diary, but this mostly changes and they agree that it encourages analysis and taking a step back.

5.3 Effects and benefits perceived by the tutors

Excerpts from verbatim statements illustrate how tutors take a step back from the lived experience and skills to be developed.

Figure 3: Testimonials about this experience

Figure 4: Testimonials on changes in the way we look at disability and young people

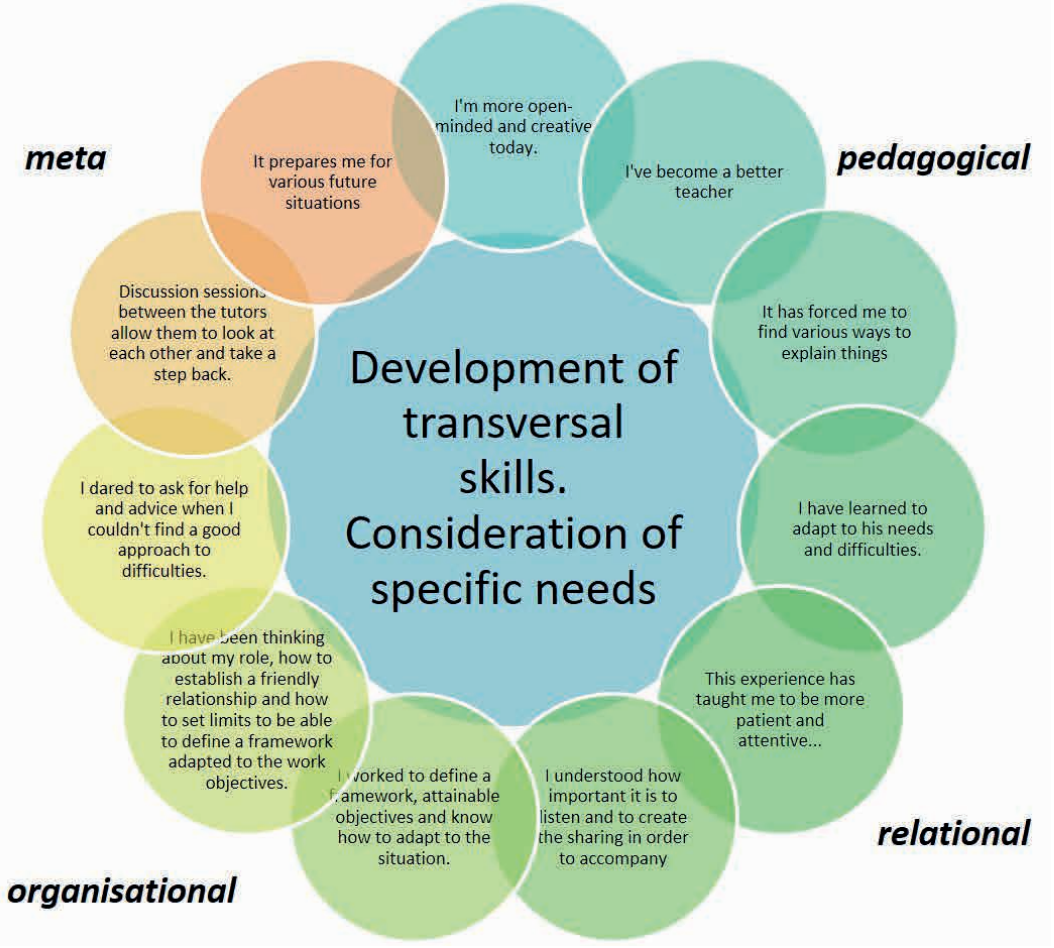

Figure 5: Testimonials about developed skills

6 Conclusions

Tutoring is an activity that CentraleSupélec implements to promote the integration and improvement of people's living conditions, as well as the professional integration of disabled people.This concrete and central activity is a success and is useful to both the young people being helped and the students helping them. Each year, the families of young disabled people, associations and university partners renew their desire for the programme to continue, and wish it can could be extended, which is a testimony to the fact that they perceive the benefits. As to the 70 students who have already been involved in the programme as tutors, they also state their satisfaction. In addition to the satisfaction and progress of the tutored, the tutors' feedback illustrates how the confrontation with disability changes their personal perspectives and prepares them to take into account this singularity in their professional lives.

The programme also contributes to promoting an inclusive society beyond the tutors involved. After formalization and evaluation of the skills developed for the tutor, the next step we are planning is to evaluate the impact of the programme using the Kirkpatrick model (Kirkpatrick, 1959).

Acknowledgements

We thank our academic, associate and business partners, and all the young people and students involved in this initiative.

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ICED 2020 proceedings:

Pre-empting academic misconduct and improving learning outcomes with a teaching and learning approach – A preliminary report

Dongmei Li[1]

Arts Teaching Innovation (ATI), Faculty of Arts, University of Melbourne
Parkville, Victoria 3010, Australia

Abstract

This article reports on a preliminary analysis of Integrated Academic Success (IAS), an academic development program embedded in subject teaching for a humanities postgraduate degree involving a large number of international students at a major university in Australia. It was found that integrating academic skill development in subject teaching improved academic integrity and learning outcomes significantly in a course with a large number of students without relevant prior disciplinary or educational experience. The findings might inform curriculum development in postgraduate courses where students have no prior educational experience in the relevant discipline or academic context.

1 Introduction

An increasing number of postgraduate courses in Australia and other major English-speaking educational systems have been developed so that students, including international students, can enrol with a recognised undergraduate degree in any discipline. International students, especially those enrolled with direct entry, often find themselves unprepared for the assessment in the first semester, which normally starts within the first couple of weeks. The combination of stress from assessment and lack of familiarity with the academic expectations of the university has been shown to cause poor outcomes and lead to academic misconduct (Fass-Holmes, 2018). From the perspective of teaching and learning, it would be beneficial to equip students with relevant academic skills (Perkins, Gezgin, & Roe, 2020) and familiarise them with assessment requirements (Bretag et al., 2018) and academic integrity (Nayak, Richards, Homewood, Taylor, & Saddiqui, 2015). This paper reports on the Integrated Academic Success (IAS) program, an academic development program embedded in subject teaching with the goal of reducing academic misconduct and improving learning outcomes.

2 The context

The study was set in a major university in Australia. It involved two foundation subjects of a new postgraduate Media course where international students made up a high percentage of the student cohort. This course ran two intakes per year, in February and August. In the first year, 2018, 200 students were enrolled. Over 90% were international students. Many of the students had no background in the relevant discipline. As the subject coordinator observed for both intakes, many students seemed to be unfamiliar with academic conventions in the humanities. For example, in this pilot course, essay writing and literature research had significant weighting in the assessment. These tasks require skills such as essay structuring, literature research, argument development and critical analysis, as well as more mechanical techniques such as citation and referencing styles. For the international students these skills

[1] mei.li@unimelb.edu.au

were new: they may not have been developed or formally assessed in their previous educational experience in their home countries (Li, 2019). A new educational system and a new discipline requires a different set of skills, which these students had to acquire in a short period of time: the first assessment task was due in week 4. In the first two semesters in 2018, the students' outcomes were lower than average graduate coursework degrees at the faculty. In addition, the number of academic misconduct reports was much higher than the faculty average.

To address these problems, the Integrated Academic Success (IAS) program was developed by a team of teaching and learning specialists (TAIs) in close collaboration with subject teaching academics.

2.1 Stage 1

In semester 1 2019, academic skill development was implemented in Subject 1 in tutorials and as adjunct workshops (Table 1).

Weeks 4, 7 & 11	Co-planning and co-teaching face-to-face sessions
Week 9	Adjunct workshop – Understanding feedback
Week 11	Embedded lecture with librarian

Table 1 Implementation timeline semester 1 2019

As Table 1 shows, three sessions were planned and taught together by a TAI and the subject tutors. The goal of co-planning was to integrate the development of required academic skills into subject delivery. Co-teaching was aimed at supporting the tutor and for the TAI to understand the student response. The three weeks were selected in line with the major assessment tasks. In these sessions, the link between activities, learning outcomes and assessment requirements was explicitly explained to students.

Figure 1 below maps out the academic skills that were integrated in delivery over the three sessions in order to address the skill requirements in the corresponding assessment tasks. The more generic transferrable skills required in the subject, such as collaboration and critical thinking, were addressed throughout all sessions. The more detailed lesson plans are available on request.

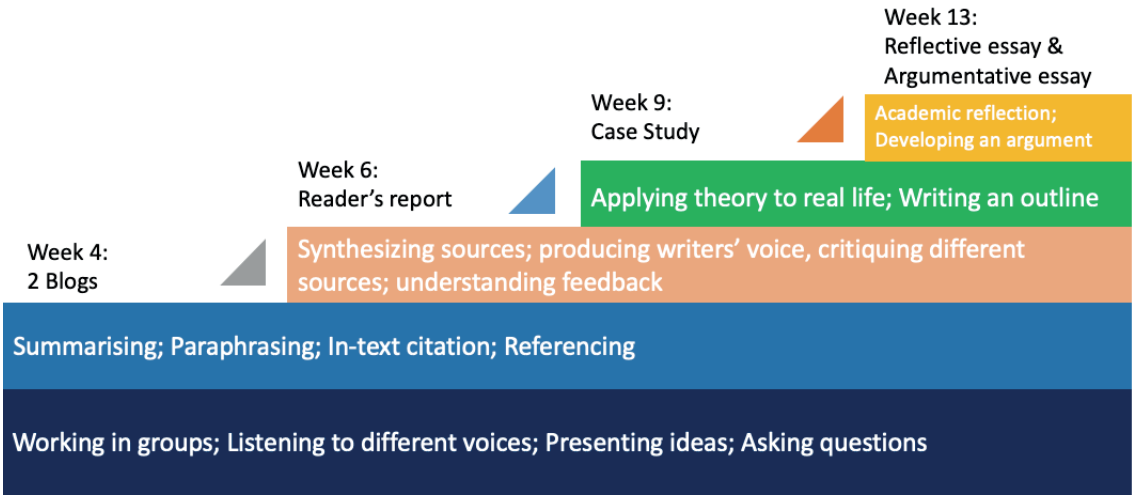

Figure 1: Skill development in line with assessment timeline

In addition, an adjunct workshop was delivered on understanding feedback, with the purpose of helping students to make effective use of the feedback from the previous assessment to inform the upcoming assessment task; hence it was given in week 9. This workshop was developed based on the lecturer's observation that students had made repeated errors in past semesters.

2.2 Stage 2

In semester 2 the sister subject joined the IAS program. While intervention in the first subject continued, more academic development focusing on research skills was also implemented, which involved the following:

- An academic integrity quiz (available on request) with a follow-up workshop on academic integrity for Subject 2
  The academic integrity quiz included three parts:

  1) Relevant areas of university academic integrity policy
  2) Types of misconduct
  3) Paraphrasing exercises using the recommended referencing style in the discipline. The sources used in the exercises were relevant literature for the subject selected by the lecturer.

  The follow-up workshop focused on Part 3 of the quiz, with time dedicated to questions and answers regarding assessment task requirements in terms of subject-specific academic conventions.

- Tutors in Subject 1 delivered the sessions independently.
  The tutors in Subject 1 were now more familiar with the session plans and were able to adapt them more contextually. These three sessions were stretched over the whole semester, to meet learning needs in a more timely manner.

3 Preliminary findings and discussions

Preliminary analysis showed increased average outcomes and a significantly reduced number of misconduct reports from student work, as well as higher tutor motivation. The average score in the final essay increased from 69 before IAS to 74 after stage 1 and then to 76 after stage 2 (Figure 2). The number of academic misconduct reports went down from 16 (out of 75 students) before IAS to 2 (out of 70 students) after stage 1 and was cleared to zero after stage 2 (out of 50) (Figure 3).

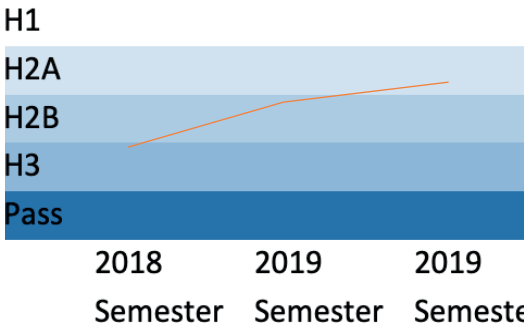

Figure 2: Changes in average final score across three semesters

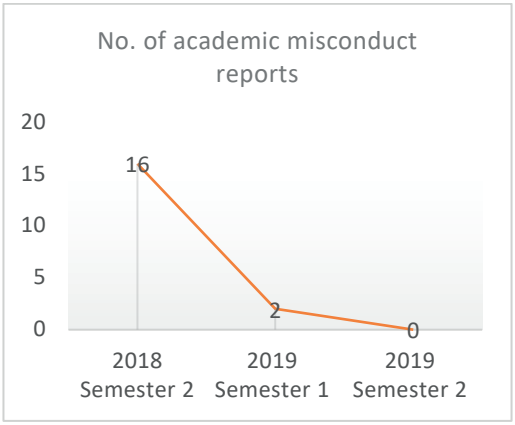

Figure 3: Number of academic misconduct reports across three semesters

The changes were significant in terms of both learning outcomes and academic integrity. The increase in the average final score was encouraging as it increased by two grades from Third Class Honours (H3) to Honours Second Class Honours Division A (H2A). This change indicates that addressing academic integrity from the teaching and learning perspective was effective in this pilot context. This finding agrees with a growing argument in the scholarship of teaching and learning in higher education community that addressing academic integrity should consider teaching and learning strategies (Bertram Gallant, 2008). The fact that the program was effective in reducing academic misconduct accounts confirmed the subject coordinator's concerns that students may not have had the required skills for the subject on enrolment. Embedding academic skills development in the early weeks of tutorials seems to have filled the gap.

The significant drop in the number of academic misconduct reports involving the final essay also indicated the effectiveness of the program in this course. Research has urged us to explore the relationship between academic integrity and learning outcomes (Stoesz & Yudintseva, 2018). This program presents a positive relation between the two, even though it involved only the study of a single context where students were mostly international students who appeared to be unfamiliar with the academic expectations of the subject in which they were enrolled.

4 Limitations and further work

Although the above findings were generated in only one course, we can see the potential of embedding academic development in subject teaching for helping students without prior experience of a relevant discipline or a similar educational system.

While the changes are encouraging, we must also take into consideration the variables across the two semesters. Stage 1 and stage 2 involved two different groups of students. Although we expect that the students were of similar levels across each intake because they were enrolled according to the same standards and requirements, individual differences may have affected the outcomes.

Looking at future work, obtaining the student perspective on the IAS program would help us to develop better informed strategies in our attempt to support academic integrity and learning outcomes in postgraduate courses where a majority of students have diverse disciplinary and educational backgrounds.

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Peer tutoring programme as a student academic development strategy in a selected university of technology

Cephas Makwara[1]

Durban University of Technology
15 FJ Sithole Road, Imbali
3201 Pietermaritzburg, South Africa

Abstract

Quality education is one of the main aims of sustainable development goals (SDGs). It can be achieved when the quality of teachers being produced is appropriate and these teachers are adaptable, agile and competitive in their areas of expertise. Providing future-ready graduate teachers is one way to enable attainment of this goal. This paper expresses the need for a repositioned tutorial programme for the School of Education, a department in the University of Technology (UoT). The study is located in an interpretive paradigm and utilised a qualitative approach where interviews and focus group discussions were the main data collection instruments. The paper explores the question of how first years experienced peer tutoring. Sound structures need to be put in place to facilitate the goals of peer tutoring, including seeing to it that learning spaces are available; that the correct number of students attend each tutorial; and that a proper timetable is drawn up and adhered to.

1 Introduction

Peer tutoring has many advantages, including its ability to yield confidence building for tutor and tutee as both have the same ontological (ways of being) and axiological (background capitals and cultural oriented ways of being) assumptions. Several definitions of "tutor" exist, including one stating that a tutor is someone employed to support the efforts of a lecturer. UNISA, Africa's largest open distance university by enrolment (Shikulo and Lekhetho 2020, Rakoma 2018), has had a structured tutoring programme involving face-to-face (F2F) and electronic tutoring (eTutor) since 2013, supported by secured funding from the Department of Higher Education for the Tutor Development Programme. UNISA tutors are employed in a structured programme where the F2F tutors work for 15 hours during the semester, while the eTutor works for one hour a day in a 5 hour week and up to 75 hours in a 15 week semester. The tutors are employed as independent contractors and should have obtained a minimum of honours level in the modules in which they are contracted to offer. In contrast, the tutor at the UoT and in this case study is a senior student. In this paper, wherever tutoring is mentioned, it should be taken to refer to peer tutoring.

The paper argues that a stable structure should be availed to the programme to harness its intended benefits, such as fostering the future ready graduate via its student academic advising concept. Peer tutoring is cognizant of the realities bedeviling the UoT and is appropriate for the institution. The UoT's School of Education (SoE) has largely been an undergraduate programme offering the Bachelor of Education (BEd). Hiring of postgraduate students as tutors is therefore inappropriate, as that would mean the need for a relook at the current structure, including the remuneration structure. The SoE postgraduate students tend

[1] cephasm@dut.ac.za; ORCID: https://orcid.org/0000-0001-6567-301X

to be working elsewhere as educators, and have also been trained elsewhere due to the absence of a full-time honours programme and Master's programme. All the current tutoring programme needs is strengthening, which is possible once its inherent weaknesses have been identified and highlighted. That is the aim of this paper.

2 Methodology

This paper was based on a case study of the SoE in a multi-campus UoT. The researcher acquired ethical clearance for the study with reference number **IREC 157/19**. The overall topic was "Square pegs for round holes: First-year student experiences of Tutorial support in a Bachelor of Education programme in a University of Technology". Data gathering instruments included interviews with tutors and the first years, in which ethical issues including confidentiality, beneficence, and informed consent were looked at in line with the independent research proposal submitted to the institution (UoT) ethics committee.

3 Findings and discussion

3.1 Tutor recruitment and resourcing

In the REP, which appears to be the most well-resourced and visible peer tutoring programme, senior students in the form of second, third and fourth years are appointed for mostly bottleneck subjects with low pass rates. The academic department is not appraised of the exclusion of some subjects in the REP. Student agency has seen some previously excluded subjects coming onstream.

3.2 Tutoring in practice

REP peer tutoring has the advantage of taking place after hours. Students are taught in their places of residence from 6pm to 8pm for 2 hours per identified bottleneck subject per week. There is a timetable which ideally is deliberated upon by the REP facilitators. While it was possible to tutor in earlier years in the students' spaces of residence (CHE 2014), there are mattresses in the residence dining halls and tutors have been forced to approach the academic department for Teaching and Learning (T&L) spaces, with varied results.

3.3 Tutor agency

The agency of tutors came in handy in accessing the lecture venues after hours. Others whose personal emergent powers and properties (PEPPs) (Archer 2008) were weak continued to teach at the residence, with the consequence that tutees were learning while standing when they ordinarily should be seated and taking notes. Therefore the one recommendation that the academic department be fully involved in the structuring of this programme cannot be overemphasized. The department's involvement is likely to foster the epistemological access envisaged in the design of the programme.

3.4 Implementation of tutoring

Ideally, fewer students (preferably maximum of 20) should be attending tutorial classes with one tutor. Currently there appears to be no sensitivity to student numbers per tutorial class. This is anathema to the spirit, letter and ethos of the tutorial programme in contexts that value it. The recommendation is that students be grouped into smaller classes per tutor so that all students have enough access to the tutor and to the knowledge structures of the subject. The tutorial programme (DUT 2014) brochure alludes to the need for fewer students per tutor, but in practice this does not appear to be realised.

Seemingly missing is consolidated tutorial material readily available for implementation. The REP should facilitate the availability of such material for the subjects in conjunction with the lecturers. These materials should be developed and be availed to the tutors for use. There also appears to be no proper monitoring and evaluation mechanism for this intervention. Earlier, the REP recognized tutors by giving them certificates at an REP ceremony, but this good practice appears to have petered out. The practice also appeared not to involve the academic department whose hard work was being recognized. Compilation of REP tutorial activities could help to provide a rich practice based repertoire from which to draw on in subsequent years as new REP administrators come on board.

4 Student voices from REP interviews

> *Tutorials are important as they allow us to be tutored by our peers, who know our challenges and cultural backgrounds.*
>
> *The tutor is like my brother, big brother, who can also mentor me and ease me (reduce the articulation gap between University and high school) into the campus life given that I am the I first person to go to University for my family. (First-generation university student – Tinto 2014)*
>
> *I am was able to pass my assignments as the tutor shares then own experience the previous years helping me unpack the behaviours, mannerisms or character of some lecturers that may not be apparent in the class.*
>
> *Tutors from module X look quite organised and prepared. They teach us together in one tutorial venue, four of them, but they allocate each a portion of the content learnt in the week then we go away quite satisfied. This is unlike in the other module Y where there appears to be no leadership. The tutors speak over each other and sometimes are confrontational to each disputing the other's earlier statements.*

In other words, the peer tutorials were useful in mediating the articulation gap between high school and the university offering. The first years were offered an opportunity to grow under the mentorship of their peers. This made the student walk much easier. The attendant structural challenges need to be addressed for fuller, more integrated results.

5 Conclusions

Overall, there is much that the tutorial programme could achieve once the administrative side of the programme has been sorted out. Clear outcomes and clear expectations and performance standards can improve graduate attributes and produce future ready graduates. For teacher education programmes the need for future ready graduates cannot be over-emphasized. These better graduates will be versatile, agile and ready to face any challenges, feeding into the quality education aspired to in the Sustainable Development Goals.

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Inclusion and employability: Supporting *all* students to become future-ready graduates through the curriculum

Aranee Manoharan[1]

Careers and Employability Service, Kingston University London
Penrhyn Road,
Kingston upon Thames
KT1 2EE, UK

Abstract

Whilst the notion of inclusive curriculum has become increasingly important in UK higher education (Hockings, 2010), employability is still a neglected aspect of this discussion in most non-vocational disciplines, as it continues to be perceived as a secondary concern of the university, predominantly addressed through extra-curricular activity rather than being an integral aspect of teaching and learning. This paper argues that it is critical for these two areas to be considered together through the curriculum design process to best serve the increasingly diverse student population accessing higher education today.

The paper will discuss how we can support *all* students to become future-ready graduates and reflect upon a post-1992 university's journey towards achieving this by integrating employability within the curriculum.

1 Introduction

Participation rates in HE are growing and, as a result, the demographic profile of the student population and their reasons for choosing university are changing. In response to this shifting profile, educators must review the assumptions made in curriculum design, taking into account the experiences of this diverse student population, and empowering them to achieve their personal aspirations by preparing them with the knowledge, skills, and competencies to successfully navigate life after university in an uncertain and ambiguous world.

Whilst the notion of inclusive curriculum has become increasingly important in UK higher education (Hockings, 2010), employability is still a neglected aspect of this discussion, as it continues to be perceived as a secondary concern of the university. This paper argues that it is critical for these two areas to be considered together through the curriculum development process, especially in universities that serve a diverse student population that probably would not have accessed university a generation ago.

2 What is the world that we are preparing students for?

Barnett and Coate (2005:53) describe the 21st century as being "characterized by (...) fluidity, fuzziness, instability, fragility, unpredictability, indeterminacy, turbulence, changeability, [and] contestability." It is difficult to disagree with this, considering (1) how the world has changed in the 15 years since their paper was written and (2) the profound impact of the COVID-19 pandemic on all facets of our lives.

The Future of Skills: Employment in 2030 report investigates how employment will change moving forward. The research has identified key trends – including environmental

[1] a.manoharan@kingston.ac.uk

sustainability, urbanisation, increasing inequality, and technological change – that will impact the types of jobs available and the skills required in the future. Through this study, they predict that approximately one tenth of current occupations will grow and one fifth will shrink, with the prospects of the rest unknown. As such, many graduates are likely to move into roles and career paths that have not yet been created.

3 What do students need to be able to do in this world?

Considering the ambiguous nature of the 21st century, then, future-ready graduates require not only specialised knowledge, but also broad-based competencies that allow them to remain resilient to change. As Lines (2012:7-8) argues, subject-specific skills "are likely to erode at an increasing rate as technology advances," which is why "employers are seeking 'change makers' as much as those who can adapt to change."

The Future of Skills report provides support for a focus on 21st century skills (World Economic Forum, 2015), including higher-order cognitive skills such as critical thinking and problem-solving; interpersonal skills, such as social perception and cultural competency; and systems thinking, "i.e. the ability to recognise, understand and act on interconnections in sociotechnical systems" (Bakhshi et al., 2017:14). Such capabilities will allow graduates not only to navigate but to thrive in an era defined by rapid technological change and globalisation.

4 How do we support, enable, and empower **all** *students to achieve this?*

Taking this into consideration, it is vital that universities recognise this future and prepare students accordingly by facilitating the development of relevant knowledge, skills and competencies. This will become their toolkit for success, arming them with the capability to self-assess, recognise opportunities, and continually grow their knowledge and skills. I argue that this is best achieved by integrating employability development within the curriculum. From this perspective, "Employability is (…) about learning" and "the emphasis is less on 'employ' and more on 'ability', the emphasis is on developing critical, reflective abilities, with a view to empowering and enhancing the learner," with employment being "a by-product of this enabling process" (Harvey, 2003:3).

4.1 Understanding our students

As a post-1992 provider, Kingston University serves a diverse student population: two thirds meet at least one indicator of disadvantage, half are the first in their families to enter HE, and nearly 60% are from Black and ethnic minority communities. Wanting to understand the life-experiences of our students, I conducted action research which identified that students juggle multifaceted priorities alongside their studies, including financial, familial, and/or caring responsibilities. As such, they can be strategic learners, perceiving their studies as a means to an end – namely, a good job that will allow them to progress in life. Therefore, we have found that only a small percentage of students engage in extra-curricular activities, i.e. the traditional vehicle through which students develop the skills and experiences that prepare them for the world of work. The majority instead focus on completing the compulsory elements of their degree programmes, as this is what they are able to engage with and prioritise. With extra-curricular activities being less accessible to a diversifying student population, I argue that significant experiences must instead be facilitated through the core curriculum. This is why integrating employability is so important and why it must form an essential aspect of the inclusive curriculum agenda.

4.2 Integrating employability into the curriculum

Within teaching and learning scholarship, enquiry-based approaches are regarded as high-impact pedagogies (Pegg et al. 2012; Cress et al. 2010) that not only enable students to gain

disciplinary knowledge but also provide them with significant experiences that (1) facilitate the application of theoretical learning in authentic scenarios; (2) develop a range of 21st century skills and competencies; and (3) expose students to potential career pathways. Such significant experiences are an inclusive alternative to internships and placements, which have been proven to increase student success in securing graduate roles (Brooks and Youngson, 2016), but which are ultimately not accessible or scalable to *all* students, especially students from disadvantaged backgrounds.

Enquiry-based approaches such as problem-based learning and design thinking also ask students to access and practice higher order skills to solve real-world problems, by connecting and applying their previous learning to create new ways of thinking and doing. Cultivating such entrepreneurial capability is vital when we think about the volatile, uncertain, complex and ambiguous (VUCA) (Johansen, 2007) future outlined in the previous sections.

4.3 Tailored support

To ensure that we are preparing students accordingly, Kingston University has established a Curriculum Team within the Careers and Employability Service. This team provide academic colleagues with discipline-specific guidance and practical support to integrate employability into the curriculum, by mapping employability development across the student learning journey with a focus on high-impact teaching and assessment methods (see Figure 1). This process enables course teams to identify (1) what future-ready graduates from their programmes require; (2) how this is currently being achieved at each level of study; (3) any gaps or opportunities for enhancement; and (4) plans for continuous improvement.

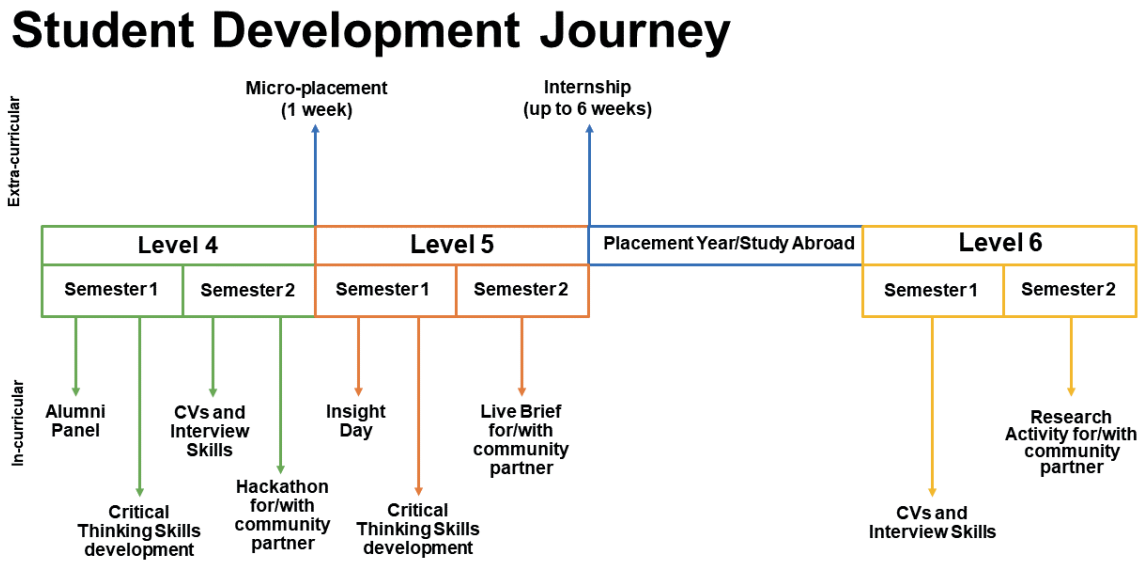

Figure 1: Example of a student development journey incorporating experiential learning activities and community/industry engagement

Opportunities for enhancement are focused on the implementation of high-impact pedagogical approaches and assessment methods that are delivered through community and industry engagement. This is because such real-world learning within the core curriculum provides *all* students with the opportunity to cultivate their social and cultural capital (Tomlinson, 2017) through engagement with external partners.

4.3.1 Lessons learned

The main lesson we have learned through this work is the need to support the cultural shift in thinking around curriculum design and development.

For traditionally theoretical disciplines, e.g. the humanities, academic colleagues can find it difficult to connect subject content with real-world experiences. Therefore, we have endeavoured to identify and demonstrate how subject matter within these disciplines can be delivered through experiential approaches.

For course teams who are used to implementing only certain teaching and assessment methods within their subject areas, e.g. the primacy of multiple choice tests in the sciences, we have sought to demonstrate how practice can be diversified to assess development and mastery in ways that are more authentic and enable students to gain significant experiences.

Therefore, an important aspect of our role has been to support academic colleagues and teams through this cultural change process, so that they feel confident in designing the student development journey as well as the disciplinary learning journey, and that this becomes the norm within their curriculum development practice.

4.3.2 Plans moving forward

To address scale-up implementation, we are developing a community of practice with three key elements:

1. **A toolkit** – a set of tools to easily implement high-impact pedagogical approaches and assessment methods in different disciplinary areas.
2. **Training** – an interactive training package introducing employability concepts and demonstrating how these can be incorporated within individual and team practice.
3. **Research** – a range of collaborative research partnerships between academic teams and the Careers and Employability Service to establish best practice for diverse student cohorts in different subject areas.

5 Conclusion

This paper has overviewed the need for integrating employability into the curriculum as a central aspect of the inclusive curriculum agenda, sharing the experience of a post-1992 provider in the UK. It has outlined the future that HE is preparing graduates for and offered a means by which this preparation can be achieved within the curriculum to ensure that *all* students have the opportunity to gain the knowledge, skills, and experience to become future-ready graduates.

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Theorising the boundary condition between psychological capital and graduate employability: Does grit matter?

Hartini Mashod[1], Kabiru Maitama Kura[2]

UTB School of Business, Universiti Teknologi Brunei
Jalan Tungku Link
Gadong BE1410, Brunei Darussalam

Kabiru Jinjiri Ringim[3]

ABU Business School, Ahmadu Bello University
Zaria, Nigeria

Abstract

The construct of graduate employability (GE) has received considerable attention from researchers and practitioners because of its crucial role in national economic agendas. Previous research is mixed in terms of the association between psychological capital (PsyCap) and GE. This represents a significant theoretical gap in the literature. To address this knowledge gap and better understand the relationship, we proposed grit as the potential "moderator" between PsyCap and GE. By incorporating grit as moderator, this paper aims to contribute to concept and theory development in the field of educational management. The paper provides valuable insights that support the notion that PsyCap and grit acquisition enhance GE.

1 Introduction

Over the past decade there has been sustained research into GE, and the subject continues to be of considerable interest among policy-makers, employers and scholars alike (Beaumont et al., 2016). The current general consensus acknowledges employability as a critical resource for individuals, particularly graduates, if they are to have the upper hand in the ever-competitive labour market (Fugate et al., 2004). Today's economic climate has driven organisations to be versatile and adaptable, which eliminates the promise of job security and replaces it with the concept of maintaining individuals' employability (Kasler et al., 2017). The current job market is witnessing an annual increase in the number of graduates, which has become another significant concern for existing job seekers (Aida et al., 2015). There is a significant increase in the number of unemployed graduates, which indicates that attaining qualifications does not always guarantee subsequent employment (Mashigo, 2014). The aforementioned socio-economic issues thus accentuate the need for graduates to possess a set of attributes that make them seen as employable.

2 Graduate employability

In this study, GE refers to "a set of achievements such as skills, understandings, and personal attributes that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke & Knight, 2006, p.3). Possession of a competence set would enable graduates to be well-equipped for career prospects and hence regarded as highly employable

[1] p20191014@student.utb.edu.bn
[2] kabiru.kura@utb.edu.bn
[3] kjringim@abu.edu.ng

by potential employers. An extensive literature demonstrates the influence of employability on numerous positive life domains, whether explicitly in the career context or as regards individual well-being. For instance, acquisition of employability attributes allows graduates to be more autonomous and proactive in their psychological approach towards potential challenges in career development (Coetzee & Engelbrecht, 2019).

Significant research interest on GE has identified its major stakeholders (Clarke & Patrickson, 2008), namely higher education, employers and graduates (Kinash et al., 2016). Notwithstanding the individual roles of each stakeholder, effective and continuous collaboration among GE stakeholders is required not only to produce marketable individuals, but also graduates who are future-ready. Higher education institutions (HEIs) play a vital role in providing students with knowledge, skills and attributes that meet industry requirements (Caricati et al., 2016). Employers also need to ensure effective talent management strategies by working closely with other GE stakeholders (e.g., HEIs) to make clear the knowledge, skills and competencies that are currently in demand. Most importantly, graduates are equally responsible by continuously allowing themselves to acquire and adapt skills and knowledge according to current trends in the labour market (Yoong et al., 2016). Collaboration among GE stakeholders will allow better correspondence between graduates' attributes and employers' labour market requirements, with HEIs as the crucial facilitator. This collaborative work would mitigate the issue of skills mismatch, which has grown more prominent since the economic catastrophe (Yoong et al., 2016).

A number of studies have examined the various factors that contribute to enhancement of GE. To date, some of the antecedents of GE that have been studied include soft skills (Chhinzer & Russo, 2018); work experience (Beaven & Wright, 2006); knowledge acquisition (Collet et al., 2015); and problem-solving (Teijeiro et al., 2013). While factors influencing GE have been examined, relatively few studies have attempted to consider PsyCap as a GE antecedent.

3 Psychological capital

In the highly competitive labour market, a combination of field-specific knowledge and technical skills are no longer a sufficient indicator of work-ready or employable graduates. This circumstance provides new impetus for graduates to develop competencies beyond the qualifications acquired, if they are to increase their employability (Mashigo, 2014). This study therefore provides a new insight for GE literature by considering personal resources such as PsyCap as an essential competence that contributes to producing employable graduates. Luthans, Youssef and Avolio (2007) define PsyCap as

> An individual's positive psychological state of development that is characterised by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success. (p. 3)

Collectively, the four dimensions of PsyCap have been demonstrated through conceptual and empirical analysis to be known as a higher-order construct (Luthans et al., 2010). A study by Riolli et al. (2012) demonstrates that students with PsyCap can better cope with stressful events during their academic studies. Luthans and Youssef-Morgan (2007) suggested the need for students to cultivate PsyCap to prepare themselves for the competitive marketplace. Studies by Avey et al. (2008) and Gooty et al. (2009) found that individuals with higher PsyCap levels are more able to sustain and cope with daily struggles at work than their counterparts. The literature also found that graduates with PsyCap perceived themselves as showing higher job performance, and they were more satisfied and committed to their jobs (Larson, 2013).

The ever-changing working world and rapid technological changes have stimulated employers to continually update the latest graduate competencies, making it necessary for graduates to keep up with these advances. As opposed to tailgating endless transformations, this paper suggests taking a step back to focus on the essential competencies that every graduate needs. Unlike subject knowledge and technical skills, personal resources (i.e. PsyCap) are transferable skills that can be applied across different jobs and industries, and hence they are the most favoured by employers (Robinson et al., 2007). PsyCap as the foundation of psychological competencies will enable graduates to remain prepared for any challenge.

4 Grit

Existing research into PsyCap and GE has yielded conflicting findings (Bakari & Khoso, 2017; Kasler et al., 2017), thereby justifying the need for further research and the introduction of a moderating variable. In 2007 Duckworth and colleagues popularised "grit", which is described as "perseverance and passion for long-term goals. Grit entails working strenuously toward challenges, maintaining effort and interest over years despite failure, adversity, and plateaus in progress" (pp. 1087-1088). Gritty individuals are more likely to persevere and succeed despite difficulties to achieve their desired goals, such as securing a job in competitive labour market (Kasler et al., 2017). This research convinces us of the importance of grit as a crucial variable with a meaningful role in interpreting the relationship between PsyCap and GE. Grit has been demonstrated to have a significant positive impact across diverse settings, in particular higher goal attainment (Sheldon et al., 2015); academic achievement (Bowman et al., 2015); persistence in challenging tasks (Lucas et al., 2015); and remaining employed (Robertson-Kraft & Duckworth, 2014). Research on grit has also examined its impact on academic performance and achievement among students, across various settings (Lee & Sohn, 2017; Park & Cho, 2019). Hence, based on the studies mentioned, it is plausible to propose that the degree of influence of PsyCap on GE varies depending on the level of graduate grit.

5 Conceptual framework

Based on the literature overview, this paper proposes that acquisition of personal resources (i.e. PsyCap) and personality traits (i.e. grit) are likely to make graduates more employable. Figure 1 illustrates the influence of four components of PsyCap on GE, with grit as the potential moderator.

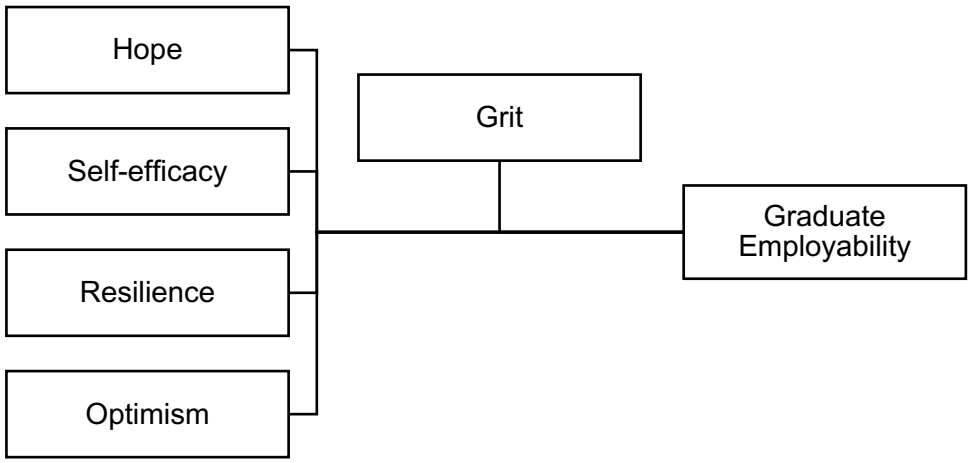

Figure 1: Conceptual framework

6 Conclusion

Future research can expand this conceptual framework by empirically examining the recommendations suggested in this paper. By building upon the extant stream of GE literature, the study provided new insights by introducing new antecedents such as PsyCap and grit. Incorporating grit as a potential moderator could contribute to a new theoretical understanding and present empirical evidence to augment the existing GE literature. Understanding the relationship will make graduates aware of its importance and inspire them to develop PsyCap and grit, which can support them in successfully obtaining and maintaining future employment (Mashigo, 2014). It is posited that PsyCap is particularly essential in today's workplace, where resilience and determination are required to achieve competitive advantage in the labour market (Siu et al., 2014). The model in this paper is also relevant to academicians, as they can help students to develop a greater sense of PsyCap and grit during their studies and after graduation. In the competitive labour market, possessing PsyCap and grit can be a factor which differentiates one graduate from another in the labour pool.

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ICED 2020 proceedings:

PhD support beyond teaching: The need to communicate effectively in (research) writing

Lynn McAlpine[1]

Department of Education
University of Oxford
15 Norham Gardens
Oxford UK OX2 6PY

Abstract

PhD writing support is not typically something that academic developers have engaged in, so I begin by describing why I think this is something we should consider doing. I then explain the research basis for the suite of research writing workshops which we have piloted in an Erasmus+ grant (https://www.researcher-identity.com/), as well as their general design, and examples of slides and handouts for three workshops. I end by considering the value of integrating support for PhD writing into broader academic development offerings. My hope is that you will be convinced of the value of taking up this idea in order to enhance PhD progress and potentially graduates' supervisory and teaching practices if they take up academic posts.

1 PhD research writing: An academic development responsibility?

In preparing PhD students for their futures, the focus of much academic development has been on teaching, an important component of traditional research-teaching posts. And if, like me, you consider supervision a form of teaching, then incorporating supervision practices into teaching programs seems natural. So far, so good, I hope; but I want to argue further. If we are to indeed prepare PhDs for future academic work, there is another area in which we can support them: effectively communicating in a range of genres, particularly research genres (Beaufort 2000), such as abstracts, research papers and grant proposals. These are different forms of writing which PhD students need to develop if they are to be successful academics – and potentially supervise students themselves[2].

You might ask: Why should academic developers take up this work? While universities in North America often have dedicated writing centres that support PhD students, in Europe and elsewhere such support is relatively rare. Yet we know that PhD students often experience writing as emotionally challenging, and that support leads to greater confidence and success (Badenhorst et al. 2014). Concurrently, many supervisors may not feel capable of promoting writing skills[3] (Aitchison et al. 2012), either because they also find writing challenging or because while successful writers themselves they are not able to articulate how they achieve success. So, the short-term goal of incorporating writing support into our PhD teaching/supervison programs can be to support PhD progress; the long-term goal is to better prepare PhDs who remain in the academy to both supervise and teach, and in the process to use their expanded writing expertise to help their students be more successful learners and writers.

[1] Lynn.mcalpine@ctl.ox.ac.uk; lynn.mcalpine@mcgill.ca
[2] Also, since more than half of PhD graduates work beyond the academy (Neumann & Tan 2011), non-academic forms of writing (Bhatia 1999) may also be pertinent, but are not the focus of this paper.
[3] Supervisory support of writing is a complementary strategy – and I have provided one example of such a workshop below.

2 Research basis for suite of workshops

There is considerable research on the experiences of PhD students as writers, as well as on research writing generally. I will focus on three themes constant in this research – much of which supervisors may not know about and so cannot teach their students unless they have development opportunities to engage with this research. A key issue is the often negative emotionality associated with writing (frequently based on prior experience), which can lead to procrastination. So, a focus for support is helping students to recognize the effect of such emotion and facilitate the development of more positive emotion and confidence in themselves as writers (Aitchison et al. 2012; Kamler and Thomson 2008).

Linked to this is valuing feedback: seeing it as vital and productive in the process of becoming a successful writer – if well used. This is because we write for others and we need to know what sense they make of our writing (Aitchison and Lee 2006). Unfortunately, many PhD students have had earlier experiences of feedback that are negative, which again may lead to avoidance strategies: not seeking and then using feedback.

Lastly, individuals often lack evidence-based information related to the range of factors influencing effective writing. To illustrate, students may not recognize the different purposes embedded in genres and how these purposes should guide the writer (Swales 1990); for example, the purpose of the abstract is to "seduce" the reader into reading the paper. Further, students need to understand how to use the moves (segments in a text, each with a specific purpose) within a genre effectively (Beaufort 2000). So, for instance, for those writing a monograph dissertation, understanding its unique moves (Kamler & Thomson (2006) can help to instil a sense of mastery. With this as background, I turn now to the workshops we have designed.

3 General workshop design

The workshops vary in length, from an hour or two to a couple of days to a term. Nevertheless, they are consistently designed to introduce three themes: (a) value and use emotion effectively; (b) value, seek and use feedback; and (c) expand evidence-based knowledge. Of course, each workshop varies in emphasis. But a key element in all workshops is creating the conditions for individuals, individually and in pairs (sometimes small groups), to explore how their past experiences may be making them less confident and productive than they might be, and then to learn about and practice new ideas/ forms of knowledge. For instance, they may be asked in pairs to compare their individual timelines of the highs and lows of a particular writing experience in order to analyze the impact of different elements of the writing process on their sense of progress. Or they may be given a research proposal summary and asked to find the moves in pairs.

To provide a sense of how we have designed these workshops, here are three that were given at an event in Helsinki October 2019 – two for PhDs and one for supervisors: https://www.helsinki.fi/en/conferences/seminar-for-early-career-researchers-and-doctoral-supervisors/workshops

- *Who and how am I as a research writer?*: For any early career researchers regardless of stage
- *Towards post-doctoral research – Preparing a research grant proposal*: For final stage PhD students as well as recent PhD graduates
- *Supervising research writing*: For supervisors with any level of expertise

4 Integrating writing into overall academic development programming

Finally, I want to consider how best to integrate support for writing into present institutional academic development offerings. I say this since while it is useful to offer writing support directly, there may be value in integrating such support into other programming. My starting point is, of course, that supervision is an aspect of teaching. Further, a key feature of PhD progress is successful communication in writing, with the expectation that the candidate will ultimately submit a monograph or a series of publishable papers that make a contribution to the field. So writing becomes core to helping PhD students progress in their degrees; and they need to understand how to draw on and use as much (supervisory) feedback as possible.

Further, while writing may not seem so central in teaching, in fact it still plays a role in that teaching involves constantly assessing and giving feedback to students on their academic writing. So, any writing expertise the PhD student develops will be of use in teaching undergraduates as well as graduates. In other words, my belief is that while academic developers can offer useful writing-focused workshops, what might be equally effective would be to integrate writing (the role of emotion, feedback, and writing knowledge) into present teaching and supervision workshops, since ultimately writing is central to all higher education student learning.

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ICED 2020 proceedings:

"Universities just pretend that getting that piece of paper is all you need, like they are selling ice cream." Supporting diverse graduates to achieve post-graduation goals

Sarah O'Shea[1]

National Centre for Student Equity in Higher Education (NCSEHE), Curtin University
Perth, Australia

Janine Delahunty[2], **Olivia Groves**[3]

University of Wollongong
Wollongong, Australia

Abstract

Internationally, new complexities and permutations have emerged in the world of work: employment is no longer stable or strictly demarcated by graduate and non-graduate work; unsecured and entrepreneurial economies are prevalent. Despite this, an expectation persists in the higher education (HE) sector that educational access will result in positive post-graduate outcomes regardless of prior educational or social disadvantage. This paper explores how students from a range of diverse backgrounds navigate post-graduation landscapes and the issues/obstacles they reported during this journey. Drawn from an analysis of large-scale Australian quantitative data and qualitative data from 268 alumni (O'Shea, 2019), recommendations are made for how the global community can honour difference and support *all* graduates to be "future-ready".

1 Introduction

Global higher education (HE) initiatives have seen an unprecedented increase in students graduating with a degree qualification (Marginson, 2016; OECD, 2001). However, this rise has not been matched by employer demand, causing an oversupply of graduates and intensified competition for employment worldwide, including Europe, North America, China and India (Allen et al., 2013; Purcell et al., 2013; Roulin & Bangerter, 2013). Thus, the returns that graduates can expect from HE are more volatile (Moreau & Leathwood, 2006). Indeed, any unified concept of a "graduate labour market" is increasingly redundant, as graduate employment is segmented into zones of greater or lesser security, with differing levels of correspondence to graduate-level skills (Morrison, 2014).

"Employability" commonly refers to attributes that make individual graduates inherently more attractive to employers (Boden & Nedeva, 2010) or successful in the labour market (Tholen, 2015). Yet "employability" is far from neutral, but rather encompasses discourses which bring personal and circumstantial differences to the fore, allowing for (re)production of (dis)advantage (Allen et al., 2013) which ultimately ignores systemic inequities in the graduate employment market. Arguably, discourses around "employment" also reflect deeper social trends, such as "employment skills" where deeper connotations of "gendered", "classed" and "racialized" skills (Moreau & Leathwood, 2006, p.308) may go unidentified. Equally, in the HE

[1] sarah.oshea@curtin.edu.au
[2] janined@uow.edu.au
[3] ogroves@uow.edu.au

sector an expectation remains that if individuals are provided with educational access this will "translate" into positive achievement post-graduation regardless of "prior educational or social disadvantage" (Pitman, et al, 2019, p.46).

While national reports of graduate outcomes in the UK, US and Australia indicate high levels of employment and increasing graduate salaries, closer analysis reveals that unemployment, underemployment and underutilisation of skills and qualifications are particularly so for those from diverse or non-traditional backgrounds. Far from being an "even playing field", graduate opportunities are influenced by social origins which "play a role in shaping up the labor-market and personal outcomes" (Tomaszewski, et al. 2019, p.17). While student numbers grow, a range of barriers and challenges will be faced by equity and first-in-family (FiF) students upon graduation. These hidden injustices within the graduate landscape mean not all students receive equitable returns from their HE participation.

Students who are first in their family at university are a growing cohort in Australia and internationally (Cataldi, et al., 2018; Spiegler & Bednarek, 2013; Universities New Zealand, 2018). FiF is a group characterized by substantially poorer university outcomes and more complex journeys (ABS, 2013; AIHW, 2014; Spiegler & Bednarek, 2013). FiF students face a range of barriers into, through and out of university, including a gap in knowledge about university in the home (O'Shea, et al., 2017), feeling they don't "fit in" (Lehmann, 2009), and being constrained by circumstances beyond their control (Delahunty & O'Shea, 2020). At the same time, diverse backgrounds are not always a burden or disadvantage, but can be a source of translatable employment capabilities (O'Shea & Delahunty, 2019) including the ability to employ strategic and deliberate techniques to achieve success in the HE environment (Groves & O'Shea, 2019).

Given the unique issues faced by FiF students, and also their capability and strength, it is necessary to carefully examine the qualitative experience of their transition to graduate employment.

2 The study

This research was conducted in Australia in 2019 as part of the project "Mind-the-Gap!" (O'Shea, 2019). The aim was to understand how students from diverse backgrounds actually understand and experience the employment market, post-graduation.

Data were collected via interviews and surveys from 268 FiF alumni and recent graduates who were also highly intersected by a range of equity categories[4] or markers of educational disadvantage.

3 Findings

This section presents a summary overview of how FiF participants navigated post-graduation landscapes and issues/obstacles during their HE journeys. It addresses (1) the FiF experience of transition to graduate employment; and (2) recommendations for how FiF can be best supported to be "future-ready".

3.1 Experience of transition

Graduates and alumni considered a range of issues that affected movement out of university and into post-graduation employment. These included "personal" issues of feeling like an "imposter" and the need to negotiate insider knowledge. What was striking was how a limited

[4] While students were all first-in-family, they also self-selected other demographic categories related to economic, ethnic and geographic factors including being working class (WC) and for alumni, years since graduation.

sense of belonging shadowed these students through their HE experience and post-graduation. Many reflected upon feeling "different" when attempting to engage with the employment market, even after obtaining a job:

> *I constantly feel inferior to everyone else in my field and don't think I really belong here. I don't know what else I would do but I'm not sure this is for me*. (Female, 21-25, 5yrs grad, Survey#79)

A sense of being different to work colleagues or peers was particularly noted amongst older alumni:

> *Feeling as if I belonged took a while as I had come from a class/family that were somewhat marginalised.*
> (Female, 51, WC, 31yrs grad, Survey#177)

> *In general, I don't have a lot in common with academics, they are usually from a different background.*
> (Female, 31-40, WC, 3yrs grad, Survey#87)

This difference was at times due to "gaps" in understanding or networks that impacted on pursuit of employment. Students, like Jill who inspired the title of this paper, expressed frustration and disappointment upon graduating and seeking employment. For her, the five years since graduating had been a relentless search for employment in the chemistry field, something she feels university did not adequately prepare her for:

> *Just having a degree doesn't get you a job. No one thought to tell me, a kid from a family where no one had gone to university, that internships, volunteering, padding out your resume like a preppy sod would make you employable.* (Jill)

External factors that impacted on post-graduation employability included financial and spatial issues. The latter refers to how the post-graduation geographical environment was navigated. Given the size of Australia, it is not surprising that distance plays a key role in securing employment. Willingness to move for work was a requirement for a number of participants, and was often referred to in terms of loss, a necessary but somewhat unwelcome decision. As one participant explained:

> *Moving to another city…with no family support or money. Feeling like you have nothing in common with your family and nothing to talk about with them. They do not get your life or understand what you do. (Female, 26-30, 3yrs grad, Survey#17)*

Having to "make do" was often how participants managed these issues, including navigating non-linear pathways to full-time employment. These students reflected on compromises such as abandoning ambitions in favour of basic financial or material needs in the short term or sacrificing employment opportunity due to distance or location.

3.2 Recommendations

Drawn from an analysis of the findings, a selection of recommendations are offered which honour and support the diversity of our participants.

Recommendations for stakeholders

1. **University marketing and administrators:** Be upfront and clear about the length of time involved to become established in degree-related work. Clear messaging must be

complemented by the provision of timely support (practical advice *and* financial resourcing) as students transition into the workforce.

2. **University equity and outreach providers:** Ensure that the "transition out" phase of the student life-cycle is as supported and scaffolded as the "transition in". Support should be offered in various modes, timed to critical post-graduation stages. Support should be individuated, while also focusing on the groups most at risk of un/underemployment.

Recommendations for sector/policy

3. **Independent university peak bodies:** Provide realistic cost-benefit analyses for different fields of study; prioritise ongoing interrogation of longitudinal "opportunity costs" of a degree so students can make informed choices about the qualifications they pursue and the cost benefits of different qualifications.

4. **Government departments:** Work collaboratively to link statistics on employer demand, work patterns and degree-work transitions.

4 Conclusion

This paper provides a summary overview of how students from a range of equity groups navigated post-graduation landscapes and the issues/obstacles they encountered. It draws on a sociological perspective, which considers the structural and institutional stratification that may hinder progress post-graduation.

The findings usefully inform support measures and initiatives implementable across the student life-cycle for students from diverse backgrounds, changes to policy foci or institutional discourses, and more nuanced understandings of how post-graduate students from equity backgrounds navigate and engage with the employment market.

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ICED 2020 proceedings:

Building inclusive and anti-racist futures: Reimagining higher education for a world in flux

Chandani Patel[1]

Office of Global Inclusion, Diversity, and Strategic Innnovation
New York University
60 Washington Square South, Suite 806
New York, NY 10012

Abstract

What skills and knowledge will "future-ready graduates" need to meet the challenges of a world in flux? How must traditional forms of education be reimagined to meet the needs of an increasingly diverse student population? How can we as individuals practice critical self-reflection about our own positionalities so that we can meaningfully engage in conversations across difference? This essay will examine the future of higher education through the lens of equity, inclusion, and anti-racism as a response to these questions and to demonstrate the collective responsibility we share in preparing students for an uncertain and ever-changing world.

1 Introduction

As all of us navigate the instability of the present and the uncertainty of the future, questions about the value of higher education in the 21st century are at the forefront. In discussions about preparing students for their futures, we must ask: Who is included in the future we are talking about? Whose voices and contributions will be taken into consideration, and who is or might be left out? How can we envision futures that are designed for the well-being and protection of all of us? Our students are navigating a world that is constantly changing, and many, if not all, of them are anxious about the uncertainty of their futures: What kinds of jobs and careers will be left in the wake of a global pandemic? How will technology continue to shape the idea of "work" itself? How can they talk across differences and be in solidarity with those most vulnerable to systemic violence? And how will they confront and combat planetary crises that linger ominously in the background? As we know, rapid economic and social transformation globally impacts conversations about teaching and learning within our local institutions. As educators, we must ask ourselves how we will prepare students with the skills and knowledge to meet these challenges by reimagining the purpose and possibilities of higher education itself, from the learning environment to institutional policies, practices, and culture.

2 Innovative teaching, creative solutions

In an era where the answers to many of our questions can be found through a quick Google search, higher education needs to revitalize how it educates students, moving away from passive learning through traditional teaching methods to designing opportunities for students to collaborate and develop creative solutions to complex problems. In fact, a report from the Chronicle of Higher Education notes that 8 out of 10 traditionally-aged college students, members of Generation Z, use YouTube as one of their primary means of learning new

[1] chandani.patel@nyu.edu; +1-212-998-4570, https://www.nyu.edu/about/leadership-university-administration/office-of-the-president/global-inclusion--diversity--and-strategic-innovation/chandani-patel--phd.html

information and skills[2]. What, then, is the purpose of higher education in the 21st century? As scholars such as Cathy Davidson (2017), Bryan Dewsbury (2019), and Joseph Auon (2017) have suggested, part of the answer lies in what makes us human to begin with: those skills that machines will not be able to easily replicate, if at all. While some college classrooms still operate from the outdated "banking model" of education – where a faculty member seeks to transmit knowledge to their students – others intentionally provide students with rich opportunities to grow the human-centered skills they will rely on as "future-ready" graduates. These classroom spaces are abuzz with students problem-solving through structured teamwork, developing applications to address social issues they are passionate about, and speaking as experts about their own communities and cultures. What steps can we take to ensure that all of our classroom spaces, and institutions, are helping students develop the skills they need to work across differences in order to imagine creative solutions to the world's most pressing problems?

3 Equitable and inclusive cultures

We must begin by acknowledging the histories of oppression that uphold our institutions and the practice of education. Who were our institutions designed to educate? What are the underlying cultural norms and expectations that guide not only the classroom experience but also the hidden curriculum – the unspoken or informal aspects of education – that students must navigate? To prepare "future-ready graduates", we must examine higher education through the lens of equity and inclusion: the global-scale problems that will define the remainder of the 21st century require the creative and collaborative energy not just of the few who can make it through the often convoluted landscape of higher education, but of every single student. Equity is a process that requires taking students' diverse needs into consideration, alongside histories of oppression and disenfranchisement, in order to distribute resources and create opportunities for learning accordingly. Not all students need the same things in order to thrive during their college experience. As educators, our goal should be to identify disparate needs in order to provide the necessary support for all students to engage in meaningful learning. To build inclusive cultures, we need to intentionally create a sense of belonging for people of all identities, especially those who have been historically excluded. Often, inclusion requires examining students' motivations for entering college in the first place instead of assuming they are there for the reasons we may imagine. Part of our obligation to the students we have in our classrooms is to equip them with the tools and resources to connect with community members, organizations, and each other so that they can face the challenges presented to them in holistic and equitable ways.

4 Anti-racist frameworks

While most, if not all, institutions espouse values of equity and inclusion through diversity statements and initiatives, when we look closer we often recognize that institutional cultures have a long way to go in confronting legacies of oppression and creating inclusive and anti-racist spaces for all. To intentionally create these environments, we have to think systemically. Systemic thinking requires examining the policies and practices that define an institutional culture through a lens of anti-racism. As Ibram Kendi writes,

> *One endorses either the idea of a racial hierarchy as a racist, or racial equality as an antiracist. One either believes problems are rooted in groups of people, as a racist, or locates the roots of problems in power and policies, as an antiracist. One either allows racial inequities to persevere, as a racist, or confronts racial inequities, as an antiracist. (2019, p.9)*

[2] Jeffrey Selingo, "The New Generation of Students: How Colleges Can Recruit, Teach, and Serve Gen Z", *The Chronicle of Higher Education* (2018): 23.

The current narrative about student success relies on detrimental beliefs about individual students being fully responsible for navigating their way through institutions of higher learning, when often their success is impeded by policies and practices that in and of themselves uphold dominant, heteronormative, and individualistic ways of being in the world.

Similarly, many higher education institutions adhere to the belief that the "life of the mind" is the life worth cultivating throughout a college education. Our minds, however, are not separate from our lived experiences. Derald Wing Sue, in his book *Race Talk*, examines the distinction between empirical and experiential reality when he writes,

> *Most professors and many teachers conduct their classes...in a manner that values sterile decorum in which topics of race, gender, and sexual orientation are discussed in a highly intellectualized fashion...this feature of the academic protocol evaluates and judges the legitimacy of classroom information and learning through empirical evidence rather than experiential evidence. (2015, p.66)*

When students, and faculty, are asked to leave the rest of their lives outside of the institution, the message that is perpetuated is that some forms of knowledge are more highly valued than others. But when it comes to "future-ready graduates" and the future of higher education, we know that empirical evidence only allows for limited responses and solutions to world-scale problems.

5 Human-centered skills for the future

Research on automation and the future of work argues that there are key human-centered skills that machines won't be able to replace. Among them are: creativity, imagination, curiosity, divergent thinking, and judgment. To cultivate and operationalize these skills, we must create the conditions for students to center their experiential reality and different areas of expertise. We must also prioritize collaboration and consensus-building across diverse perspectives. To teach the skills of divergent thinking – a form of thinking where many possible solutions are entertained at the same time – we must also equip students with an anti-racist framework and lens. With this lens, students will be able to ask: How do we bring a lens of environmental justice to the forefront when thinking through planetary crisis? How do our biases shape technologies? What does it mean to be a global citizen? What are our responsibilities to each other? In order to teach our students how to ask and engage in these questions, however, we must first ask them of ourselves: How can we as individuals practice critical self-reflection about our own positionalities so that we can meaningfully engage in conversations across difference?

6 Conclusions: Sharing responsibility

No matter our role within our institutions, we have the power to influence change. As bell hooks reminds us, "As a classroom community, our capacity to generate excitement is deeply affected by our interest in one another, in hearing one another's voices, in recognizing one another's presence" (1994, p.8). Our classrooms, and institutions, should be spaces of excitement, transformation, and empowerment. Each of us shares the responsibility of preparing students for an uncertain and ever-changing world, from course level changes that contribute to an inclusive teaching practice, to examining the biases that lay at the foundation of disciplines, to moving beyond institutional norms that privilege dominant behaviors and ways of being and thinking. "In our world," Audre Lorde insists, "divide and conquer must become define and empower" (1984, p.112). We must be able to define, or name, barriers to anti-racist and inclusive institutional cultures in order to dismantle them. Centering all students' lived experiences, assets, and anxieties will enable us to confront historic inequities and ensure more inclusive futures for all.

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Reaching intercultural speakers of Spanish as a second language with a new curriculum design

Cynthia Potvin[1]

Département de traduction et des langues, Université de Moncton
18 Antonine-Maillet Avenue
Moncton, E1A 3E9, Canada

Abstract

In order to better prepare our Spanish as a second language (SL2) university students to be intercultural speakers (Cervantes Institute, 2007) and to ready them for the intercultural realities of the job market, we are currently internationalizing our curricula. Following the approach of Chávez and Longerbeam (2016) regarding interculturality, we are developing a cultural grammar (Sánchez Pérez, 2009; Guillén, 2016). In this paper, we present the basic concepts and definitions of our approach and conclude by highlighting three characteristics present in our intercultural in-class activities.

1 Introduction

Since 2001, most second language courses and textbooks have followed the Common European Framework of Reference for Languages (CEFRL) (Council of Europe, 2001). Based on the CEFRL, the Plan Curricular del Instituto Cervantes "Cervantes Institute Curriculum Plan" (PC) (Instituto Cervantes, 2007) guides many Spanish as a second language (SL2) programs, courses and textbooks globally. Nowadays, one of the main objectives in SL2 teaching is to enable a transition to "intercultural speakers" through authentic language samples (Instituto Cervantes, 2007). At first sight, this goal appears very "attractive" for university level SL2 courses, considering that interculturality is an essential skill required of 21st century university students (Deardorff, 2009).

Unfortunately, 13 years after the publication of the PC (Cervantes Institute, 2007), there remains much to do in order to reach this intercultural goal. SL2 university level courses still do not offer a complete view of the Hispanic world, and thus miss their "intercultural goal". Firstly, although the Cervantes Institute (2007) aims for SL2 students to become "intercultural speakers" through authentic language samples, they produced the PC (Cervantes Institute, 2007) according to the North Central peninsular variant, excluding 10 other peninsular variants as well as 10 additional Hispano-American ones (Lipski, 2012). Secondly, their three inventories related to culture (i.e. the Cultural references, the Sociocultural knowledge and behaviors, and the Intercultural skills and attitudes) have not been exploited at their full capacity regarding the inclusion of the variants. Thirdly, the analysis of 20 SL2 textbooks shows that they largely restrict themselves to Cultural references, leaving out the other two kinds of culture (Potvin, 2020). As Cultural references are part of one's encyclopedic knowledge, not only do SL2 students develop this kind of knowledge, but they also do it via the North Central peninsular variant contained in their textbooks. Thus, by the end of their courses, it seems unlikely that they will have reached intercultural competence (Fantini, Arias-Galicia and Guay, 2001). Faced with this situation, we suggest appealing to the

[1] potvinc@umoncton.ca

internationalization of the curricula in order to facilitate the development of our SL2 university students' intercultural competence.

2 Internationalization of the curricula and interculturality

Briefly stated, the pedagogical concept of the internationalization of the curricula can be defined as the integration of an international dimension in the curricula, the contents of the program and the course, the teaching method and assessment, the investigation, etc., in order to foster the social and professional growth of students who will work in an international, interdisciplinary and multicultural context (Daniels, 2017). Although any language course is in itself part of the internationalization of the curricula, we seek to enhance our SL2 students' intercultural competence through exposure to several Hispanic variants. Here we propose to follow Chávez and Longerbeam's (2016) approach to interculturality[2]. For them, "In a culturally integrated framework, an interconnected, mutual, reflective, cyclical, contextually dependent conception of the world is common, assumed, and valued" (Chávez and Longerbeam, 2016: 8)[3]. The purpose of learning is directly linked with the improvement of people's lives, from our family to the community. It is possible to attain this goal by reflecting on others and the relationships with others as well as by listening to others' experiences. Therefore, in this framework, collective learning is at the center of one's and others' learning. As such, students' interactions are important to highlight others' perspectives and comprehensions of the world. The notions to work on have to be contextualized and connected.

As linguistic competence and intercultural competence go hand in hand (Potvin, 2020, 2018), we now turn to the kind of culture useful for working on intercultural competence in SL2 language courses.

3 Cultural grammar

Because "Connecting culture and language is not new" (Sánchez Pérez, 2009: 307; our translation), there has always been an attempt to teach culture[4] in language courses in one way or another depending on the field in which you consider the concept[5] (Jiménez-Ramírez, 2019). Unfortunately, these earlier attempts were insufficient in facilitating SL2 students' transition to being intercultural speakers. Various reasons explain this long-standing situation, some of which are:

1. For many decades the focus in language courses has been to teach the linguistic components.
2. Culture has long been considered a mere complement and not a real protagonist alongside the linguistic system, while the way the concept of culture is defined should determine the way culture is integrated into language courses.
3. Thanks to the communicative method, the central role culture has to play in acquiring a second or a foreign language is widely recognized. However, a kind of "catalog" of the cultural elements to be taught hand in hand with linguistics forms is still lacking (Jiménez-Ramírez, 2019; Sánchez Pérez, 2009).

This "catalog" would reflect the Cultural grammar an SL2 student would have to master in order to become an intercultural speaker. Although Sánchez-Pérez (2009) and Guillén Díaz (2016)

[2] Note that this approach could be used to develop the intercultural competence in any kind of course.
[3] Note that the role of the professor has changed to that of a facilitator of a learning experience (Chávez and Longerbeam, 2016).
[4] Plenty of work has been done regarding the definition of the concept of culture. For an overview see Guillén Díaz (2016), among others.
[5] For those from the literary field, culture is reduced to an inventory of historic and artistical facts, while for those from the philosophical field what matters are the psychological mechanisms involved in the learning process (Jiménez-Ramírez, 2019). The concept of culture is only taken in its entirety by those from the forum axis ("eje del foro"), for whom "the language is only a part of a communication which is conditioned by beliefs, values, habits, rites or taboos" (Jiménez-Ramírez, 2019: 246; our translation).

mention such a grammar in their work, they specify that nobody has determined its content yet[6]. Moreover, for an SL2 Cultural grammar to be authentic, it is important to integrate the Hispanic varieties, which is not an easy task. Also, for this Cultural grammar to reflect the junction between the linguistic competence and the intercultural competence, it is necessary to distinguish the kinds of cultures and the knowledge they imply. Adopting Miquel and Sans' (2004) terminology, Culture with a big C contains the encyclopedic notions, while Culture "a secas" contains all the communicative notions proper to a community and, as such, serves to attain the intercultural competence. Now, useful to language courses is the subdivision of the content of the Culture "a secas" in order to create activities which also take into account the linguistic component of the language: there are those non-linguistic elements (i.e., gestures, habits, rites, etc.) and the linguistic ones (i.e., the way we answer the phone, express (in)formality, argue, etc.). This last nuance leads us to argue that there is not only an intercultural competence to develop, but also an intercultural communicative one (Byram, 1997).

4 Conclusion

The promotion of interculturality as well as Culture grammar through the internationalization of the curricula led us to pursue our task by creating activities for our SL2 university language courses. These activities must not only be integrated in order to achieve the intercultural competence, but also be integrated with our students' linguistic competence growth in mind. As such, the two competences must be developed hand in hand (Potvin 2020, 2018); one cannot take precedence over the other. Thus, our beginner SL2 students complete four Missions ("Misión 1", and so on), our beginner-intermediate SL2 students work on the Hispanic movie festival – part one ("Festival del cine – 1ª fase"), while our intermediate students realize the Big project ("Gran Proyecto") and our intermediate-advanced ones participate in the Hispanic movie festival – part two ("Festival del cine – 2ª fase"). All these activities share three basic characteristics that help students to attain the linguistic, cultural or intercultural (communicative) competences:

1. Authenticity: Thanks to authentic language samples (Cervantes Institute, 2007) as mentioned earlier, but also experiential learning, in order to develop the linguistic and cultural competences
2. Interculturality: In order to develop the intercultural competence
3. Collaboration: In order to reach the intercultural communicative competence

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ICED 2020 proceedings:

Working life competences that matter for the newly graduated: Views of recruiters in the domain of knowledge work

Joachim Ramström[1]

Turku School of Economics, University of Turku
Rehtorinpellonkatu 3
20500 Turku, Finland

Laura Helle[2]

Department of Teacher Education, University of Turku
Assistentinkatu 5
20500 Turku, Finland

Abstract

Working life and the structure of work is undergoing an evolution. Many companies are reporting recruitment problems related to deficits in working life competences. Much of the research into working life competences remains theoretical and prescriptive. Furthermore, different typologies of working life competences tend to abstract the notion of competence to such a degree that it becomes meaningless.

The purpose of this study is to shed light on the views of the people in charge of making recruitment decisions by asking what working life competences that are deemed essential when recruiting new higher education institution (HEI) graduates in the domain of knowledge work. We are also aiming to get a better understanding of what meaning recruitment specialists give to important working life competences.

1 Introduction

Working life and the structure of work is undergoing an evolution. Middle-class jobs and middle-wage work are disappearing and being replaced by high-wage and high-skilled jobs along with low-wage and low-skill service sector positions. Many traditional jobs are rapidly disappearing while completely new types of jobs are emerging (OECD, 2013; Palonen, Boshuizen & Lehtinen, 2014).

Many companies are reporting recruitment problems related to a growing shortage of suitable workers (Casner-Lotto and Barrington, 2006; Wagner, 2010; Dobbs, et al., 2012). According to employers, the source of these problems is a deficit in working life competences (CIHE, 2008; CFI, 2011; EDGE, 2011; EU ODP, 2015).

Previous research on working life competence do not clearly specify the type of recruits they are focusing on. Do companies struggle to find new graduates or are they struggling with finding workers with past work experience? This study draws on some seminal studies (Voogt and Roblin, 2010; Rychen and Salganik, 2001; Winterton et al., 2005; Kyndt et al., 2014). While

[1] jharam@utu.fi
[2] lhelle@utu.fi

the typologies put forth in these seminal studies provide us with insight into the world of contemporary work, it is not clear if the typologies also apply to new graduates.

In his influential book, Robert Reich (1992, 174) divided jobs into three broad categories: symbolic-analytic services, routine production services, and in-person services. The present study will focus on private-sector symbol analysts[3], who are commonly referred to as knowledge workers.

Defining competence is a complex endeavour (Hanhinen, 2010; Stevens, 2013), and there are a large number of different definitions. In this paper, a definition by Jackson and Chapman (2012) is used. Recognizing the concerns with the parallel treatment of skills and attributes, Jackson and Chapman (2012) define competence as an overarching capability that encompasses skills and attributes as well as values and abilities. Working life competence, hence, is in this paper understood as a person's ability to function successfully or perform appropriately in workplace scenarios (Jackson and Chapman, 2012). Furthermore, competence refers to a set of cognitive, socio-cognitive, self-management and technical/ administrative dispositions of an individual used for a specific purpose (Ellström, 1992; Jackson & Chapman, 2012; Stevens, 2013).

There are several theoretical studies which can be used when identifying key competences relevant for knowledge work. The main results of these studies are summarized in Table 1. Using a study by Jackson & Chapman (2012) as a foundation, the competences in Table 1 have been categorized into four categories: cognitive, social, self-management and technical.

However, these past studies overlooked some issues. Firstly, from the perspective of Reich's (1992) three broad categories of work, it is not completely clear which categories of work previous studies refer to. It is important to distinguish between these categories because different categories of work might require a number of unique working life competences. Secondly, it is not clear from previous research whether a distinction has been made between the newly graduated and employees with work experience. Thirdly, with few exceptions previous research used surveys as data collection method, and almost without exception, these surveys asked respondents to comment on or rate a pre-determined list of competences. There is a clear risk that findings become repetitive, where the only notable differences are the ranking or order of the same competences. Finally, a lot of the research on working life competences is theoretical or conceptual. As a result, many of the universal frameworks tend to abstract the notion of competence to such a degree that it becomes meaningless and hence these frameworks risk losing any practical applicability.

The purpose of this study was to flesh out the types of competence in new graduates which are needed in knowledge work, according to frontline experts: recruitment specialists working in the private sector. Understanding the perceptions of recruitment specialists can provide us with essential information on the critical competences needed to gain employment in knowledge work in the private sector as a new graduate.

The following research questions guided this research:

1. What key competences in private sector knowledge work are recruitment specialists looking for in new graduates in the domain of knowledge work?
2. How do the recruitment specialists describe these key working life competences, in concrete terms?

[3] Scholars have been dealt with elsewhere (e.g., in Zuccala, 2006; Rehl, Palonen, Lehtinen & Gruber, 2014).

Table 1 - comparing research on competences

Theoretical frameworks				
	Cognitive	**Social**	**Self-management**	**Technical**
DeSeCo (2001)	Using tools interactively	Interacting in social groups	Acting autonomously	
Review of frameworks				
Voogt & Roblin (2012)	Creativity, critical thinking, problem solving,	Collaboration, communication, social / cultural skills		ICT literacy, develop quality products
Winterton et al. (2005)	Cognitive, Meta competence	Social competence		Functional competence
Kyndt et al. (2014)	Problem solving	Empathy, Listening, Cooperation ability, Assertiveness	Professional attitude	
Empirical research in selected industries				
Tynjälä et al. (2006)	Adaptive characteristics	Social skills, teamwork, people skills	Motivational characteristics	Production and technical competencies, Innovative abilities
Empirical research context independent				
EU OPD (2010)	Adapt and act in new situations, analytical, problem solving, decision making	Team work, communication	Planning and organisational	Computer, reading/writing, numeracy
Archer & Davison / CIHE (2008)	Intellectual ability, Analysis & decision-making	Communication skills, Team-working skills	Integrity, Confidence, Planning & organisational	Literacy, Numeracy
Lowden et.al. (2011)	Problem solving, Leadership	Team working Good interpersonal and communication skills	Self-management, initiative, follow instructions, motivation, tenacity	Knowledge of the business, Literacy and numeracy relevant to the post, ICT knowledge
Empirical research in a business school context				
Casner-Lotto & Barrington (2006)	Critical thinking/problem solving, leadership, creativity	Oral communication, teamwork	Professionalism/work ethic, ethical/social responsibility, self-direction	Written communication, information technology, innovation
Wellman (2010)	Creative, analytical mind, keen to learn	Interpersonal skills	Attention to detail, responsibility, pro-active, confident, self-motivated	Innovative, commercial awareness
Jackson & Chapman (2012)	Critical thinking, Problem solving, Decision management, Leadership	Political skills, Working with others, Oral communication, Social responsibility	Personal ethics, Confidence, Self-awareness, Self-discipline, Work ethic	Core business skills, Innovation, Formal communication skills, Public speaking, Professional responsibility

2 Methods

This qualitative study was based on thematic interviews with human resources managers and senior managers in charge of recruitment in the domain of knowledge work. This study applied a phenomenological approach with the aim of obtaining concrete descriptions of the recruitment specialists' experiences and inferred meanings. The informants were sampled purposively. All informants were responsible for recruitment in their respective organizations, or had been involved in several recruitment processes.

After eight interviews, it was felt that data collection had reached a saturation point, i.e. no significant new information seemed to appear. To be sure, two additional interviews were conducted, but they did not reveal any new information. Table 2 lists the informants.

Table 2 - list of respondents

Branch or industry	Title	Gender
Insurance (RIN)	HR manager	Female
Banking and finance (RBA)	Office manager	Male
IT solutions (RIT)	HR manager	Male
Business services (RBU)	Division manager	Male
Computer gaming (RCOM)	Owner and operative manager	Male
Consulting (RCO)	Joint owner and team leader	Male
Marketing and branding (RMA)	HR manager	Female
Recruitment and HR solutions (RRE)	Management consultant	Male
Telecom (RTE)	Innovation and business architect	Female
IT solutions (RITS)	HR manager	Male

3 Findings and conclusions

We identified and distinguished between seven different key competences: development competence, learning competence, customer/business competence, interpersonal and communication competence, self-directedness, teamwork and collaborative competence, and flexibility. Most references in the transcribed data relate to self-directedness, which is mentioned by all 10 informants (n=10) and occurs 81 times in the data (frequency f = 81), followed by cooperative and team competence (n=9, f = 65), and social and communicative competence (n=8, f = 51). We do not suggest that occurrences of frequency indicate that one competence is more important than another and we make no attempt to rank the competences. Frequency and occurrence helped us to limit and pinpoint which competences to look at in more detail to learn how recruitment specialists describe them in concrete terms.

The main findings of the research are summarized in Table 3, which presents the main working life competences that were emphasized by the informants and demonstrates how each of the competences manifests itself in the workplace.

Table 3: Summary of key competences

Key working life competences (Research question 1)	Number of respondents (n)	Frequency (f)	Meanings ascribed to a competence, competence in practical terms (Research question 2)
Self-directedness	10	81	- self leadership
			- ability to make one's own decisions
			- ability to question
			- working without detailed instructions
			- taking initiative for one's own competence development
			- to come up with ideas and move the ideas forward
Cooperative and team competence	9	65	- ability to share knowledge and experiences
			- contributing to others' success
			- ability for dialogue and interaction
			- creating and following collective objectives
			- flexibility and support for each other
			- sharing responsibility
			- making others "look good"
Social and communicative competence	8	51	- creating contacts to other people
			- not being afraid of social situations
			- getting along with others in for instance the team, working with people with different backgrounds
			- interpreting and understanding another person and his/her situation
			- communicating in all directions
Learning competence	7	37	- ability to identify one's own skills and competences
			- ability to follow-up of one's own skills/competences
			- ability to listen in order to increase understanding
			- ability to be motivated to change
			- openness to the new
			- a willingness, interest in and even passion for learning
			- ability to change one's own habits
			- ability to take on completely new tasks

			- setting goals and targets for own development
Customer / business competence	7	29	- ability to grow together with customers
			- identifying solutions and help customers
			- an understanding of one's own and customer business models
			- a knowledge of customers and customer care
			- understanding of how customers use the company's products or services
Development competence	7	21	- one's own growth
			- ability to define goals, setting targets
			- tolerating failures
			- a willingness to take part in development processes
			- ability to be humble to new knowledge
			- ability take risks
			- courage
Flexibility	8	19	- dealing with unexpected situations
			- adapting to changed circumstances
			- ability to quickly make changes
			- dealing with chaotic processes

Self-directedness was deemed the most important working life competence in knowledge work in the private sector. When relating this finding to previous research (see Table 1), it is interesting to note that self-directedness was not directly identified in any of the six reviews or empirical studies reviewed in this article. In the review by Voogt and Roblin, self-direction was found in only two of the frameworks: P21 and En Gauge.

This study confirms the findings of previous studies regarding the importance of cooperative and team competence. It is worth noting that all of the companies representing IT, telecoms and gaming rated social and communicative competences highly. Work in these industries is conducted primarily in teams and there is a need to learn from each other and teach others.

Perhaps one of the most interesting findings of this study concerns one competence that is hardly mentioned by any of the informants: ICT competence. This is interesting because authorities are currently emphasizing ICT competence as a key competence for future working life. One way of interpreting this finding is that the informants may take it for granted that their job applicants are proficient in the use of ICT.

When analyzing the empirical data, there are two themes that link the different competences that emerged from the research, namely *change* and *complexity*. Today's business and working life is characterized by an *unprecedented rate of change*. Changes in the market place has forced businesses to make dramatic changes in their work practices. Globalization leads to people working across different time zones, borders and cultures. New roles and tasks are emerging at an ever-increasing pace.

As products and product design processes become *more complex,* they involve more areas of knowledge, meaning that employees need to have both a very specific knowledge of certain areas and a general knowledge of the many different aspects of the product at the same time. Therefore an employee needs to be both a generalist and a specialist.

Tying into the discussion on whether education, and especially higher education, is focusing too much on factual knowledge at the expense of promoting individual growth (c.f. Ruberg, Calinger & Howard, 2010; Lambert, 2012) the data does not support a conclusion that domain-specific knowledge is of lesser importance than other competences. However, there are strong indications that generic working life competences have a significant impact on hiring decisions. Therefore there is an apparent need to develop and to evaluate higher education curricula. These efforts should be geared towards self-directedness and social competences in addition to domain specific knowledge and skills, recognising that generic working life competences do not exclude the importance of either domain specific knowledge and skills or formal education.

As pointed out by Rotherham and Willingham (2009), many of the key competences identified in the different studies are not new or unique to work in the third millennium. What is new is that collective and individual success depend on having such skills. What used to be “nice to have” competences are rapidly becoming “must have” competences in order to succeed in working life.

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Engaging faculty in designing inclusive and collaborative classroom strategies with students with disabilities: A guide for faculty developers

Sara Schley[1]

National Technical Institute for the Deaf, Rochester Institute of Technology
52 Lomb Memorial Dr
Rochester, NY 14623, USA

Carol Marchetti[2]

College of Science, Rochester Institute of Technology
85 Lomb Memorial Dr
Rochester, NY 14623, USA

Abstract

Classroom disabilities are part of the diversity landscape. Usually, faculty address the needs of students with disabilities in their classrooms by honoring accommodations requests – letters from a disability services office detailing a students' needs (e.g., presence of ASL/English interpreter in the classroom, extended time on a test, large-print handouts, digital versions of slides, etc.). From there, faculty allow for the accommodation(s), and the course continues as planned – with minimal adaptation on the part of a faculty member or class participants (Schley, 2018). There are small pedagogical changes that faculty can make to increase the inclusion of students with disabilities, and improve interaction between all enrolled students (Cawthon, Jassal & Schley, in press; Cawthon, Schley & Davidson, 2019; Marchetti et al. 2019; Marchetti, Foster, Long & Stinson, 2012). Often, these strategies can also make the job of teaching more efficient and effective.

1 Introduction

This paper leads educational developers in identifying feasible ways for faculty to address inclusion needs pedagogically. Accommodations are mandated by law; they generally ensure access to information – but not necessarily full educational inclusion. Consider students who rely on a sign language interpreter during a class discussion when a professor is also presenting graphic information – such as a video demonstration, or solution written on the board. They must choose between watching the interpreter *or* the graphic information. These students have an increased cognitive load in comprehending classroom talk: it is physically impossible to watch two places at once. However, faculty members can employ relatively simple strategies to make this experience more accessible and more inclusive; pedagogical strategies which go beyond allowing for access services and disability accommodations. In this example of co-occurring visual information from multiple sources at once (interpreter, graphic on screen or board), one solution is that the faculty adopt a practice of *pausing* between presenting a new graphic display and narrating/commenting about the display. It happens that such strategies often make the experience better for many enrolled students (disabled or not). By focusing on pedagogical strategies, rather than accommodations for specific students with disabilities, faculty can decrease cognitive load for all students.

[1] Sara.Schley@rit.edu
[2] Carol.Marchetti@rit.edu

We share examples of a number of successful strategies. By definition, this approach revolves around classroom diversity and including disabilities in the discussion and pedagogy of diverse student groups. We incorporate lessons learned from a partnership between faculty and student mentors: The student had an identified disability, and the partnership centered around increasing classroom inclusion with respect to their disability. Consider this paper to be a guide to strategies one can share with faculty to increase interaction, engagement, and inclusion in courses with co-enrolment of students with and without disabilities.

Approach	Course	Pedagogical Challenge, and Solution Strategy	
Accessible & Inclusive **Classroom Layout**	**Physics**	**Challenge:**	Tables arranged around the podium in the center of the room prevent line-of-sight with students sitting directly behind the instructor.
		Strategies:	Monitor student engagement with a laptop live-streaming a camera feed; cues come from the learning assistant sitting in front of the instructor in class.
	Fine Arts	**Challenge:**	Varying communication needs and wants (two sign language interpreters and one speech-to-text captionist) are not satisfied by traditional rows of individual student chair-desk combination seating.
		Strategy:	Use a U-shaped seating arrangement to optimize line-of-sight and engagement.
Alternative Classroom **Activities & Assessments**	**Mathematics**	**Challenge:**	Some of the students in the class have weak English skills.
		Strategies:	Support learning of the content without heavy reliance on English through Mad Minutes, note/reflection cards, and graphic organizer posters.
	Mechanical Engineering	**Challenge:**	Improve written work and oral presentations while increasing student engagement.
		Strategies:	Break written assignments into stages, allowing for peer collaboration and feedback on rough drafts. In lieu of 20-minute presentations, final projects were presented as posters, following a conference format.
Accessible & Inclusive **Tools & Technology**	**Communication**	**Challenge:**	Full engagement in class discussions, and gauging the level of student comprehension during lectures.
		Strategies:	Multiple opportunities for engagement and feedback, including student-led class discussions, a mobile polling application, reflection cards, and whole class activities.
	Software Engineering	**Challenge:**	Mixed groups of hearing and DHH students face a communication barrier and do not interact effectively in group project work.
		Strategy:	Create a mobile app to facilitate group communication.

Table 1. Strategies implemented by faculty learning community (FLC) participants: pedagogical changes to increase inclusion and interaction.

2 Strategies and examples

Participants in a semester-long faculty learning community (FLC) identified classroom challenges with regard to access and inclusion for deaf and hard of hearing (DHH) students and developed strategies to address them. The semester was designed around three areas of training: Universal Design for Learning (UDL), creating a strategy for improvement, and implementing this strategy in the classroom. The strategies to increase classroom interaction

and inclusion fell into three approaches: adapting the classroom layout, changing activities and/or assessment options, and adding tools or technology. Table 1 (adapted from Marchetti, et. al, 2019) summarizes classroom challenges and strategies considered during our FLCs.

As the semester progressed, faculty participants increased their knowledge of teaching strategies, grew more confident about modifying their teaching, and felt positive about improving student engagement in their classes. Once strategies were implemented, faculty considered how they might assess effectiveness. For some, asking their students to evaluate a teaching strategy was a novel concept.

3 Partnering faculty and students

These FLCs partnered students with disabilities with the faculty. Our institution has a high density of deaf and hard of hearing students (DHH; over 1000 of them) amidst over 15,000 students total, across 10 separate colleges. Other studies have focused on similar faculty/student partnerships with other identity characteristics (e.g., students of colour or first generation college students: see Cook-Sather 2019, 2020; Cook-Sather & Des-Ogugua, 2019; Oleson, 2016). To our knowledge, our work is the first to partner students with disabilities with faculty. Students observed class sessions, brainstormed with faculty about access and inclusion challenge points, and assisted in designing responsive strategies to address these challenges. Importantly, they were not enrolled in the specific courses they observed – instead their role was more of mentor and observer. Students were also full members of the FLCs, and participated in discussions with faculty about inclusion challenges and solutions.

4 Role of faculty developers

This project was conceived of as an effort in inclusive faculty development. A faculty developer was part of the team, as well as a faculty member with experience in faculty development research. The faculty developer ensured a holistic focus on teaching and learning core principles embedded within the goal of increasing inclusion and interaction in faculty participants' courses. Core principles included discussion of clear linkages between learning objectives, instructional activities, and assessments. Other faculty developer roles included formulating the learning community readings and curriculum, hiring student mentors, and training student mentors in using the classroom observation tool (see Cawthon, Schley and Davidson, 2019) and working with faculty to share their feedback and perspectives.

5 Conclusions

This model could be implemented and adapted to address a variety of classroom diversity challenges at any university or institution of higher education. We focused specifically on partnering students with disabilities with faculty, given a specific context and interest on our campus. Facilitators, faculty participants and student-mentors explored concepts of Universal Design for Learning; proposed an accessibility strategy; implemented the strategy in their courses; and considered assessment options. Student-mentors were a part of the process from start to finish, observing faculty-participant classrooms; giving feedback on what worked well; brainstorming potential strategies to improve access and inclusion; and helping to test, implement, and assess strategies. While these deaf and hard-of-hearing student-mentors noted visual, physical space, and interaction challenges to address, other groups of students would add valuable perspectives about increasing interaction and inclusion from their own perspectives. Alternate variations of this model could include adding a focus on culturally informed pedagogy, trauma-informed pedagogy, and/or managing difficult conversations in the classroom. This effort to provide resources for faculty to develop their inclusive pedagogical skills along with student partnership resulted in a series of relatively simple pedagogical strategies which improved interaction and inclusion in these courses.

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We thank the deaf and hard of hearing student mentors, the faculty participants, and the learning community facilitators who made this project such a success. Scot Atkins (RIT) and Stephanie Cawthon (University of Texas at Austin) also contributed valuably to the leadership of this project.

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ICED 2020 proceedings: Enhancing reflection skills with social video learning

Pascal Schmidt [1]

Educational Development and Technology (LET), ETH Zurich
Haldenbachstrasse 44
8092 Zurich, Switzerland

Marion Lehner[2]

Educational Development and Technology (LET), ETH Zurich
Haldenbachstrasse 44
8092 Zurich, Switzerland

Patrik Christen[3,4]

[3]*Institute for Biomechanics, ETH Zurich*
Leopold-Ruzicka-Weg 4
8049 Zurich, Switzerland

[4]*Institute for Information Systems, FHNW University of Applied Sciences and Arts Northwestern Switzerland*
Riggenbachstrasse 16
4600 Olten, Switzerland

Abstract

In this article we use two cases to demonstrate how instructors can successfully deploy a new interactive video player in their courses to optimise student learning, especially the development of reflection skills via social video learning.

1 Introduction

One 21st-century skill is metacognition (Bialik et al., 2015). Because reflection processes play a significant role in instructor training (Guskey, 2002), the latter is a good opportunity to develop reflection skills deliberately. Awareness of one's own reflection processes is vital for adapting to ever-changing circumstances in a world which features increasingly complex problems.

Video has huge potential for bringing complex situations and processes into learning and teaching situations. However, because it is a densified, complex and fluid medium it is important for the instructor to consider features that promote active learning and help students process information and monitor their own understanding. For this reason ETH Zurich has created a specialised interactive video player, called the "Interactive Video Suite" (IVS), for its Moodle learning management system. Using the IVS, students can add comments and

[1] pascal.schmidt@let.ethz.ch
[2] marion.lehner@let.ethz.ch
[3] patrik.christen@hest.ethz.ch, [4] patrik.christen@fhnw.ch

graphical marks to videos and answer questions within the video context. Here the potential of situational reflection and social discourse are combined via a method called “social video learning”, which has been in use at various departments at ETH Zurich since 2018.

2 The Interactive Video Suite (IVS) – Concept and functions

The topic of "interactive videos" has become increasingly important in recent years. However, the functional possibilities of most available interactive video tools are limited. ETH Zurich was keen to provide sophisticated features that offered students and instructors multiple possibilities for understanding, analysing and discussing video content in detail. To achieve this, they collaboratively developed and adapted Ghostthinker’s "edubreak" tool.

In the IVS, instructors receive detailed reports on all student comments and answers. They quickly gain an impression of their students’ reflections, and of their prior knowledge and/or misconceptions regarding a topic or concept.

The functions of IVS can be divided into three parts: comment mode (“Comments”), question mode (”Questions”) and editing mode (“Editing”).

2.1 Comment mode

Students can place comments, questions or graphical marks directly in the video at any point. They can share these asynchronously with other participants, and compare and discuss them. Students can react to each of their peers’ comments directly. In this way participants receive direct feedback on their observations.

In addition, instructors can trigger reflection processes by inserting a so-called “trigger question” for students to answer and discuss.

2.2 Question mode

The instructor can insert questions for students to answer using simple editing functions. Three types of question are available:

1. Single-choice: Find the right (or the best) answer. Specific feedback can be displayed for each answer option.
2. Click question: Find a zone in the image (i.e. a dangerous situation).
3. Free text: Enter the answer to an open question.

2.3 Video editing mode

Simple editing functions are provided in the video player itself (e.g. the possibility to insert text or marks into the image or to zoom in). These can help to make existing videos easier to understand or to focus on certain aspects in the image.

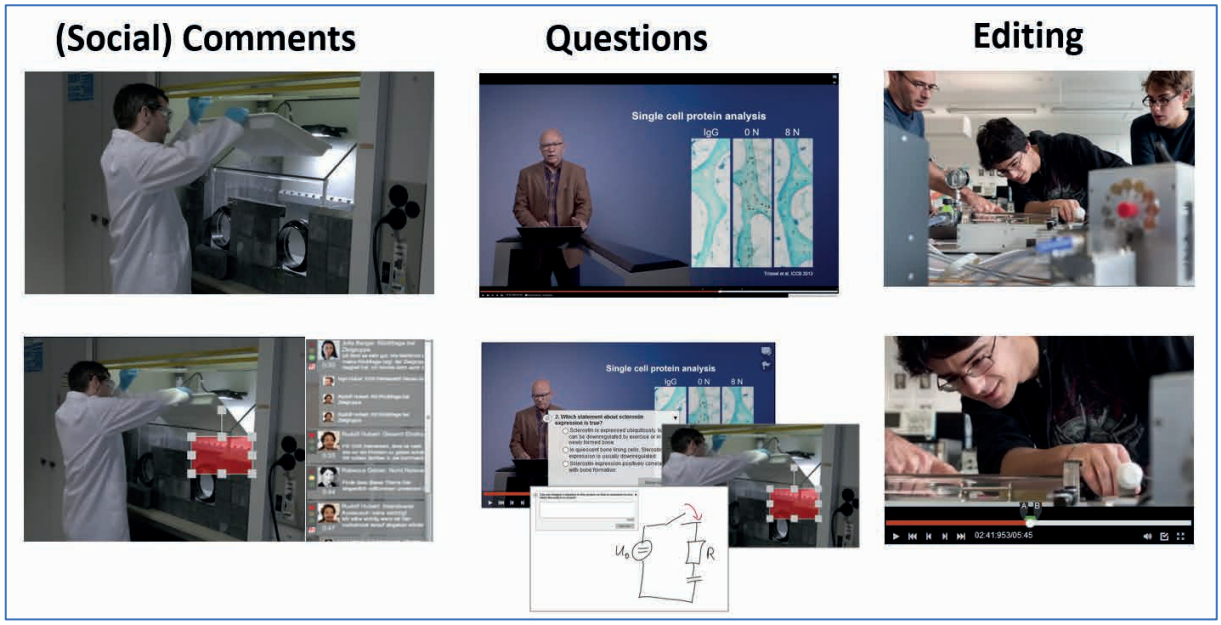

Figure 1: The three functions of the Interactive Video Suite (IVS): Comments, Questions (single-choice, click question, free text) and Editing

3 Case 1: Use of IVS in a biomedical engineering course at ETH Zurich

The course Imaging and Computing in Medicine offered by Prof. Ralph Müller, Dr Patrik Christen and Dr Caitlyn Collins, with approximately 140 students, introduces established fundamental and modern methods of imaging and computing in medicine. It is structured as a seminar with three 45-minute parts. In the first part students study basic concepts via short video lectures in Moodle, after which they post several questions in the videos using IVS. These questions are addressed in the second part, where the instructors may prepare additional teaching material to answer the posted questions and perhaps discuss further questions in a Q+A session. In the third part students form small groups to acquire additional knowledge online or from distributed material and present their findings to the rest of the class following a flipped classroom concept.

IVS allows students to enter questions in a context-specific manner because they add them directly in the videos next to the relevant images. It also fosters peer support through social video learning. The screenshot in Figure 2 displays how comments and questions are embedded in a specific context, and social video learning, where a student's question is answered by another student. Through the Show Comments function, which lists all comments and questions, IVS also offers efficient preparation for the Q+A session.

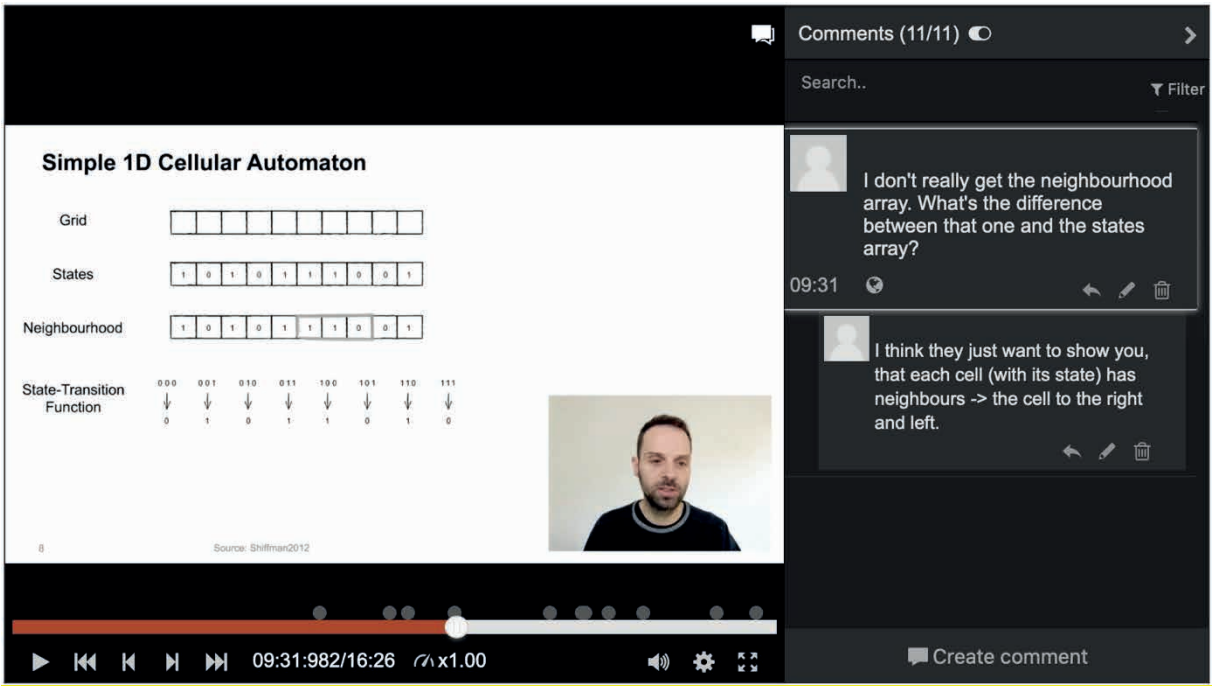

Figure 2: Example of embedded comments and questions using social video learning

Students entered questions in IVS in all course videos and commented on, discussed and answered other students' questions in most videos. Collecting the questions via IVS's Show Comments function was very useful in gaining an overview and preparing for the Q+A session. If present, social video learning can easily be included in the Q+A session, which then becomes more efficient because questions are linked to the relevant images.

One might consider entering the Q+A answers directly into IVS, but this would limit the instructors to text input only. Images are helpful for answering questions, and thus we will still use additional slides in the Q+A. Many student questions posed in IVS received answers which were in some cases discussed by fellow students. Thus, we conclude that IVS fostered social video learning in the course.

4 Case 2: Didactic basics for Student Teaching Assistants (TAs)

At ETH Zurich we offer an online course for novice Student TAs. We use the Interactive Video Suite to trigger reflection processes using videos (Vohle & Reinmann, 2012). The unique feature of the tool is that it is user-guided, e.g. the young instructors can comment on and discuss sequences such that their thought processes become visible. The videos show what is going on in class from two perspectives: from the instructor's point of view, and from the angle of students' actions (Dror et al., 2011). For educational developers this presents a great opportunity to deliberately trigger thought processes which may enhance TAs' metacognitive skills.

To identify effective video sequences that promote the competences targeted, we collected comments from a course piloted in 2019/2020 with 89 Student TAs and analysed the answers to the questions posted. The answers were richer when students saw a direct connection to their own teaching and learning experience (Figure 3).

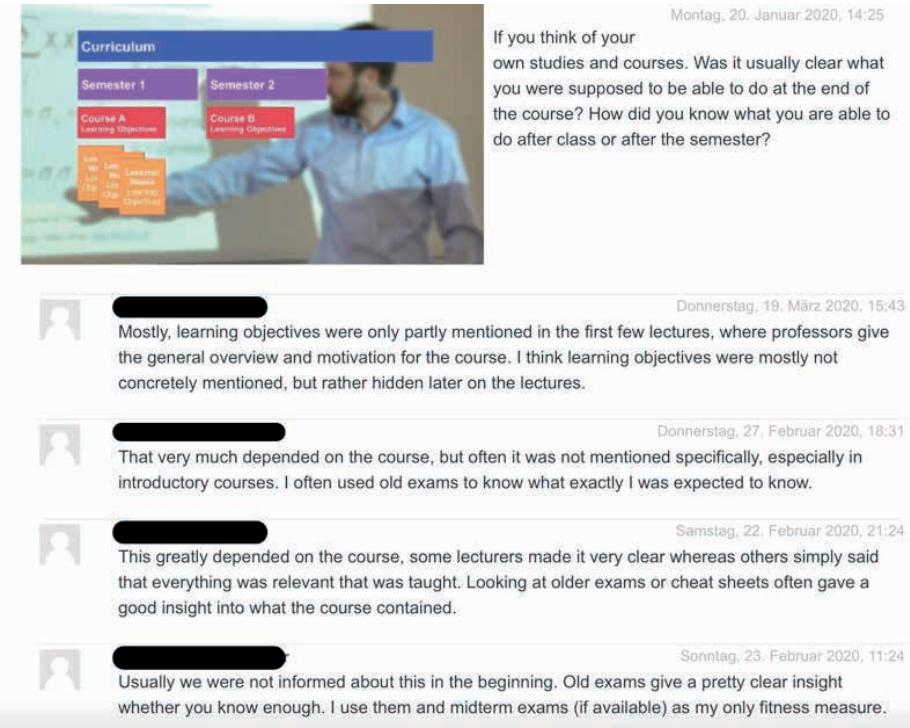

Figure 3: Example of embedded answers to an instructor's trigger question using social video learning in Didactic Basics for Student TAs (report view for teachers)

Using classroom videos which show the performance of instructors in training can potentially trigger thought processes by exposing threshold concepts, e.g. when participants are exposed to alternative arguments (video comments) about how to teach (Vohle & Reinmann, 2012). These can then be compared to and change existing conceptions of teaching (Johannes & Seidel, 2012). "[The] student instructors' conceptions of teaching thus emerged from a coherent integration of experience and knowledge" (Entwistle et al., 2000, p. 21). The instructor in Figure 4 asked for comparisons with students' own experience and Prof. Hattie addressed how to improve learning in the classroom.

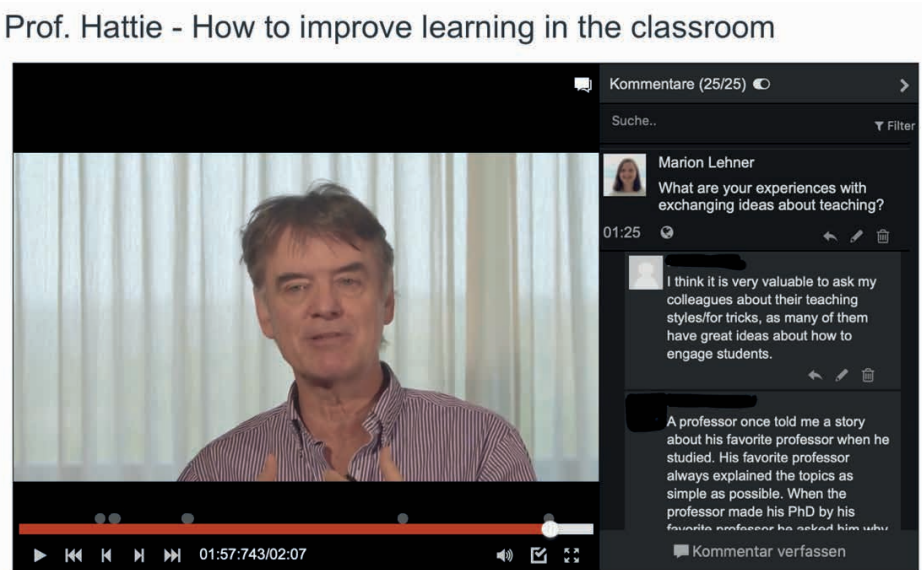

Figure 4: Example of embedded answers to an instructor's trigger question using social video learning in Didactic Basics for Student TAs (student view in Moodle)

The challenge in facilitating online/blended instructor training based on classroom videos is to produce or select suitable video sequences that potentially expose these thresholds and foster the development of reflection skills.

5 Conclusions

The above interactive video use cases at ETH Zurich demonstrate that instructors can use student comments and answers to gain important, detailed insights into students' previous knowledge, lingering misconceptions, understanding of principles and reflection skills. It is very important to select video sequences which will potentially trigger reflection processes. Videos closely connected to participants' real-world practice will prompt the most student comments.

At ETH Zurich interactive videos are being deployed more and more. Instructors who use them see their many benefits and are recommending them to peers.

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ICED 2020 proceedings:

Measuring and documenting graduate learning outcomes in the co-curricular space

Alvin Sim[1]

Co-Curriculum Development Unit, Office of Dean of Students, Singapore Management University
70 Stamford Road, #B1-38
Singapore 178901

Abstract

Co-curricular experiences provide valuable out-of-classroom learning experiences that are platforms for students to critically reflect upon and expand their perspectives. This is crucial in developing the future-ready graduate. Due to the unique nature of out-of-classroom learning, co-curricular experiences often provide learning opportunities that may be quite distinct from academic learning experiences. We contend that co-curricular experiences warrant a fair amount of attention, particularly for their ability to help students develop real-world employability skills (Peck, 2017). This paper seeks to uncover how Transformative Learning can applied in the co-curricular sphere, and its implications in designing, curating and implementing co-curricular activities. SMU's approach to measuring and documenting students' learning in the co-curricular space, including its unique co-curricular learning cycle, will also be shared.

1 Introduction

Established in the year 2000, the Singapore Management University (SMU) has consistently placed a strong emphasis on students' character building and holistic development. The University has developed structured programmes in both career development and community service, and a vibrant student life environment including more than 150 meaningful co-curricular activities in the diverse areas of arts, sports and others, for students to engage in learning and development beyond the classroom. These co-curricular components of SMU education complement the University's academic mission, providing a valuable platform for students to apply their classroom learning, prepare for their futures, broaden their passions and contribute to making a meaningful difference in society.

In order to achieve SMU's vision of delivering transformative education for a new generation of graduates (Vision 2025), it is necessary to be clear, as a University, what the desired graduate learning outcomes are. Graduate Learning Outcomes refer to the university-wide highest learning goals that are important to the University for all undergraduates, regardless of their discipline areas. The SMU Graduate Learning Outcomes seen in Figure 1 were established as a result of the work of the SMU Blue Ribbon Commission on Undergraduate Education, which was formed in April 2017. As a result of the work of the Commission, the following set of SMU Graduate Learning Outcomes was established: Disciplinary and multidisciplinary knowledge; Intellectual and creative skills; Interpersonal skills; Global citizenship; and Personal mastery. In short, SMU seeks to develop broadly educated individuals with in-depth knowledge in selected domains and the workplace capabilities required for them to thrive in the 21st century.

[1] alvinsim@smu.edu.sg

Figure 1: SMU Graduate Learning Outcomes

In order for SMU to nurture graduates who are independent in mind and able to think both deeply as well as broadly, graduates will need to have developed intellectual skills of critical thinking and problem solving, as well as creative skills of innovative and entrepreneurial thinking. They will also require personal mastery, and must be self-directed and meta-learners with resilience and positivity. Graduates who are dependable in their deeds will need to have nurtured interpersonal skills of collaboration, leadership and communication. SMU graduates' strong disciplinary and multidisciplinary knowledge are the bases for deep and broad thinking. Lastly, graduates who create value at home and abroad are those who are able to combine their intellectual skills with a strong sense of ethics and social responsibility, and who appreciate their roles as citizens, locally and globally.

2 Co-curriculum: Towards a holistic education

A distinctive feature of SMU education is the development of well-rounded students through experiential learning via its diverse co-curricular platforms (including student clubs and societies, mandatory internships and community service projects). All SMU undergraduates are required to complete a minimum of 80 hours of community service and a minimum 10-week internship at a partner company prior to graduation. A large proportion of SMU students are also involved in at least one other co-curricular activity. As propounded by Peck (2017), students gain important employability skills such as critical thinking as well as personal and social skills through co-curricular experiences.

As part of SMU's vision of providing a transformative education, concerted efforts have been made to enhance the experiential learning experience and to align learning outcomes from the various co-curricular platforms to the University's Graduate Learning Outcomes and career competencies desired by employers.

2.1 Re-framing co-curricular involvement

Traditionally, participation in co-curricular activities at universities is generally optional. Students who choose to be involved in co-curricular activities are usually driven by one or more of the following factors: personal interest, peer influence and the need for group affiliation. As such, many students may go from one activity to another without understanding what they can actually be getting out of these activities, and how each activity connects to life after university.

This is a pity, given that co-curricular activities provide unique and valuable out-of-classroom learning experiences, including the development of skills valued by employers. As such, co-curricular involvement ought to be re-framed, with learning outcomes, skill development and professional goals as key considerations (See Figure 2).

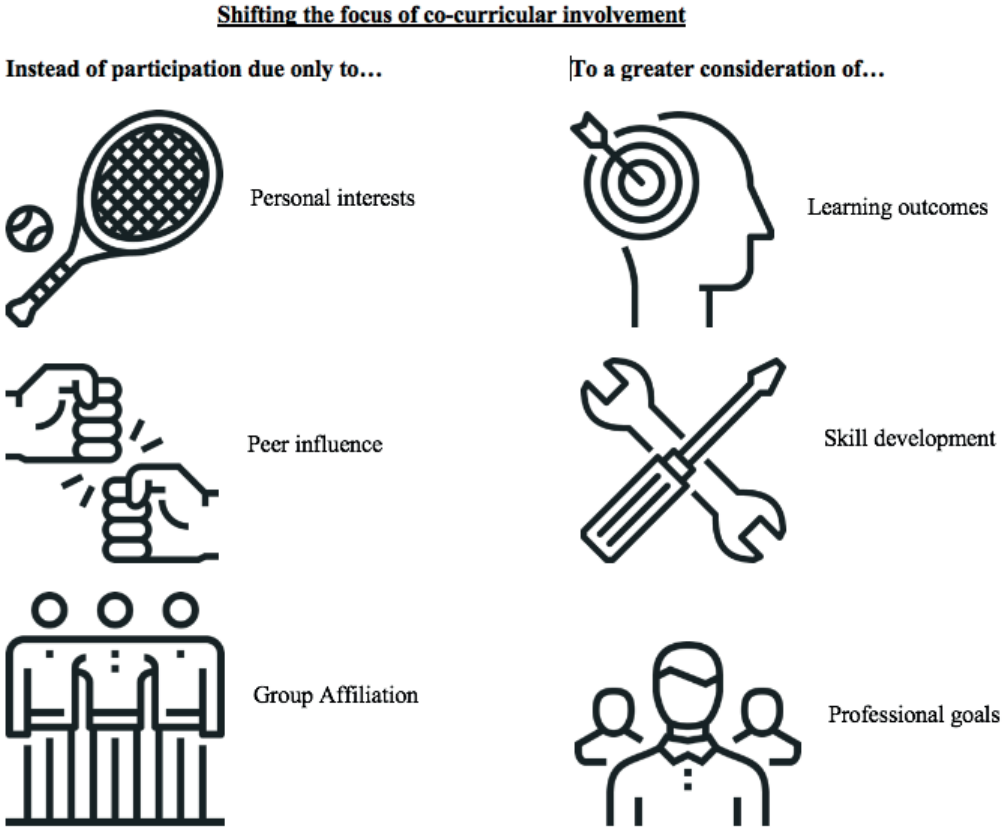

Figure 2: Shifting the focus of co-curricular involvement

At SMU we recognize that learning from co-curricular involvement does not occur automatically; neither should learning be left to chance. Instead, learning has to be carefully and intentionally designed. As such, we strive to render visible learning outcomes from co-curricular activities through the deliberate curation and design of learning experiences that translate into established learning outcomes. For example, all co-curricular activities – from student clubs to internships and community service projects – have explicit learning objectives, which are in turn aligned to the Graduate Learning Outcomes of the University. The goal is such that each co-curricular experience becomes a purposeful journey for students.

2.2 Co-curricular learning as a purposeful journey

With the aim of making each co-curricular experience a purposeful one for students, the four-stage co-curricular learning cycle (as depicted in Figure 3) has been introduced and adopted at SMU.

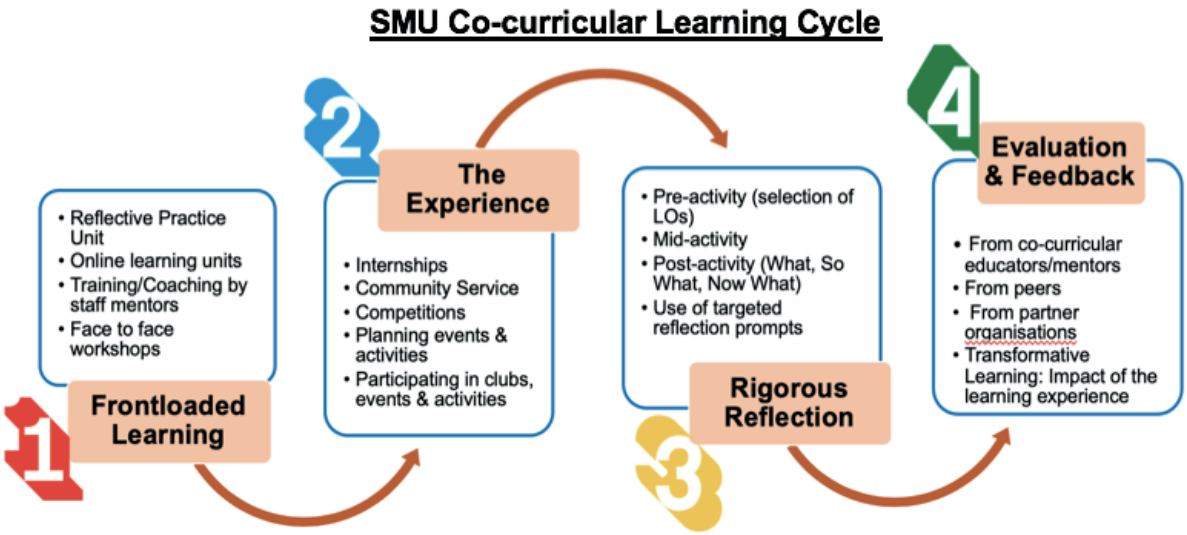

Figure 3: Co-curricular learning cycle at SMU

2.2.1 Frontloaded learning

The learning objectives for each co-curricular activity are set out at the start so that students know what skills and competencies they will potentially be exposed to through their participation in the activity. All learning objectives are aligned to at least one of SMU's Graduate Learning Outcomes. This ensures that learning from co-curricular activities is not incidental or left to chance. Rather, it is intentional and carefully curated.

With the learning objectives in mind, the co-curricular educator in charge of the activity then designs and curates suitable learning opportunities for the students. Front-loaded learning can take various forms, including online modules (e.g. Community Service Units[2], Internship Readiness Modules[3]), face-to-face workshops (e.g. communication skills workshop) and mentoring or coaching sessions. At SMU, all incoming freshmen have to complete an online Reflective Practice Unit as part of the University's efforts to nurture self-directed life-long learners and future-proof our graduates' skills.

2.2.2 The experience

In this phase, students go through the experiential learning process itself – be it the actual internship, planning and executing the event or community service project, managing the weekly student club activities, or preparing for and taking part in a competition. Depending on the nature and type of co-curricular activity, the experience phase can span anything from a few weeks to a year. Frontloaded learning can still be taking place at any time during the experience phase.

[2] These units cover service learning knowledge such as critical needs analysis and asset mapping.
[3] These modules cover topics such as resume and cover letter writing, job search strategies and interview skills.

2.2.3 Rigorous reflection

Osterman and Kottkamp (2004) make the important link between learning and reflection when they state "While experience is the basis for learning, learning cannot take place without reflection" (p. 24). At SMU, we believe that without reflection, learning from direct experience cannot be assumed.

Each co-curricular experience is a self-directed, and potentially transformative, journey. Every student's co-curricular experience is unique and what he/she takes away from it is also highly individualised. SMU promotes the culture of meaningful reflection to generate, deepen and document learning, so that students hone their ability to discern and articulate their areas of personal growth.

This type of pedagogy draws from Mezirow's (2009) Transformative Learning theory, in that students will encounter "disorienting dilemmas" throughout their co-curricular learning journey. The reflection process in Stage 3 of the SMU Co-Curricular Learning Cycle is designed to give students the opportunity to critically question their own assumptions, beliefs and/or perspectives.

2.2.4 Evaluation and feedback

As part of the learning process, it is also important that students receive timely feedback from anyone who is involved in their co-curricular experience – co-curricular educators, employer mentors, beneficiaries, project partners and even peers. Feedback can be solicited and shared with students through a variety of means, including one-to-one / small group mentoring sessions and eventually through an integrated online platform.

Rather than solely assessing the competencies demonstrated by students through their involvement in each co-curricular activity, SMU also strives to evaluate the impact that the learning experience has on the student in relation to the specific predetermined Graduate Learning Outcomes. This reinforces the notion of self-directedness in the experiential learning journey, and also clears away the challenges of competency-only assessment, given the wide range and nature of co-curricular activities that take place at SMU.

Hence, the evaluation of students' learning outcomes in co-curricular activities at SMU is based on two distinct dimensions: (A) **External demonstration** of behaviours, competencies and/or attitudes; and (B) **Internal demonstration** of values, attitudes and/or motivations through critical reflection as students encounter "disorienting dilemmas" (Mezirow, 2009).

3 Conclusion

Given the importance of co-curricular participation in equipping students with career-ready competencies, it behoves university administrators to pay some attention not just to ensuring that a vibrant student life exists on campus, but more importantly to the value of purposeful co-curricular learning experiences that render learning outcomes visible. Ultimately it is the students who will benefit from such a shift in approach, as they will not only be better equipped to move through university into the workplace, but will also have a higher likelihood of success in their future workplaces.

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ICED 2020 proceedings:

Career competencies amongst early career researchers: A response to contemporary uncertain work contexts?

Isabelle Skakni[1]

Lancaster University
University of Applied Sciences and Arts, Western Switzerland

Jonas Masdonati[2]

University of Lausanne

Christian Maggiori[3]

University of Applied Sciences and Arts, Western Switzerland

Abstract

In a context where the research career patterns are dramatically changing, it is increasingly difficult for early career researchers to anticipate and prepare for their future careers. In this paper, we examine this issue by drawing on data from three recent studies conducted with European early career researchers using qualitative and quantitative methods. Our findings highlight that beyond the research and generic skills these researchers have acquired throughout their academic paths, some of them also developed a contemporary type of meta-competency defined as *career competency.* The latter refers to reflexive communicative and behavioural skills, knowledge and abilities that help one to cope with uncertain professional contexts. The relevance of this type of competency for career development interventions is discussed, and further research perspectives are provided.

1 Introduction

Over the past decade, the growing number of PhD holders worldwide has significantly exacerbated competition for tenure-track academic positions (OECD, 2016). Simultaneously, postdoctoral positions have become precarious and are no longer merely a step towards an academic career (van der Weijden et al., 2015). Currently, a vast majority of PhD holders work in non-academic sectors, whether intentionally or not (Vitae, 2016). This era of "research precariat"[4] occurs in a conjuncture in which workers from all sectors are facing increasingly dynamic and changing work environments and more complex careers (Akkermans, Brenninkmeijer, Huibers & Blonk, 2013). Thus it is more and more difficult for early career researchers (ECRs)[5] to anticipate and prepare for their future careers. This situation has raised international concerns about how to adequately prepare them for both academic and non-academic careers (OECD, 2016). Consequently, many universities now include transferable skills development in doctoral programmes.

[1] Isabelle.Skakni@hes-so.ch
[2] Jonas.Masdonati@unul.ch
[3] Christian.Maggiori@hets.ch
[4] Source: OECD (2019) http://www.oecd.org/sti/science-technology-innovation-outlook/research-precariat/
[5] Doctoral students, postdocs and junior PhD holders

However, previous studies show that ECRs generally have limited knowledge of fast-changing hiring trends and of the broad range of employment opportunities (Singh, 2015). If some skills developed during doctoral training are undoubtedly transferable to non-academic positions (Milos, 2019), PhD holders often struggle in promoting them to non-academic employers (Edge & Munro, 2015; Skakni, Inouye & McAlpine, in press). To explore these issues further, our recent work focuses on career competency, a contemporary type of meta-competency that can help ECRs to cope with current uncertain and often precarious professional contexts.

This paper first briefly describes the three studies from which it draws. Then we present the theoretical foundations of the career competencies notion and illustrate how they manifest amongst ECRs. Finally, we discuss our findings' practical implications and further research perspectives.

2 Research background

This paper draws on insights from three studies conducted with European ECRs. The first study—which drew our attention to career competencies—examined ECRs' training and work experiences in Switzerland (*N*=172) based on a mixed-methods design (online survey and semi-structured interviews) (Skakni, 2018; Skakni, Calatrava Moreno, Corcelles & McAlpine, 2019). Amongst insightful findings, beyond research competencies and generic skills[6] some respondents mentioned the importance of developing a sense of self-evaluation in professional contexts and a capacity to project themselves into the future professionally.

The second study was conducted with PhD holders from the UK and Switzerland (*N*=38) who pursue non-academic careers (Skakni et al., in press). Using semi-structured interviews, we examined their (1) educational and career trajectories; (2) job search strategies; (3) career development strategies; (4) job satisfaction and (5) their PhDs' usefulness in non-academic positions. Although our aim was not specifically to investigate their career competencies, they were particularly salient in the discourse of these participants who were not always aware that they possessed such competencies.

The third study specifically aimed at examining the extent to which career competencies appear amongst ECRs (Skakni, Maggiori & Masdonati, 2019; Skakni, Maggiori, Masdonati & Akkermans, in preparation). Drawing on the Career Competencies Questionnaire (CCQ, Akkermans et al., 2013a) intended for the general population, we created a questionnaire adapted for the specificities of the ECRs.[7] An online survey was sent to PhD students, postdocs and junior PhD holders in Europe, North America, South Africa and Oceania. Their answers (*N*=734) enabled us to define a range of career competencies that reflect how ECRs tend to anticipate and prepare for careers within and outside academia, which resulted in an intervention tool.

3 Career competencies: What do we mean?

Career competencies refer to "a person's self-management of his or her working and learning experiences in order to achieve desired career progress" (Kuijpers, Schyns & Scheerens, 2006, p. 169). They comprise a set of knowledge, skills and attitudes that positively influence professional opportunities (Akkermans et al., 2013a; Forrier, Sels & Stynen, 2009). They are meta-competencies, as they involve critical reflection on oneself and on one's professional life. Thus, they are part of a continuous process of learning through experience. Career competencies are distinct from generic skills, as they do not enable one to practice a profession or to perform specific tasks. Given the need to deal with the uncertainty of contemporary

[6] Skills transferable to various positions in employment sectors other than academia (e.g. problem solving, critical thinking and communication skills).

[7] Those specificities include the doctoral training's length, which involves projecting oneself into an unpredictable long-term professional future and the current necessity of anticipating careers both within and outside academia.

careers, the fundamental function of career competencies is to foster career development and advancement. They are declined in three dimensions, each comprising two sub-dimensions (Akkermans et al., 2013a).

The ***reflective dimension*** refers to awareness and critical thinking about one's own work-related values, motivations, strengths and weaknesses. Its sub-dimensions are (1) *Reflection on motivations* (values, passions and intentions concerning one's career) and (2) *Reflection on qualities* (strengths, shortcomings and perceived skills concerning one's career).

The ***communication dimension*** relates to the ability to network professionally and to promote oneself in professional contexts. Its sub-dimensions are (1) *Networking* (an ability to create and expand personal and professional networks for career-related purposes) and (2) *Self-profiling* (an ability to promote one's own knowledge, abilities and skills in the workplace and in external labour markets).

The ***behavioural dimension*** refers to active exploration of career opportunities as well as an ability to steer one's career. Sub-dimensions are (1) *Work exploration* (ability to explore and search for further education, work and career-related opportunities) and (2) *Career control* (ability to influence learning and work processes related to one's career by setting goals and planning how to fulfil them).

Previous research reveals that career competencies relate to better perceived employability (Blokker, Akkermans, Jansen, & Khapova, 2019), work engagement (Akkermans et al., 2013b), job satisfaction (Kong, 2013) and work-life balance (Cappellen & Janssens, 2008). Employees reporting more career competencies are more likely to report better career support at work and in their private life compared with other employees (Kuijpers, & Scheerens, 2006). To our knowledge, our work contributes to the few studies addressing the subjective aspects of career competencies (e.g. Park, 2020) and is the first to investigate ECRs.

4 Career competencies amongst early career researchers: What do we know?

Our research enabled us to define how career competencies translate amongst ECRs. The interviews from the first and second studies allowed us to identify subjective ways in which career competencies are developed and displayed daily.

4.1 Reflective dimension

Some participants reported an ability to *reflect on their motivations, strengths and weaknesses* in professional contexts. This was the case of Marta[8], who recalled having come to certain conclusions about what she called her "human capacities":

> *I've learned to be aware of how I behave with people and how that could be problematic. I would like to perhaps work better with people. I'm kind of on the way to learning things differently.* (Marta, Postdoctoral Fellow)

4.2 Communication dimension

Networking and *self-profiling* skills also emerged from participants' discourse, especially for those pursuing non-academic careers. For instance, Edward, with a PhD in philosophy, convinced employers in non-academic sectors of the added value of his expertise:

[8] All participants' names are pseudonyms.

> *During the interview, I presented myself as someone who has a relevant theoretical knowledge for the job, even though at first glance my expertise might appear incongruous [for the position].* (Edward, Scientific Adviser and English Teacher)

4.3 Behavioural dimension

In line with *work exploration* and *career control* skills, other participants discussed their ability to steer their careers, which implies projecting themselves into the future by evaluating their various options. Joelle eloquently expressed this:

> *Professionally, I've chosen to develop both academic and non-academic skills. It will be useful. I even have a certificate that attests my [non-academic] skills.*
> (Joelle, Postdoctoral Fellow)

Our third study (Skakni et al., in preparation) showed that career competencies *within* and *outside* academia are two very distinct dimensions. It also revealed that PhD students perceived having more career competencies in preparation for careers outside academia than postdocs did. As observed in other populations (e.g. Blokker et al. 2019), we found a strong link between ECRs' career competencies and their perceived employability. Moreover, those who perceived themselves as having strong career competencies also appeared more likely to consider their current work as meaningful. Interestingly, compared with their female counterparts, male respondents generally reported having stronger career competencies for preparing for careers both within and outside academia. Building on these results, we created the Career Competencies Questionnaire for Early Career Researchers (CCQ-ECR)[9].

5 Implication for practice and conclusions

While addressing researchers' job insecurity issues, we believe it is crucial to raise awareness among ECRs about the importance of developing career competencies. Indeed, this set of competencies represents a personal resource that facilitates both career advancement and work satisfaction in increasingly challenging professional contexts.

In that respect, the CCQ-ECR could be a relevant tool for career counsellors and developers in universities because it allows the assessing of competencies necessary in preparing for careers within and beyond academia. This tool could be used to identify which competencies have been mastered and those that the person could further develop. Discussing the CCQ-ECR profile as part of an individual counselling session might also help provide both a retrospective and prospective view of one's career path and goals.

However, further research is needed to examine the personal dispositions and institutional conditions that either help or hinder the development of career competencies in the early career researcher population.

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[9] For further information about the questionnaire items or to obtain a copy, please contact isabelle.skakni@hes-so.ch

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ICED 2020 proceedings:

Enhancing transition into HE for diverse, non-traditional students: Steps toward connected pedagogical partnerships

Christine Smith, Clare Gartland

University of Suffolk
Ipswich, Suffolk IP4 1QJ, UK

Abstract

This paper reports from the *Enhancing BTEC students' transition into HE* project, which was designed to identify and support effective pedagogical partnerships between academic tutors in both post-16 *and* Higher Education (HE) institutions. The aim of the project was to more effectively promote and facilitate successful progression to HE amongst students from diverse and non-traditional backgrounds, particularly students from low participation neighbourhoods who have undertaken vocational qualifications, such as BTEC (Business and Technology Education Council) awards in order to progress to HE. The project findings have led to a set of recommendations for building effective collaborative pedagogical partnerships across the post-16 and HE sectors.

1 Introduction

Recent research (Kelly 2017) attributes the increase in Higher Education (HE) participation amongst students from low participation neighbourhoods almost entirely to students accessing vocational qualifications such as BTEC (Business and Technology Education Council) qualifications in the UK. We conducted earlier work (eg Gartland & Smith, 2018) in relation to transition into HE and found that pedagogies and practices on BTEC courses can effectively support young people who have not previously considered going to university in developing relevant social and cultural capital and promoting future "possible selves" (Markus & Nurius, 1986; Rossiter, 2009; Ibarra, 2007) as HE students. However, we found that the support available to young people was not consistent across post-16 providers (Gartland & Smith, 2018). Our study highlighted the importance of scrutinising practices within institutions and the opportunities institutions have to help young people in developing relevant cultural and social capital while supporting them in "*the development of positive learner identities and well-articulated possible selves as HE students*" (Gartland & Smith, 2018: 647). For institutions to effectively support young people in effectively navigating progression across sectors, as Hodgson and Spours (2014) identify, there is an urgent need to "*rebuild collaboration between all 14-19 providers, employers and HE*" (Hodgson & Spours, 2014: 480).

Students progressing from vocational pathways has been a significant contributor to the expansion of HE in the UK, and in other countries. However, among students from vocational pathways, significantly higher attrition rates in HE have been found compared to students progressing from more traditional academic routes. Our previous work in this area suggested that the pedagogies and practices used on vocational courses can effectively support young people in developing relevant social and cultural capital and promoting the development of well-articulated possible selves as HE students (Gartland and Smith, 2018). We also particularly highlighted the importance of connected practices for tutors and institutions, both *within and across* post-16 and HE institutions, to further facilitate young people in this process of effective transition into higher education.

2 Project outline

The *Enhancing BTEC students' transition* project was therefore designed to identify and support effective pedagogical partnerships between academic tutors in both post-16 *and* Higher Education (HE) institutions. The project sought to more effectively promote and facilitate successful progression to HE amongst students from diverse and non-traditional backgrounds. The project was funded by NEACO (Network of East Anglia Collaborative Outreach), which is a regional part of a national initiative, NCOP (National Collaborative Outreach Programme) for outreach work across the UK.

The project commenced with a series of workshops organised to bring together BTEC tutors from post-16 institutions, with tutors working in HE institutions. The workshops were used to discuss tutors' current approaches to enabling students' transition into HE and any challenges they were facing in this regard. Discussions were shaped by an earlier UK Quality Assurance Agency (QAA) funded project (Gartland & Smith, 2015) on support for BTEC students in their transition into HE, and also drew upon a conceptual understanding of transition informed by the "possible selves" literature (Markus & Narius, 1986; Rossiter, 2009; Ibarra, 2007; Gartland & Smith, 2018). Gale and Parker's reconceptualisation of "*transition as 'becoming'"* (Gale & Parker, 2012: 734) was also influential in our shaping of the discussions. Transition as becoming infers that fluidity and flexibility are needed in recognising both the realities of, and diversity among, students' lives.

French, Kempson & Kendall, 2015) had also developed a Graduate Transitions Framework tool to support the planning, design and management of *"transitions policy and practice"* and to enable development work at institutional, group or individual tutor levels. The tool enables teachers to engage reflectively with their personal positioning in relation to students' experiences of transition and to appreciate the complex relationship between their own meaning-making about FE and HE, within institutional framing of students' transition experiences.

Overall, the workshops highlighted many shared approaches and areas of congruence across educational sectors. Many practices were discussed that effectively provide aligned opportunities for students to develop identities as potential and successful HE students, and that encourage and support successful progression and enable effective transition into HE. There is also potential to further share and develop explicit and aligned approaches to support students in this process of transition.

Key differences were noted that could pose challenges for students moving between sectors. Pedagogical, epistemological and sociological challenges for students progressing to HE have been widely discussed (Hockings *et al*, 2007; 2010; Gale and Parker, 2014). One apparent issue is that students are sometimes moving from BTEC student groups of twenty, where they have close relationships with tutors and peers, to large lecture groups and cohorts of over a hundred students. A related issue is that students from BTEC courses may commence HE with different prior knowledge to students from more traditional academic routes, such as UK "A levels". It is a challenge for university institutions and tutors to effectively engage with students' prior knowledge and experiences, and not leave students feeling excluded or marginalised, or "othered" by virtue of a perceived deficit model of prior knowledge and experience. Additionally, the course content offered on vocational BTEC courses can be quite prescribed. BTEC students may not feel well-prepared in their knowledge or be given prior opportunities to learn to navigate the freedom associated with independent learning that will be expected of them in HE.

Working collaboratively across sectors to more effectively support students in both progressing into and succeeding in HE was seen as a valuable approach by all staff attending the workshops. These members of staff had volunteered to attend, and were clearly committed and motivated to best support their students and to understand challenges in transition. All

tutors attending said that they would like to collaborate further on supporting effective transition.

The areas of focus identified for future collaborations included observing teaching across contexts; bringing students to HE seminars and workshops; further discussion of curricula alignment and cross-sector pedagogical approaches; identifying ways to develop students' research skills and critical thinking; discussing personal tutoring; and discussing pluralistic approaches to promote positive students' identities and aspirations.

The workshops were followed by interviews with tutors who attended the phase one workshops and/or tutors in relevant disciplines who have engaged in relevant outreach activities supporting progression and transition to Higher Education. The project researchers gathered data using semi-structured interviews on tutors' personal perceptions and experiences around supporting and enabling BTEC students' transition into HE. We were interested in both tutors' attitudes and approaches to transition, in order to help improve practice across both post-16 and HE sectors. We also wanted to know whether working collaborations between teaching staff in these different sectors have been established, and whether they have or might contribute towards effective, coordinated approaches to students' progression and transition.

3 Overall project findings

The project has contributed to understanding and awareness among teachers and lecturers (i.e. tutors working in post-16 and in HE) of their pedagogic practices when working with students from non-traditional backgrounds. It has fostered the development of pedagogic partnerships across educational institutions, ie post-16 institutions (offering BTEC and BTEC and A level courses) and HE providers. There is potential to contribute towards policy developments and national initiatives linked to collaboration in, and enhancements to understanding around, outreach provision, ande to counteract notions of "*transitional friction*", a conceptual term recently suggested by Katartzi and Hayward (2019) to capture the ongoing tensions and difficulties that students with vocational education and training qualifications encounter in the HE field. Transitional friction helps to make active sense of the multi-layered struggles, conflicts and tensions integral to the process of transitioning.

Tutors' accounts indicated both "pedagogic" and "epistemic" frictions for vocational students during transition to HE. Pedagogical frictions encompass the modes or practices of teaching and learning, but also the assessment procedures and curricular framing, structure and content of courses. Pedagogical frictions can be encountered in the ethos or institutional habitus of HE, as well as in the extent or otherwise of learner support offered, through to the practices in place to afford development of learners' self-regulation and independence. Epistemic frictions included the extent to which the curricula and knowledge bases of post-16 and HE courses are differentially structured between academic and vocational pathways. Epistemic frictions may need to be traversed in students moving into the knowledge communities of specific subjects.

We also bring to the fore the social/sociological perspectives that intersect with both epistemic and pedagogic sources of transitional friction. Students from different backgrounds conceptualise themselves as HE students in varied ways, and their perceptions of possible selves are shaped not least by family history and prevailing structural or environmental constraints. Students' preparedness and the compatibility of choices in progression, alongside expectations and developing identities, are critical aspects to consider in holistic and interconnecting, rather than atomistic, ways. Figure 1 (adapted from Katarzi and Hayward, 2019) is used to present a schematic of transitional frictions drawn from our findings in the project.

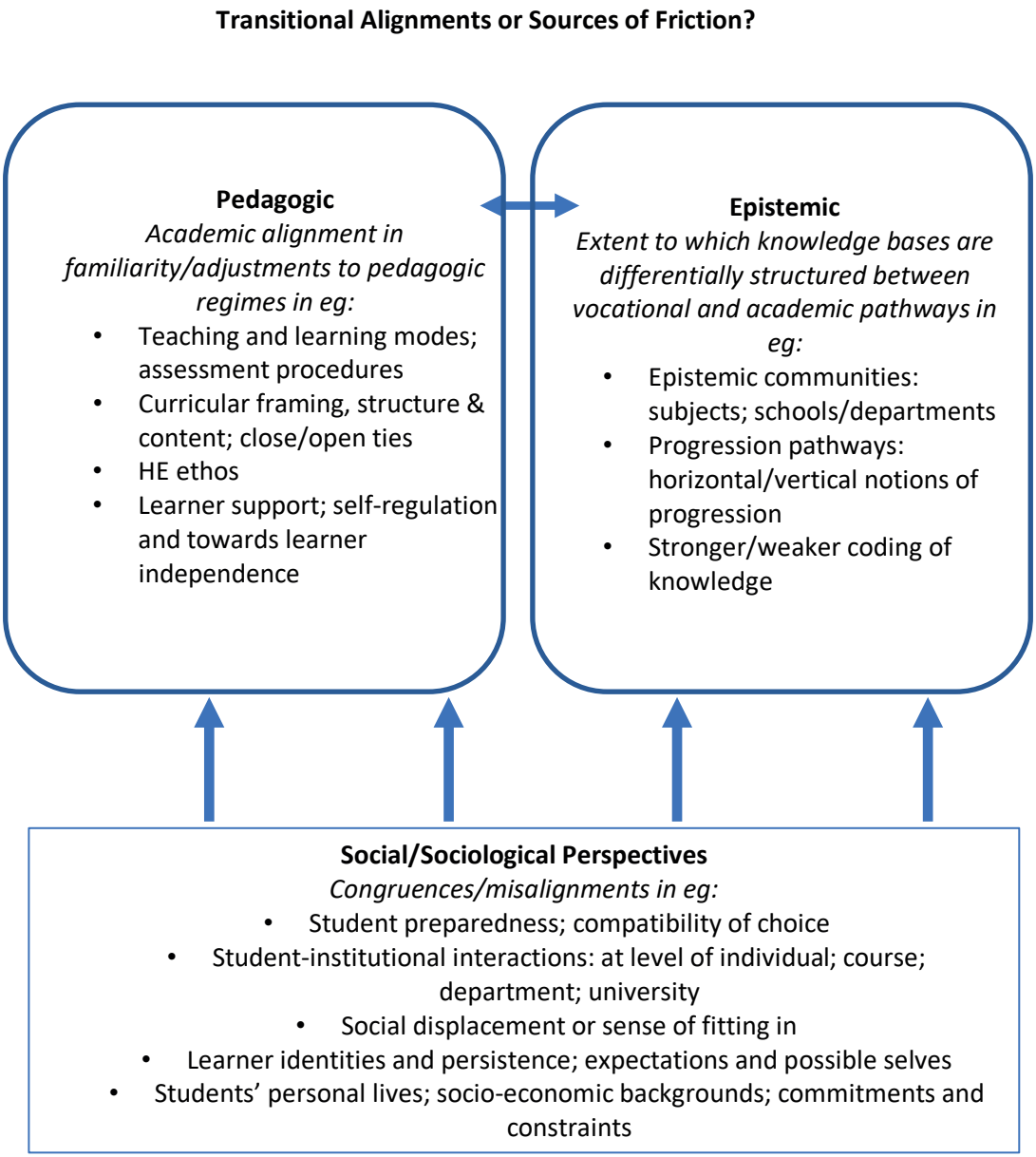

Figure 1: A schematic of transitional friction or alignment

4\ Recommendations and conclusion

The project's recommendations are outlined here to provide starting points for dialogue among post-16 and HE tutors who are interested in promoting effective student transition into HE, particularly for students with vocational qualifications.

1. There is a need for and value in building pedagogic partnerships between tutors located in the post-16 and HE sectors as a manageable and sustained effort to effect change in relevant actions.
2. Strategic, senior institutional commitment and resourcing is needed to underpin and enable the development of such partnerships.
3. The valued role of tutors, as well as peers, ambassadors and ex-students as role models, needs to be emphasised in effecting positive student expectations and in promoting successful progression.

4. In cross-sector collaborative activities, attention needs to be paid to addressing any knowledge gaps or any academic skills development needed in readiness for HE.
5. Opportunities for post-16 students to experience authentic HE pedagogic practices in advance of HE entry should be promoted and enabled.
6. HE outreach activity with schools and colleges (as pre-HE institutions) should focus on longer term subject specific and pedagogic focused engagements with groups of students, via shorter-term recruitment-driven events.
7. Better understanding and knowledge of students' backgrounds, their experiences and the diversity in progression pathways is needed (especially by tutors) within the HE context.
8. HE tutors are encouraged to scrutinise the looseness or otherwise in the framing and structure of curricula designs, to better accommodate students' identification of development and sense of becoming in the academic discipline and/or future professional contexts.

Our study revealed multiple benefits from cross-sector collaborations between tutors that could mutually benefit post-16 and HE institutions and tutors, as well as students. This includes generally supporting progression, but also helping students progress to appropriate HE courses. The alignment in practices afforded by close collaboration offers potential to improve retention on HE courses; to improve student engagement; to motivate and support higher levels of student attainment within growing, non-traditional post-16 and HE student populations; and, potentially, to impact on employability.

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ICED 2020 proceedings:

Experiences of PhD graduates researching and learning for sustainable development in an inter- and transdisciplinary setting

Lilian Julia Trechsel[1]

Centre for Development and Environment (CDE), University of Bern
Mittelstrasse 43
3012 Bern, Switzerland

Abstract

This paper explores the reports of alumni of an international twelve-year project on what is needed to be well equipped to face current global challenges. As future-ready graduates they emphasized the importance of networks and multicultural and multidisciplinary learning settings that went beyond a disciplinary focus. I discuss this in light of diverse spatial understandings of knowledge and a transformative understanding of education for sustainable development.

1 Introduction

Today's global challenges require forms of research training that prepare students to become future leaders capable of addressing the complexity of these challenges, listening to stakeholders concerned, and developing future-oriented responses jointly. Disciplinary knowledge and skills are thus only one part of what they need to become "future-ready graduates". Designing training courses that are multicultural and multidisciplinary is key to achieving such learning outcomes. International student mobility, which has greatly increased (King & Raghuram, 2013; UNESCO, 2015), can be taken as an opportunity to arrange multi-perspectival and collaborative training settings.

The twelve year programme NCCR North-South, led by the Centre for Development and Environment at the University of Bern, included more than 150 PhD graduates from around the world. The programme aimed to conduct research for sustainable development in North-South partnerships, train early career researchers in inter- and transdisciplinary research, and implement jointly developed projects involving science and society. The alumni were traced in 2012 and 2017. The tracer study aimed to find out how PhD graduates perceived the opportunities they had to develop both their disciplinary skills during their PhD programmes, and their ability to engage in collaborative inter- and transdisciplinary approaches. The study explicitly gave PhD graduates a voice rather than only collecting data about their latest employment. This paper discusses the relevance of space and place in the globalized and increasingly monetized (Biberhofer, 2019) world of higher education institutions. Further, it provides selected insights into the PhDs' experiences and sketches how universities might face the growing demand for education for sustainable development that emerges from dealing with the challenges of sustainability.

[1] lilian.trechsel@cde.unibe.ch, +41 31 631 52 71, www.cde.unibe.ch, www.esd.unibe.ch

2 Spatiality of knowledge and involved actors

Education for sustainable development requires contextuality and implementation under real-world conditions. Trustable learning atmospheres are also needed to conduct value-conscious debates in a university context (Kläy, Zimmermann, & Schneider, 2015). A consciousness also needs to be fostered that we perceive and shape the world through the way we understand it. This can take place in multicultural and multidisciplinary encounters in real-world contexts.

International student mobility (ISM) studies focus implicitly on multicultural contexts but usually do not explore how knowledge is shaped by spatiality. While ISM tends to be driven by pursuit of knowledge to achieve better livelihoods, ISM studies tend only to reflect on formal knowledge acquisition, missing out on socially and culturally shaped knowledge, which differs greatly depending on the life courses of international students (Barth, Lang, & Michelsen, 2019; Findlay et al., 2012). This can be understood through a focus on the spatiality of knowledge and involved agents (Baláž, Williams, & Chrančoková, 2018; Jöns, 2009; Madge, Raghuram, & Noxolo, 2014; Raghuram, 2013).

Beech and Larsen (2014) argue for analysing contemporary education systems in terms of networks, interconnections and movements. Emerging from the context of sustainable development-oriented research partnerships, spatial understanding as proposed by Phelps (2016) explains education systems from this perspective, as she views universities as nationally grounded institutions with networks extending into the transnational space of international student activities and global research collaborations.

The NCCR North-South programme sought to give PhD students from the global South a chance to participate in an international research network – including innovative regional training events – while simultaneously studying at or through their home university (Upreti et al., 2012). In this way, the programme facilitated a "productive tension" between place and space (Phelps 2016) and foregrounded relationality (Lange, 2019) and spatiality in education; students from the global North who participated in the programme benefitted from a similar experience. The educational part of the programme was continued beyond the lifetime of the NCCR North-South programme. It was established as the International Graduate School North-South, an inter-university doctoral programme involving four Swiss universities (Basel, Bern, Lausanne, Zurich).

ISM studies focusing on doctoral students usually take the purpose of the corresponding doctoral programmes for granted and do not ask how students perceive the stated programme aims. Doctoral programmes are generally based on the assumption that acquisition of in-depth knowledge and methodological skills in a single discipline enables students to become highly qualified, sought-after experts and/or leaders in particular fields. However, this hardly reflects the real-world requirements many PhD students face today after completing their degrees (Phelps, 2016). In addition, the motivations of students may not be limited to what the programmes are explicitly designed to achieve.

3 Inter- and transdisciplinary experiences during a PhD Summer School

3.1 The IGS North-South Summer School

The International Graduate School (IGS) North-South holds an annual Summer School that takes place in different parts of the world. This event is more than a course: it works as an intercultural learning setting, where PhD candidates exchange ideas as interdisciplinary groups. On the basis of conceptual and methodological seminars the scholars implement their knowledge and skills in an exploratory survey and are expected to design a transdisciplinary research strategy focusing on specific development issues and global change in a local context of sustainable regional development. During intense fieldwork the scholars meet with non-academic stakeholders; they are guided through this transformative approach by coaches.

3.2 Experiences to share for future-ready graduates

PhD graduates who were part of the study emphasized the importance of the Summer School for their careers. The involvement of local stakeholders during fieldwork as well as the challenging setting for acting as an interdisciplinary team were highly valued. Students reported on disagreements in the team, which were challenging but brought them to a real-world learning setting. The international supervisory teams from the South and North created opportunities and space for curiosity, stimulating and opening the minds of students.

> *[during a Summer School] meeting for IGS [North- South] we also can talk about our friendship and our families, tell ourselves what we really want to do, what we feel, we are dreaming about for our future […]. So it is kind of both ways. The friendship part of it and increasing networks, [to experience] also the other side of this academia. (Kenyan woman)*

The students were in a safe space to try out different research approaches and to garner and discuss personal experiences in the field of sustainable development, rather than strictly adhering to disciplinary-focused processes. There was ample space to look at things differently and try new methods. Students were able to experience and discuss socially and culturally shaped knowledge, and reported on the networks they built with their peers during the course and the programme, with ties that still animate them to this day.

> *[A]t the end of the day, everything is transdisciplinary, I mean everything is so interconnected. Even if you think you teach one specific course, it's just sustainable development, […]. [T]he NCCR [North-South] publications that I was lucky to get a hold of, I am using them currently in my teaching. (Kyrgyz woman)*

Through peer-learning and a knowledge platform students had the opportunity to share information from different projects from around the world. The sharing approach made it necessary to radically extend access to knowledge sources through international set-ups to create an equal level of access. In addition, for the Summer School it was crucial that the students were physically in the same place and conducted fieldwork together. At the same time, they projected their own pools of experience from very different spatial contexts onto the tasks they were fulfilling, leading to a new understanding of their own epistemological premises. Furthermore, they remained very connected through their personal contacts across space (networks) and were at the same time attached to their own universities, where they were enrolled and physically present for specific courses. This shows that although science seems to be universal, it is eminently place-based.

4 Conclusions

What do future-ready PhD candidates need? Besides giving some insights into the PhD programme of the NCCR North-South, our study highlights that students need not only a home-base university which embodies a place where they are rooted during their PhD programmes. It is also important for them to be supported by international networks and offered inter- and transdisciplinary learning spaces that allow them to experience research and learning that goes beyond the disciplinary focus of their PhDs. The IGS North-South PhD programme affirms the need for universities worldwide to work closely together instead of competing with each other if they are to benefit from reciprocal trust, cooperate with loyalty and respect and use differences to learn from each other. Further, the study notes that to learn and experience sustainability issues, education for sustainable development also needs a local context.

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Future-ready teaching methods

How will students be learning in an unknown future? What formats and methods will they require? How can our institutions prepare and respond, and keep education both relevant and accessible?

ICED 2020 proceedings: Large-scale flipped classroom with a single lecturer

Menny Akka Ginosar, Meike Akveld, Alexander Caspar, Laura Keller, Andreas Steiger[1]

Department of Mathematics, ETH Zurich
Rämistrasse 101
8092 Zurich, Switzerland

Abstract

The flipped classroom is a setting for blended-learning courses which is generally considered to be effective at a small scale involving many teaching assistants. This paper describes a flipped classroom concept for large classes which can be conducted by one single lecturer while keeping the quality of teaching high. A core pillar of this approach comprises well designed threads of single and multiple-choice questions which have the potential not only to check learning objectives but also to foster deeper learning.

1 Introduction

With the rising availability of technical devices, instructors are able to distribute their learning materials freely and without depending on the physical presence of students. The flipped classroom (FC) is a teaching approach in a student-centered instructional framework which aims to use contact time more efficiently by placing the learning steps which require direct feedback in the classroom, whereas self-directed and individual learning steps like reading book chapters, watching instructional videos and taking automatically graded quizzes are conducted by students on their own (Tucker, 2012; Bishop, Verleger, et al., 2013).

It is generally considered challenging and labor-intensive to set up FCs for large groups of several hundred students (Brewe, 2018). Some people (e.g. Spannagel, 2018) deny outright their feasibility with 500 or more students. The main topic of this paper, however, is the large-scale FC approach developed by the authors. It is based on clear instructions for self-directed studying combined with didactically designed threads of single and multiple choice (SC/MC) clicker questions which can be administered by a single lecturer. While using SC/MC clicker questions is far from groundbreaking, it was important for us to not lower our standards concerning breadth and depth of learning. We developed a storytelling approach for threads of SC/MC questions.

In the final section we present feedback and evaluation results from students and lecturers.

2 Challenges

Typically, teaching in FC mode poses several problems as the class size increases. It becomes more difficult to oversee which questions and problems the students encountered in their individual preparation. In a small scale setting, the lecturer would read written feedback, take individual questions at the beginning of the physical lecture, or even have teaching assistants roam through the class and find the muddiest points of understanding. All these approaches rely on a limited class size below 100 students, with the amount of help involved increasing. Since teaching staff is often costly, if available at all, we aimed at finding a single-lecturer solution.

[1]melete@math.ethz.ch. The authors are listed in alphabetical order.

Furthermore, one usual effect of blended learning is a trade-off between increased quality and reduced quantity of content. It was our goal to find an approach which does not sacrifice content.

Finally, students might not be used to blended learning approaches where they first encounter new material without a lecturer explaining it.

3 Our single lecturer solution

In two one-year undergraduate calculus courses for engineering students, both involving several hundred students and normally taught through direct instruction, we set up an FC intervention lasting for two weeks to teach complex numbers. This topic was chosen for several reasons. Swiss high school students have no central final exam; some will have learned about complex numbers in their mathematics classes, but others not. This knowledge gradient enables peer instruction to work efficiently. Further, the topic is also largely independent of the other course content and is not crucial for the final high-stakes course exam.

Students were given an interactive online script containing reading material, interactive exercises, narrated video explanations and interactive GeoGebra visualizations. Before each class, they received a so-called “road map” consisting of carefully designed instructions on which sections to read and which online quiz questions to answer, together with guideline notes for the class. Here’s an example:

> For the Monday class, you should finish chapter 4. In this part, we will learn more about polar coordinates and use them to find complex roots. You can find the PolyBook at: `https://wp-prd.let.ethz.ch/WP0-CIPRF9961/`
>
> - 4.3 to 4.7, more about polar coordinates:
> - Read the text and play around with the applets to get a geometric understanding of multiplication and division.
> - The video in section 4.7 reviews what we’ve just learned.
> - As always, if you need more examples, try to make up your own! At this point you might want to go through the clicker questions asked in the previous classes again.
> - 4.8, trigonometric identities:
> - This rather short section tells you the secret on how to find your own trigonometric identities in case you need them!
> - 4.9, complex roots:
> - This section is the most important part of this road map! Work through it carefully, watch the videos, use the applets.
> - Subsection 4.9.2 on square roots is not vitally important, but it provides some helpful context. If you want to know more, watch the fascinating Mathologer video!
>
> As usual you can solve some introductory questions in EduApp. We will review them on Monday.
>
> Have fun and see you on Monday!

Classroom time was then spent on going through threads of SC/MC clicker questions of increasing difficulty and complexity. The next section has more details on threads.

A regular exercises session with student teaching assistants based on direct instruction with formative assessment are always part of these courses, but they were not altered to match the intervention and took place in the classical fashion.

4 Storytelling through clicker threads

SC/MC questions are generally considered useful for low complexity tasks. While it is feasible to ask difficult questions in homework, settings with narrow time limits such as classroom clicker sessions nudge lecturers towards asking simpler questions. In this section, we present clicker threads to enable deeper learning instead of disjoint problem-solving exercises.

Our experience shows that storytelling is an effective way to foster deeper learning. We imagine the learning process as a path composed of clear stages; in this way, it is like a story. The lecturer's task is to lead the students through these stages and to illuminate the path leading them towards mastering a certain concept. Every stage of teaching therefore needs to be a chapter of the story, with a clear narrative arc linking the different steps of the learning process.

Stories start at the beginning. In our setting, we ask simple and low-complexity homework questions, setting the frame on what to think about, and how. Classroom clicker questions then do not just illustrate the reading material, but explore the world we created in a deeper and more adventurous way, still asking SC/MC clicker questions following the story arc we designed, but with higher complexity.

Let us demonstrate this method using an example. The following problem appeared in the original tradtional lecture while the topic of complex conjugation was taught:

> Assume that $(3+4i)^{15} = A + iB$. Compute $i(3-4i)^{15}$ using the given A and B

To solve the problem, the students need to understand the following steps:

- The link between multiplication and conjugation
- The link between power laws and conjugation
- The influence of multiplying by *i* on the real and imaginary parts

In a traditional lecture these topics are taught separately, and when we reach the above example we have no means of verifying that each of the topics or steps have been successfully mastered by the students. We hope that by explaining the solution, the students will be able to identify and connect these different components or learning stages, leading to mastery of the concept of conjugation. Unfortunately, our experience shows that a large portion of the students remains confused even after studying the solution to the problem.

	Didactical goal	The question we asked
1.	Verifying basic multiplication	Compute $(5+3i)(4-8i)$
2.	Combining complex conjugation with multiplication Discuss $\overline{z}\overline{w} = \overline{zw}$ in class	Compute $(5-3i)(4+8i)$
3.	Verifying power laws, anticipating $\left((1+3i)^2\right)^2$	Compute $(1+3i)^4$
4.	Combining complex conjugation with power laws	Compute $(1-3i)^4$
5.	How is the real part of a complex number affected by conjugation, power laws and multiplication?	True or False? $\mathrm{Re}\left((3+i)^4(5-7i)\right) \stackrel{?}{=} \mathrm{Re}\left((3-i)^4(5+7i)\right)$
6.	The original task	Assume that $(3+4i)^{15} = A+iB$. Compute $i(3-4i)^{15}$ using the given A and B

Creating a story arc for our FC setting requires us to break down the original problem into steps which can be asked as single SC/MC questions. We first check if students have a basic understanding of complex multiplication, real and imaginary parts, and power laws. The thread of questions will add one more component with each question, allowing the lecturer to see precisely where students struggle, even in large classes. It also enables most students to solve the problem independently and understand its solution steps.

The sequence we designed uses the original question to develop the knowledge and understanding required for its solution step by step. It also makes sure that several basic concepts have indeed been assimilated through the students' independent preparation. Finally, it leads the students to successfully integrate the acquired insights (cf. Bloom, 1956, and Krathwohl, 2002). Almost all of the students were capable of answering the last question correctly, which shows a high level of understanding of the material, with the students able to put together the different methods and ideas learned in order to reach the final answer. The lecturer can steer the learning process in such a way as to create a story arc, and to use this arc to draw attention to all the important step, leading towards mastery of these concepts.

5 Findings

As the topic is only a small part of the entire course it was not possible to do any quantitative measurements of the exam results. From a survey among students we came to the conclusion that student opinions were very diverse. Still, most had the impression of having deepened their understanding. It was mentioned, though, that this setting is very time-consuming.

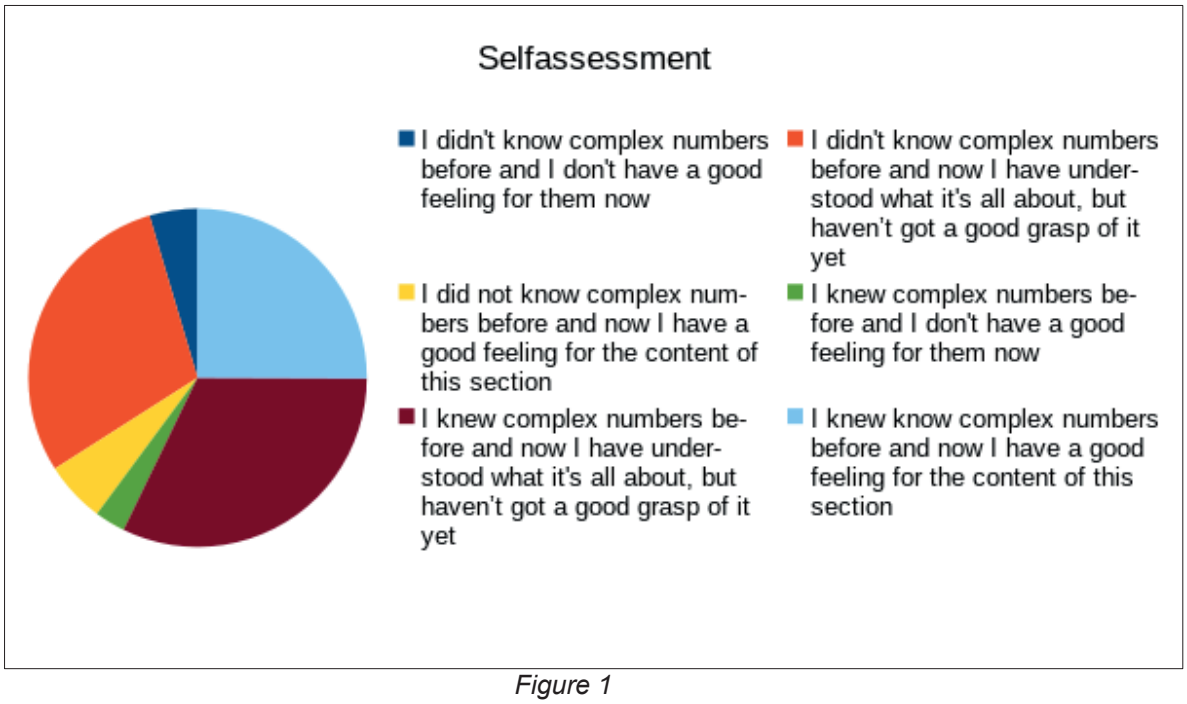

Figure 1

However, the results regarding time spent for preparation are on the levels we aimed for. We are not sure if we are actually overburdening students as the written feedback suggests, or if they simply invested less time in a traditional setting than we would have expected. This might also explain the mixed popularity of our approach.

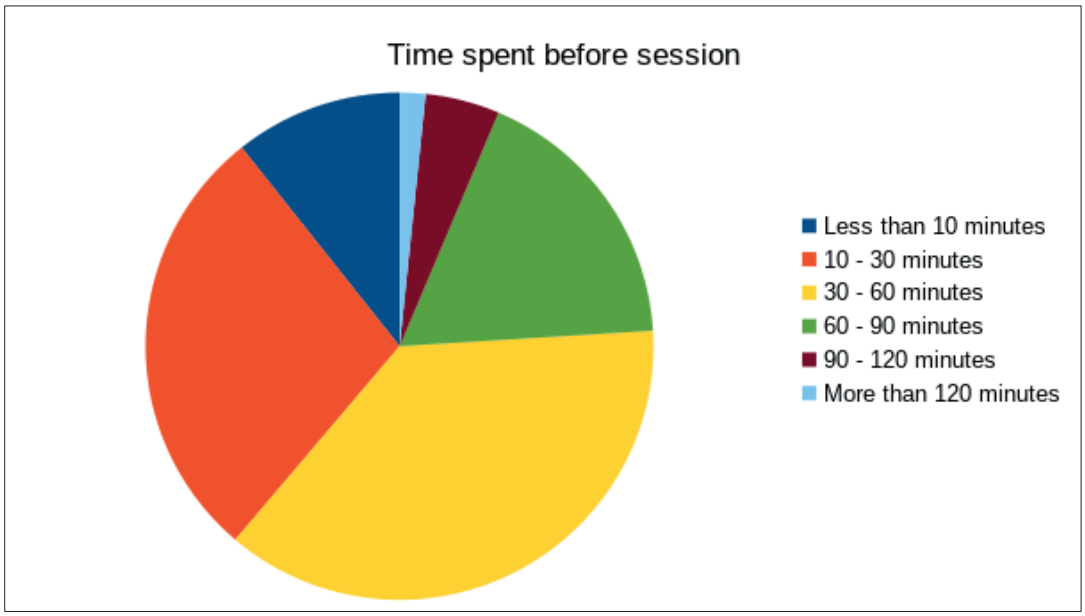

Figure 2

As lecturers this experiment gave us a much deeper insight into the student's learning process: difficulties were quickly identified and discussed. FC enhanced interactivity and peer instruction can very fruitfully be integrated.

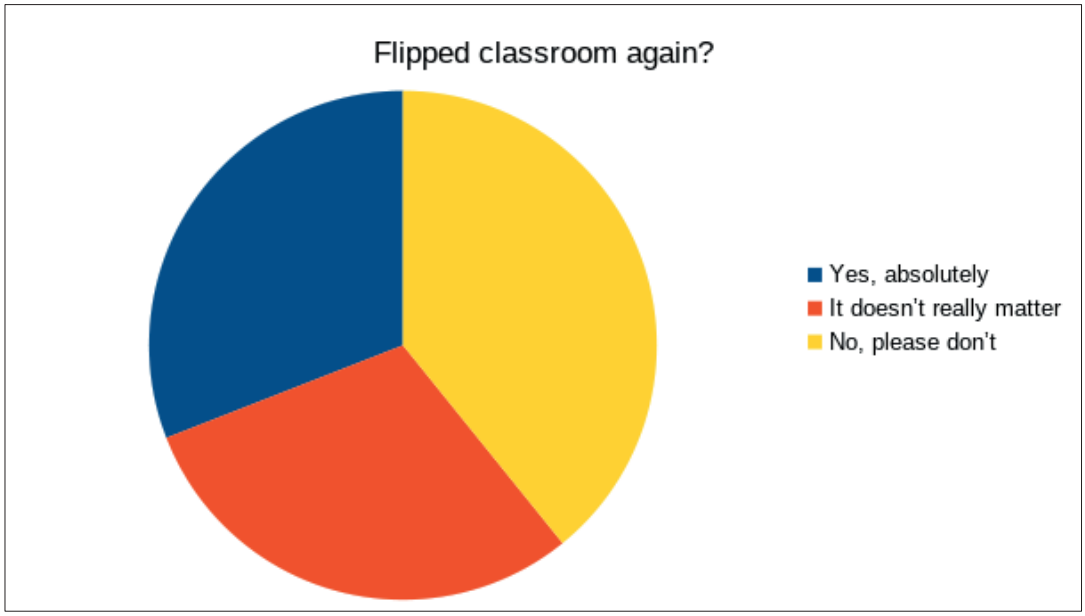

Figure 3

6 Conclusions

To summarize, we can positively answer the two questions posed in the introduction. Yes, the FC is possible in large classes with up to 700 students. It needs careful preparation in terms of both content and logistics, but then a positive learning situation can be created. Through the concept of threads of questions we managed to deepen the students' understanding more than in classical lectures.

However, we think that in our setting it does not make sense to teach the whole one-year course in FC mode. Our teaching and examining relies on a long revision period in the summer where much of the material is studied and understanding is deepened. The FC would, time-wise, go beyond the scope of what is possible during the semester.

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ICED 2020 proceedings: Maximizing learning using cognitive load theory

Robert Bledsoe[1]

English & World Languages, Augusta University
1120 15th St.
Augusta, GA 30912, USA

Deborah Richardson[2]

Department of Psychological Sciences, Augusta University
1120 15th St.
Augusta, GA 30912, USA

Abstract

This article describes how limitations of the human information processing system impact learning, and proposes that cognitive load theory (CLT) deserves more attention in educational development as a tool to respond to challenges posed by these limitations. Furthermore, we suggest that CLT can be used categorize and explain the effectiveness of many evidence-based teaching practices currently in use.

1 Introduction

As we move into the future, we are likely to continue to adopt teaching methods that are evidence-based and grounded in the science of learning and mental processing. Some of the most popular (English-language) books on teaching, such as those by Ambrose et al. (2010) and Lang (2016), show this movement to harness psychological research on the functioning of the brain. One productive avenue to explore in this context is work focused on the human information processing system and, more specifically, Sweller's cognitive load theory (CLT). This article explains how limitations of the human information processing system impact learning and considers instructional strategies and design principles to overcome those challenges in light of CLT.

2 The human memory system

Atkinson and Shiffrin (1968) identified three memory systems involved in human information processing. The (1) sensory system first selects information to move to (2) working memory, where the information is categorized and processed to move on to (3) long-term memory. A primary goal of instruction is to move information into long-term memory. However, the amount of information that working memory can hold at one time can interfere with that process. Miller (1956) demonstrated that working memory is limited to 7 ± 2 items. CLT argues that, since working memory has such a limited capacity, instruction should aim to avoid overwhelming the memory with activities and information that don't directly contribute to learning and the movement of information into long-term memory. While CLT has significant currency among educational developers, it has not been incorporated thoroughly into course design, instructional delivery, and learning. Since cognitive load can impact learning outside the

[1] rbledsoe@augusta.edu
[2] derichardson@augusta.edu

classroom, accurate information retrieval, critical thinking and the appropriate application of knowledge, CLT has important implications for teaching and instructional design in multiple contexts.

3 Cognitive load theory

Sweller distinguishes among three types of cognitive load. Extraneous load is load generated by external factors that interfere with cognitive processing, negatively impacting the learner's capacity to process material; for example, charts or tables that are difficult to read or contain unnecessary information can hinder learning. Even an ill-chosen font can increase extraneous load. Intrinsic load is load directly related to the material or task, and is often defined by the number of individual elements and interactivity between them; for example, arranging seating at an event acquires more intrinsic load as more demographic factors, such as age, family relationships, etc., have to be taken into account. Germane load is load on working memory capacity generated by accessing mental schemas and making connections necessary to move the material to long-term memory, therefore the germane load of a task will vary according to the subject's expertise. An expert will need to exert relatively little effort to take in new information and relate it to existing schemas, while a novice will need to expend extensive effort to generate a viable schema. Germane load is critical because it is effectively the cognitive activity that leads to information retention. Among researchers there is discussion of the value and appropriateness of distinguishing between intrinsic and germane load; however, we have found the distinction helpful in our project and will use it.

CLT researchers have identified a number of common problems, as well as techniques that facilitate learning. Redundant information, poor presentation formats that split attention (for instance between spoken audio and written text), inappropriate sequencing of learning tasks, and insufficient instructional support for learners can all increase extraneous cognitive load. On the other hand, providing worked examples can reduce intrinsic load. Similarly, assigning problems with varied features can help learners recognize deep features for better schema building, thereby facilitating effective use of germane load. Novices require more guidance than more advanced learners, so reducing guidance as students develop expertise facilitates learning. Scaffolding assignments has a role in this transition.

4 Implications

While educational development materials that refer to CLT often focus on cognitive overload produced by extraneous load, an examination of the effects of all three types of load can help us develop methodologies that maximize learning and create a tri-focal lens through which to think through course design, instruction and the evaluation of materials. To facilitate matters, let's distinguish between three key components of the instructional process: course design, activities in the instructional environment and activities that contribute to learning outside the instructional environment. Now, consider how evidence-based teaching and learning practices already in our tool set as instructors and as educational developers can contribute to the reduction of extraneous load and the maximization of intrinsic and germane load. We might come up with a chart similar to Table 1.

	Course design	**Inside the instructional environment**	**Outside the instructional environment**
Extraneous load	Select forms and frequency of assessment that reduce stress and promote deep learning. Select course materials that are easy to navigate and process.	Limit presentations to essential information. Minimize distractions.	Provide reading guides to help students identify essential concepts and material.
Intrinsic load	Scaffold activities to minimize the number of elements required to be held in short-term memory.	Gauge and activate prior knowledge. Reinforce component skills.	Focus assignments on one or a limited set of skills. Completion problems can reduce the number of interactive components.
Germane load	Recycle ideas and material to improve ability to recall from long-term memory.	Help students organize knowledge using organizing principles that fit the function. Facilitate transfer by making connections and material meaningful. Give students time to reflect.	Assign fewer problems, but require explanations of some solutions. Foster the development and improvement schemas. Have students make meaningful connections to other materials and individual goals.

Table 1: Selected evidence-based practices organized by cognitive load

One may argue about the placement of any one practice in a specific category. Indeed, some practices, such as providing reading guides and well-designed, “transparent” assignments, could impact all three types of cognitive load. However, it is more important to note how many of our current best practices can find a place in this table. In addition to generating a framework for organizing practices, CLT simultaneously offers an explanation for the value and effectiveness of these practices. This can be helpful when engaging with instructors who are not convinced to adopt a new teaching practice because it “worked for someone else,” but who want to know why and how it works.

5 Cognitive overload

Earlier we mentioned that much of the focus in educational development on CLT has revolved around the idea of avoiding cognitive overload and the reduction of extraneous load. It is important to recognize that cognitive overload can occur both within and outside of the instructional environment, and through all three types of cognitive load. Visual and audible distractions and attempts to absorb too much information without leaving adequate time to retrieve schemas and process information can impede learning not only in the classroom, but also when students are studying and working by themselves or with others. Therefore, just as instructors should be guided to check and verify comprehension using, for instance, classroom assessment techniques, so do we need to encourage students to foster metacognitive practices that will help them avoid, recognize and deal with situations of cognitive overload.

Klepsch, Schmitz, and Seufert (2017) have developed instruments to measure the different types of cognitive load in specific learning situations. Among items on the instruments are statements such as "For this task, many things needed to be kept in mind simultaneously" (instrinsic CL); "The learning task consisted of elements supporting my comprehension of the task" (germane CL); "During this task, it was exhausting to find the important information" (extraneous CL). Prompts such as these can be used not only to evaluate materials and activities, but to help students with appropriate training recognize learning difficulties and challenges and select strategies that allow them to avoid overload and to respond appropriately when it does occur.

6 Conclusion

In sum, cognitive load theory provides a framework for educational development aimed at improving teaching practices. Of course, some caution is called for. As implied by its name, CLT focuses on the distribution and use of cognitive resources. Kalyuga (2015) has noted that CLT does not consider affective factors that we recognize are important to learning, such as engagement and motivation. Therefore, integrating CLT with other theoretical frameworks that can account for the significance of socio-affective factors to learning will be important in developing a robust understanding of learning. Nevertheless, as an organizing mechanism and as a way to explain the effectiveness of evidence-based teaching practices it is a valuable tool that deserves further use by educational developers.

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ICED 2020 proceedings: Artificial Intelligence enabled Smart Learning

Debdeep Bose[1], Pathan Faisal Khan[2]

Department of Computing, Letterkenny Institute of Technology
Port Road, Gortlee, Letterkenny
Co. Donegal, Ireland

Abstract

Artificial Intelligence (AI) is a discipline of computer science that deals with machine intelligence. It is essential to bring AI into the context of learning because it helps in analysing the enormous amounts of data that is collected from individual students, teachers and academic staff. The major priorities of implementing AI in education are making innovative use of existing digital technologies for learning, and teaching practices that significantly improve traditional educational methods.

The main problem with traditional learning is that it cannot be suited to every student in class. Some students may grasp the concepts well, while some may have difficulties in understanding them and some may be more auditory or visual learners. The World Bank report on education has indicated that the learning gap created by this problem causes many students to drop out (*World Development Report*, 2018). Personalised learning has been able to solve this grave problem. Brainly is one example: an AI-based knowledge-sharing social network where students post and respond to questions asked by other students. This collaboration, along with personalisation-based machine learning algorithms for networking features, has made Brainly a successful platform with 8,000 items responded to every hour. AI is also used in the classroom: China's largest AI education platform “Squirrel AI”[3] has successfully implemented its system in many cities to provide personalised learning. They claim that their system was better at improving math test scores than experienced teachers teaching in a four-day experiment program conducted in October 2017 (Dickson, 2017). These are just a couple of examples of the use of AI inside the classroom to enhance learning activity. A few more, such as “Osmo”[4] and “Classcraft”[5], are integrated into K-12 programmes. It has also been predicted that personalised teaching methodologies using AI will reduce the cost of education, which is quite high even in developed countries. Master Learner is an AI-powered education platform from Shanghai, and they have claimed that "we can make our training fee as cheap as drinking a Coke every day for a year" (*China Turns to Artificial Intelligence to Boost Its Education System*, 2017).

1 Introduction

Smart Learning includes new educational contexts in which the focus is students’ use of the technology at their fingertips. This depends not only on the software and hardware available but on how they are used in the classes. The main problem with traditional learning is that it cannot be suited to every child. The World Bank report on education has indicated that the learning gap created by disparities in this regard causes many students to drop out of school. Personalised learning has been able to solve this grave problem. The theory and development

[1] debdeep.bose99@gmail.com
[2] faisal3325@gmail.com
[3] http://squirrelai.com
[4] https://www.playosmo.com
[5] https://www.classcraft.com

of computer systems able to perform tasks which typically require human intelligence is known as Artificial Intelligence (AI), and AI comes into play here; see the examples below.

2 Classcraft

2.1 The system

Launched in 2015, Classcraft is an award-winning, teacher-friendly gamification tool that is now used in more than 50,000 classrooms in 75 countries in 11 languages. The Quebec- and New York City-based education technology company uses gaming principles to address student motivation. It utilises gaming principles to foster social-emotional development and personalised learning, enabling educators to adapt curricula and teaching style to an individual student's needs. Highly customisable, this revolutionary educational approach can be adapted to any subject and has been proven to be very effective at improving student motivation, increasing student engagement and creating a positive classroom community by fostering secure team building.

2.2 Facts

1. Nearly 54% of the EU population plays video games, which means that there are some 250 million players in the EU. Roughly half of players are female (46%), and 54% are male (Games in Society, 2019).
2. 58% of parents play video games with their kids to socialise with them (Hallifax et al., 2019).
3. A study funded by the British Academy and published in the journal Computers in Human Behaviour, found that 13-to-14-year-old girls classed as “massive gamers” – those playing over nine hours a week – were three times more likely to pursue a PSTEM (physical science, technology, engineering, and math) degree compared to girls who were non-gamers ("Geek Girl" Gamers Are More Likely to Study Science and Technology Degrees | University of Surrey, 2019).
4. A study by Centre de Liaison sure Intervention et la Prévention Psychosociales, or (CLIPP) showed that gamification could help prevent bullying (Classcraft - Gamification in Education, 2019).

3 Alta

3.1 The system

Alta is a software product built on a personalised learning engine for students pursuing higher education by Knewton, a New-York-based adaptive learning company. Knewton released Alta in January 2018 after ten years of experience with publishers. It is powered by their in-house high-quality content curated with long experience in the industry. The software is available to students as a standalone package and to universities and institutes as a comprehensive tool for all students. The product covers courses in mathematics, chemistry, economics and statistics. Courses contain textual, graphical and video-based content. The software is available for students as a standalone version for just $39.95. Alta's mobile app has made it a mobile software for every student to use on the go. The best thing about Alta is that students are not just left alone with the software; there is 24/7 online chat support for student doubts and queries.

3.2 Facts

1. 87% of the time, students using Alta completed their assignments with proficiency.
2. Of students who struggled in their assignments, 82% of them completed them.

3. Students who used Alta and did not complete an assignment scored 55%, while those who completed their task scored an average of 81%.
4. Students who were struggling have shown improvement in their scores, from being at 40% to achieving 78%.
5. 85% of students feel that Alta is improving their skills.
6. Arizona State University has claimed that after implementing Knewton's adaptive learning technology, on which Alta is based, there has been a decrease in dropout rates from 13% to 6% and a rise in pass rates from 66% to 75%.

4 Squirrel AI learning

4.1 The system

Squirrel AI is a Shanghai-based after-school tutoring company with nearly 2000 physical classrooms in China. Squirrel AI was founded in 2014 by Derek Li Haoyang after he stepped down as CEO from his previous education company, which featured an IPO. Using a laptop computer with the company's software installed on it, students study their lessons in a classroom supervised by a teacher of the respective subject.

Squirrel AI's main motive was to address the problems faced in the education system: lack of personalised attention in classrooms and unequal distribution of educational opportunities. The inefficient, rigid education system has decreased students' enthusiasm for learning; this motivated Derek Li to build what is China's most extensive AI-powered education product. Squirrel AI's scope and reach are impressive. However, the concept behind adaptive learning systems like Squirrel AI and others will not make teaching professionals obsolete any time soon. Instead, Squirrel AI is designed to support and augment the work of teachers by taking away the need to teach the "nuts and bolts" of each course (*Building Personalized Education With AI Adaptive Learning - AI Business*, 2019).

4.2 Facts

1. It has been shown that the Squirrel AI system can teach 48 knowledge points in eight hours on average, whereas a human teacher can explain 28 knowledge points in the same period.

5 Conclusions

In summary, Artificial Intelligence enabled Smart Learning is the next logical phase in the introduction of technology to classrooms and educational centres. The global educational landscape has been changing with the introduction to new state-of-the-art intelligent environments; a few have termed this "climate change" in education. Our paper (originally a poster) presents some of the latest successful software and its implementation, all based on AI enabled Smart Learning. However, this is not just about selecting a tool or technology – even though technology (like it or not) is essential to learning and is a primary part of every industry and because it changes so quickly students are better off learning about it sooner. More than this, it is essential to deploy a proven methodology that works with students and develops their skills in a progressive, natural and effective way.

We thus bear in mind that the technological and pedagogical advancements described above are not meant to supersede current teaching and learning education systems, but rather to provide a holistic spectrum of complementary supporting tools which harness and exploit this emerging paradigm to its full potential for smarter education (Smart Learning for the Next Generation Education Environment, 2014).

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ICED 2020 proceedings:

Evaluating the use of a collaborative content curation tool to support online assessments

Ralph Buadromo[1]

Centre for Flexible and E-Learning, The Fiji National University
Nasinu Campus
Suva, Fiji

Nicholas Halter[2]

School of Social Sciences, The University of the South Pacific
Laucala Campus
Suva, Fiji

Abstract

The University of the South Pacific (USP) is one of three regional education institutions in the world. The History Department which is based in Fiji represents one of the few disciplines at USP which delivers its undergraduate programme fully online. Together with the Centre for Flexible Learning (CFL), the History staff have been evaluating the effectiveness of online teaching and experimenting with technologies and tools to overcome teaching and learning challenges. This paper discusses an experimental mobile app which was created by third year History students at USP in 2018 to document local historical sites in the Suva area. It considers the challenges and opportunities created by online learning in the uniquely regional environment of the South Pacific. It further explores how technology can enable more practical and relevant applications and assssments of History content curation to better prepare students for future careers.

1 Introduction

The History Department in the School of Social Sciences is in a unique position as one of the few disciplines at the University of the South Pacific (USP) to offer a full undergraduate programme online. Together with the Centre for Flexible Learning (CFL), the History staff have been evaluating the effectiveness of online teaching and experimenting with technologies to overcome teaching and learning challenges. Student and stakeholder feedback highlighted the need for more practical and relevant applications of History content curation and assessments. Limited research on local histories in Fiji has been produced to date (Derrick 1950; Lal 1992) and the teaching of History in Fiji is limited by a lack of up-to-date open educational resources (OERs). Locally relevant historical information would benefit the community by providing educational resources for local schools, encouraging history tourism for foreign visitors (particularly those from the regular cruise ships), and generating interest and enthusiasm amongst the local community.

[1] ralph.buadromo@fnu.ac.fj, https://www.fnu.ac.fj/
[2] nicholas.halter@usp.ac.fj, +679 323 2629, www.usp.ac.fj/fale

One of the key emerging issues in higher education is how to foster interactive and authentic learning in an online environment. This is particularly challenging for Pacific Island countries which are characterised by significant diversity and often lack access to specific contextualised resources. As the capacity and utilisation of the Internet evolves phenomenally over time, eLearning strategies also need to keep pace. How can we use new technologies to improve student learning experiences, while at the same time cater both culturally and technologically to a diverse student population?

One of the challenges that students in online courses face is navigating and discerning information on the World Wide Web. This has been expressed by some as an "information overload" problem, but perhaps this explanation is too simplistic. As Seitzinger (2014, 412) notes, connected individuals are not experiencing an information overload problem, "but rather a filter failure, our lack of having a process for operating in this new environment." Search engines have become increasingly sophisticated and institutions (like USP) have been training students on how to effectively use these tools. However, it is unclear if this training is sufficiently addressing the issue. The solution may lie in a more collaborative approach to technology. It should not be the sole responsibility of the teacher to filter content for students; rather, students need to be actively engaged in the process of filtering content for themselves. Content curation is one way that this goal could be achieved, and evidence suggests that content curation could improve student learning as well as help to create contextualised resources for Pacific Island countries in the future.

Content curation is the process of aggregating, validating, and annotating existing content with its associated intellectual property claims into a comprehensive repository (Rotman et al 2012, 1093). It is essentially a process of strategic collection and presentation. One of the main advantages of curating digital content is that different mediums can be utilised to present information, such as blogs, podcasts, videos, webinars, social media posts and infographics. Curating of content is a useful tool because it gives students the opportunity to edit and filter information according to their own learning abilities and interests and it allows curators to control the quality of information presented about a topic. Content curation can be done manually by individuals, or with the aid of automated software. Social media platforms such as Pinterest, Flickr and other free to use software such as Scoop.it, Learnist, Pearltrees, Storify, Delicious, or BagTheWeb can help collect and share curated content. Numerous studies have highlighted the benefits of content curation for student learning and engagement (Deschaine and Sharma 2015; Flintoff, Mellow and Clark 2014; Zhong et al. 2013; Lambert and Frisch 2013; Minocha and Petre 2012). However, the changing nature of technology has meant that many studies of content curation quickly become obsolete or outdated.

2 Research questions

The purpose of this project was to evaluate the use of a collaborative content curation tool to support online assessments. The outcome was the development of an OER mobile history app which collated, curated and communicated local knowledge about key historical sites in Fiji[3].

1. What is the impact of the collaborative content curation tool on student learning and engagement in an online environment?

2. How can these technologies effectively facilitate collaborative eLearning to enhance student learning?

3. What alternative strategies or technologies can be employed to make History teaching online more interactive and contextualised?

[3] The Fijian History app can be freely download from the Google Play Store and Apple App Store. A website was also created (https://fijianhistory.com) to accommodate users without access to mobile devices.

3 Methodology

The development of the mobile app was embedded within a 300-level online History course in Semester 2, 2018 (titled HY304 Pacific History: Protest and Identity). 48 students (33 female, 15 male) participated in the research as part of their coursework assessments. Students were required to work in groups of five to compile historical data (primarily about locations within the Suva city limits) and populate the mobile app as part of a content curation assessment task. This data was presented in the form of written information (containing research about the history of each site), images (both historical and current), and audio (students wrote scripts and pre-recorded audio to be used in the mobile app). Students were asked to design, test and revise the mobile app before it was launched to the public on 19 October 2018. The research team utilised quantitative and qualitative analysis of data from four sources: Moodle Analytics; Google Analytics; feedback surveys (quantitative and qualitative); and individual qualitative interviews with ten students.

4 Results & discussion

4.1 Student feedback survey results

43 students completed an entry and an exit survey during the course. The average age of the cohort was 25, and 58% identified themselves as Fijian. The entry survey showed that the majority of the participants (77%) were competent with smartphone, tablet and/or computer technology. Being third-year students, most were confident in writing essays and using the learning management system (Moodle). Though most stated that they enjoyed reading (which is a major skill required in History courses), the course results suggest that reading skills were poor. Surprisingly, the majority of students (58%) preferred face-to-face courses over online or blended modes.

The majority of students (93%) enjoyed the project, most frequently citing the opportunity for practical fieldwork as one of the reasons. Though students did not specifically identify the app, they frequently referred to the benefit of interactions, which could be considered a consequence of the app project design. 85% agreed that the project was more relevant than other assessments. In qualitative interviews, some students explained the importance of research skills and local content for their aspiring roles as high school teachers.

Most (73%) preferred this project to an essay assignment because it was more relevant and engaging. They agreed that the design of the project was appropriate for an online course because it made learning easier, more flexible and more exciting. This confirms the value of the mobile app project for enhancing student learning. Interestingly, during interviews students noted that in addition to the mobile app, the use of Moodle, social media and face-to-face meetings was necessary for the project. This suggests that a single mode or use of technology is restrictive and ineffective in online learning. Rather, a combination of technologies should be made available to facilitate learning.

4.2 Moodle Analytics

The Moodle e-Learning platform was also used to analyse student participation and engagement in the online course. 81% of students registered on the HY304 Moodle page clicked on less than 50% of the course. This was a surprising statistic, considering that 48% of students in the first-year online History course clicked on less than 50% of the course. This suggest that as students gain confidence and familiarity with online History courses at USP, they learn to prioritise only the content which is assessable. It also signals that course coordinators and designers need to be more creative in finding ways to encourage student engagement in online learning.

The absence of plagiarism was a positive and unexpected side-effect of this project design. The content for the mobile app by groups was submitted via a text matching software (Turnitin) which guides teachers in determining plagiarised content. In this case, no plagiarism cases were detected. Students were discouraged from plagiarism because the content of research was not easily accessible online, and students were aware that their work would be published publicly. This is an improvement compared to previous course offerings, where students frequently exceeded 20% Turnitin similarity scores.

4.3 Google Analytics

Google Analytics has also been useful for determining initial engagement with the Android version of the app. As of July 2020, 9894 users have accessed the content. Of those users, 47.4% have accessed the content from their desktops and 52.6% have accessed it from a mobile or tablet. The two largest proportions of users are aged 25–34 (33.5%) and 18–24 (27.5%).

The most interesting data collected is the popularity of particular pages. The Momi Bay Historical Park is rated as the most popular site (8%), followed by pages which focus on indigenous Fijian sites (Origins of Suva, Tavuni Hill Fort, Great Council of Chiefs) (all approximately 5%). The popularity of the World War Two Gun Battery at Momi Bay, may be attributed to tourism, as it is a key tourist attraction for international visitors to Nadi. The popularity of indigenous locations on the mobile app may be due to the fact that users are unable to find information about these places elsewhere online. There remains greater scope for promoting this mobile app to visiting tourists, particularly those on cruise ships that dock at Suva Harbour. Offering guided walking tours in association with the app may be a useful addition to stimulate engagement and use. Much more can be done to expand the app beyond the confines of Suva, and to document in greater detail indigenous historic sites, such as villages and natural features. For the time being, each year a new class of History students is tasked with documenting new sites to add to the app.

5 Conclusions

Below are some tentative conclusions based on the study:

1. Mobile apps can demonstrate the applicability of theoretical knowledge to students, as well as the limits of technology as an intellectual tool.
2. Though the mobile app enhanced student learning by encouraging greater interaction, it should not be used in isolation, but rather in combination with institutional learning management systems (Moodle), social media and face-to-face discussions.
3. Public presentation of assignments can discourage plagiarism and increase student motivation.

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ICED 2020 proceedings: Exploring the drivers and barriers to teaching excellence

Emily Chapman-Waterhouse[1]

Department of Animal Production, Welfare & Veterinary Sciences,
Harper Adams University
Shropshire, TF10 8NB, UK

Abstract

In a sector that aspires to teaching excellence it is important to stand back and ask: what do we mean by this? While existing research defines effective methods for teaching and supporting learners, each institution and student collective has its own identity, culture, preferences and norms. The very exercise of locating excellence is also a powerful practice based conversation starter, particularly in terms of what makes our teaching practice "future-ready". Findings from such evaluative conversations can provide a mandate for the advocacy of one practice over another; help individual staff develop confidence in their methods through affirmation; and shed light on institution specific conceptions of excellence.

The aims of our interactive workshop were to facilitate those evaluative conversations, using the prompts provided by a table-top dialogue sheet.

In combination with published literature, the findings from a project undertaken in the author's home institution indicated that the drivers to impactful teaching could be categorised as either social, innovative or by the extent of their alignment with the real world. Perceived barriers included regulations and the entry profiles of students. The journey to teaching excellence was noted as not being without challenges; however, alternative pedagogies were perceived as a means to overcome them. Future work could include larger-scale projects to explore a wider range of both staff and student views.

1 Introduction

The profile of teaching excellence in undergraduate provision was highlighted by the English cross-sector implementation of the Teaching Excellence Framework (TEF) in 2017. This framework currently measures teaching quality, learning environment, student outcomes and learning gain (OfS, 2018).

A project which was undertaken in the author's home institution during 2017-2019 and which underpins the intended workshop set out to establish an understanding of the academic staff perspective on what teaching excellence looked like in animal and veterinary sciences course areas. The project provided a novel perspective, as it was undertaken in a small specialist institution with a unique subject offering and a high cost base.

Our mixed methods project set out to explore the drivers and barriers to impactful teaching and teaching excellence. The aims of our interactive workshop were to facilitate dialogue between participants so they could themselves derive some of the answers.

[1] echapmanwaterhouse@harper-adams.ac.uk

2 Background literature

Published literature provides some insight into what excellent teaching looks like. The following is not an exhaustive review, but is intended to be indicative.

In terms of teacher characteristics, Ford (1983) discussed "humaneness", "skill of reasoning", being a "multicultural person", and an ability to "integrate interdisciplinary aspects of the curriculum into their teaching." Issler (1983) adds to this list enthusiasm, clarity, preparation, stimulating delivery, love of knowledge and experience. The two studies are connected in the sense that skills of reasoning, decision making and integration of knowledge are arguably a result of experience.

Some more recent examples of literature on this topic include Revell & Wainwright (2009), who defined excellent teaching as being where there is a "high degree of student participation and interaction, a clear structure and passion and enthusiasm in the lecturer." Gunn & Fisk (2013) reported that excellent teaching arose when staff were "being dynamically engaged in teaching practice and inspiring and practically scaffolding the potential dynamic engagement of one's students." This aligns with Wood and Su's findings published in 2017, which summarise excellent teaching as "…the effectiveness of academics in enabling students to learn… the level of competence in teaching which maximises learning gain and capacity for original critical thought recognised as exemplary by peers."

3 Conference workshop approach

The intention was for the workshop to be organised as follows:

- Invite participants to sit in groups of four which where possible reflect a variety of subject/interest areas
- The author then presents
    - The aims of the workshop, two-three icebreaker questions ("post-its") and a brief self-introduction
    - The context of the workshop
    - The dialogue sheet
- Using a dialogue sheet per table, participants spend the bulk of the workshop time in discussions within their group in order to complete it.
- Invite a spokesperson per group to give feedback to the rest of the room; discussion would then continue as a whole group.
- The author presents the key findings from the research project and from published literature.
- Participants draft a set of take-home definitions, expectations or calls to action relevant to their own settings.

4 Underpinning project methodology

A research ethics application was approved by the home institution's Research Ethics Committee and participant consent was obtained and stored securely. This project sought views from active teaching staff within the "home" department of the author.

The research methodology took a two-phase approach:

4.1 Phase 1

4.1.1 Focus groups

Two semi-structured focus groups, exploring both research questions, took place at the home institution. To remove the potential for bias, the focus groups were facilitated by a trained external facilitator.

4.1.2 Analysis of focus group data

The transcribed focus group recordings were analysed using a grounded theory and open coding approach to derive categories. Analysis was undertaken in NVivo Plus Version 11.0 by the author and following initial coding; a peer review was sought from an independent consultant to corroborate or refute categories.

4.2 Phase 2

4.2.1 Online questionnaire

In an iterative style, the headline findings from the focus groups informed the development of an anonymous online questionnaire delivered via Online Surveys and preceded by a short pilot to test accessibility. The questionnaire sought scaled and free-text responses, set to answer both research questions.

4.2.2 Analysis of the online questionnaire data

This yielded a 37% response rate. Online survey data was exported to MS Excel for analysis.

4.3 Participants

The author was excluded from the potential pool of participants. Focus Group 1 (FG1) comprised five participants, and Group 2 (FG2) seven participants. At the time of the study, these staff members were involved in the delivery of modules in undergraduate and postgraduate Agriculture, Animals, Veterinary Nursing and Veterinary Physiotherapy. The twelve focus group participants volunteered to take part. The Phase 2 questionnaire was circulated to active teaching staff within the department (n=75).

5 Results

5.1 Take-home messages from the project

Table 1 below summarises the findings from the project undertaken in the author's home institution, reported as participant perceptions.

5.2 Limitations of our project findings

The timing of data collection may have influenced responses from participants, e.g. if they were mid-way through a large research project of their own. A future iteration should also capture current workload, projects or activities being undertaken by study participants to better understand their possible impact on perceptions. It is important to note that there was no representation from one section of the department and there was a very limited response rate for the Phase Two questionnaire. If participants had little or no experience of poor teaching (when they were students), they may not have been able to then benchmark teaching excellence.

Student characteristics of Black and Minority Ethnic (BAME), mature age group, care leavers or international domicile were not mentioned by participants in our project. Therefore we cannot be sure that our findings are relevant for the wider student body. The lack of reference to these specific student characteristics may be explained by the limited extent to which our courses recruit such students.

Drivers to impactful teaching	Barriers to teaching excellence
A passionate teaching philosophy; having experienced enthusiastic teaching when they were themselves students; having freedom to be innovative	Access to resources; timetabling; teaching space constraints; tension for staff regarding teaching versus research; external sector regulations
Small group sizes; a comfortable environment; a personable communication style; placing students as leaders	Large groups; assessment load; accepted entry profile of students
Application of technology in teaching; application of tools or equipment used in industry; practical application of student skills; staying connected with industry	Technology that breaks face-to-face contact between staff and students

Table 1: A summary of the perceived drivers and barriers

5.3 Intended results derived through the conference workshop

During the course of the workshop, participants would have been challenged to (re-)think teaching excellence: what it has been, what it currently is and what it could be in the future; what drives them as practitioners to aspire to teaching excellence; what they perceive to be the barriers and potential solutions to these; and lastly, what next?

6 Conclusion and recommendations

Whilst the intention was that workshop participants would derive their own recommendations to take back to their own settings for comparison, our project gave rise to five specific recommendations:

- Showcase the active teaching approaches identified through the focus groups.
- Optimise opportunities to reach teaching excellence sustainably, therefore creating a culture shift.
- Undertake a larger-scale project, informed by the design and findings of this initial work.
- Capture what the students view as teaching excellence by way of comparison, and/or to understand commonality or differences of opinion.
- Revisit the study participants to assess the likelihood of unintended consequences for an individual's teaching practice – and in turn, of departmental and institutional changes – through undertaking this project.

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Conditions for the development of online teaching capacity: A case study

Luciano da Rosa dos Santos[1]

Academic Development Centre (ADC), Mount Royal University
4825 Mount Royal Gate SW
Calgary, Alberta, Canada
T3E 6K6

Abstract

Online learning has shown its potential for more than three decades in postsecondary institutions. However, for online learning to be implemented appropriately, a key aspect is proper development of faculty members who are going to facilitate online courses. This paper describes an instrumental case study investigating the conditions for the development of online teaching capacity of faculty members in a professional Faculty in Canada. Personal commitment, support systems and leadership were found to be key factors influencing the capacity-building process. Understanding such conditions can help institutions design educational development strategies that better align with the needs of faculty members.

1 Introduction

The number of online courses offered in higher education institutions is increasing over time (Allen, Seaman, Poulin, & Straut, 2016; Donovan et al., 2019). The amplified interest in adopting online learning means that universities must have strategies and supports in place to ensure that high quality online learning is available to current and future students (Parrella & Yong, 2012). One approach is to provide educational development initiatives focused on building online teaching capacity. Many studies focus on the design and evaluation of educational development programmes for online instructors (Herman, 2012) as well as on the levels of satisfaction that faculty members report with such programmes (Hixon, Buckenmeyer, Barczyk, Feldman, & Zamojski, 2012). Nevertheless, few studies address the relationship between instructors, academic leaders and educational developers in the creation of the necessary conditions to support the improvement of an instructor's capacity to teach online.

2 Methods

This study explored how the relationship between key educational stakeholders (i.e., instructors, academic leaders and educational developers) within a university created conditions for faculty to become online instructors. An instrumental case study (Creswell, 2013) was conducted, analysing the educational development processes undergone by online instructors within a professional Faculty at a research-intensive Canadian university. Data was collected using faculty surveys, interviews with stakeholders, and document analysis of educational development-related paperwork. Data analysis followed a thematic analysis approach (Braun & Clarke, 2006).

A critical case sampling strategy (Patton, 2002) was used to identify a bounded system that fulfilled the following two main criteria: a Faculty or department that delivered educational

[1] ldarosa@mtroyal.ca

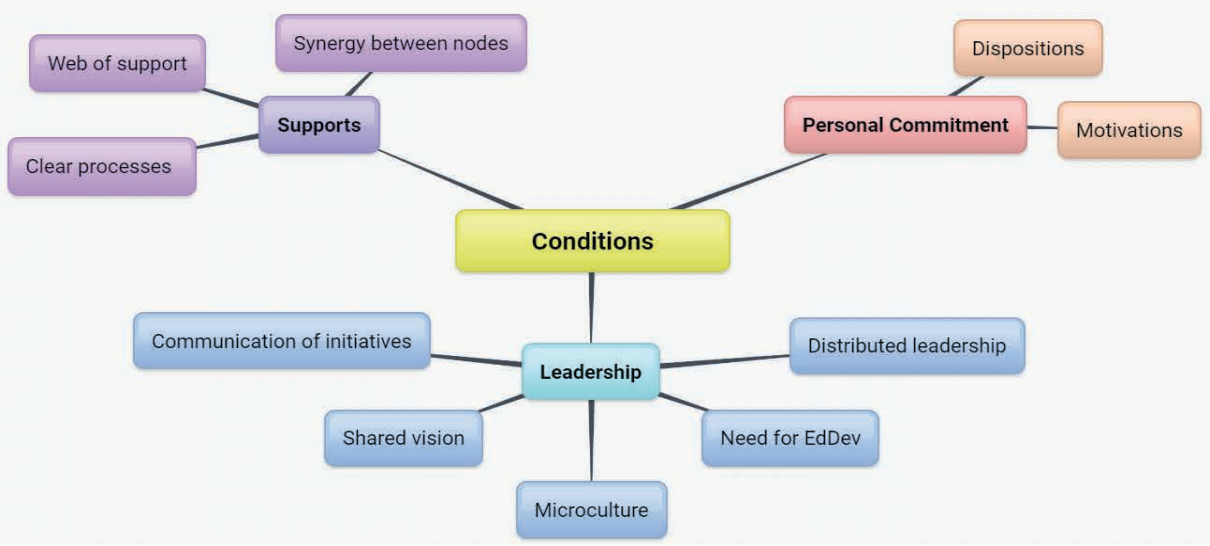
programmes via online learning; and the existence of support systems for faculty members, both at Faculty level and university level. Individual participants from three stakeholder groups were selected through criterion sampling. A description of each group, and the criteria employed to select individual participants, is presented in Table 1.

Role	Description	Criteria	Number of participants
Educational Developers	Professionals responsible for designing and implementing initiatives aimed at developing teaching capacity in postsecondary instructors	2+ years of experience in educational development for online teaching	2
Academic leaders	Individuals with administrative and leadership roles related to the specific Faculty	2+ years in their positions, and who had been involved directly or indirectly with online courses or programmes as part of their positions	2
Instructors	Academic staff in permanent or temporary appointments	Taught at least one online course in the Faculty where the study was conducted	5

Table 1: Description and criteria for participant selection

3 Findings

As a result of this investigation, three main conditions emerged as being essential for the development of online teaching capacity of instructors: (1) personal commitment; (2) supports; and (3) leadership. In this section, each of the conditions are examined in terms of what emerged from the study and from the literature.



3.1 Personal commitment

A first condition determined to be essential to the development of online teaching capacity among instructors was personal commitment of instructors. It is important to establish institutional leadership, create organizational development and, particularly, that each instructor takes ownership of their own capacity-building process. Here motivation for personal development plays a key role. Instructors in this research demonstrated their interest in developing online teaching skills in various ways. They were motivated by the mandate of their Faculty (the sole degree provider in their province in their field), and the fact that online learning was one of the strategies used by the school for the delivery of its programmes. Instructors

also aspired to high quality online instruction so that the school could fulfill its mandate. Motivations to teach in an online environment and to develop one's own capacity are correlated (Chaney, 2010). This means that instructors who are motivated to teach online courses are more often than not likely to be intrinsically motivated to engage in online teaching capacity-building processes. In my case study, all instructors who were interviewed highlighted the importance of facilitating learning at a high level for their students.

Another aspect of personal commitment that was identified in interviews revolved around individual's dispositions towards self-improvement. This involved a clear intentionality in learning about online teaching: being open to discussing and experimenting with new strategies and approaches to teaching. This openness was also visible when several instructors took steps to experience online education as students, which they claimed served them well to more deeply understand what students would be experiencing when engaging in their online courses.

3.2 Supports

The second condition deemed essential for the development of online teaching capacity in instructors was the existence of a variety of supports that accommodated the diverse need of instructors. Instructors demonstrated the need for assistance in several areas, for example via introduction to pedagogical, technological, administrative and other elements relevant to online teaching capacity-building processes. However, instructors may have various levels of expertise in educational technology and online learning; different approaches to teaching; and distinct preferences on how they best learn a new technique or tool. Therefore, offering a variety of options from which instructors may choose what works best for them is crucial to the success of online teaching endeavours in higher education institutions (Frankel, 2015; Gregory & Salmon, 2013; Herman, 2012).

Furthermore, not only is the diversity of offerings important, but the synergy between each service provider, so that instructors' needs are met while maintaining sustainable support models. Large research-intensive universities such as the one studied in this research can house several Faculties and departments, each approaching teaching and learning practices differently (Cook & Marincovich, 2010). As such, it is crucial to carefully adjust educational development offerings to focus on a general message while accommodating each department's individual needs (McAlpine & Saroyan, 2004). Careful and strategic articulation between stakeholders must also take place for this to happen (Rochefort, 2013).

However, instructors and academic leaders in this study noted that sometimes it was difficult to clearly identify paths for instructors to navigate the different educational development offerings and initiatives. This was especially true for adjunct faculty members. Such support systems should be organized in clear ways and communicated appropriately so that instructors are able to decide what approaches or paths would be most suitable to their needs and preferred styles.

3.3 Leadership

The final condition dealt with the role that certain individuals and groups had in leading the Faculty in online teaching, and the value placed on developing teaching capacity. Leadership can be understood as "influencing others to achieve new, hopefully desirable, ends; it frequently involves initiating changes designed to achieve existing or new goals" (Spillane & Diamond, 2007, p. 5). In this case study, such goals included reaching students from across the province, as well as offering online teaching at an exceptional level. To achieve these goals, five components of leadership had to be present. Leadership had to be (1) visible in the way a vision for online teaching was shared among instructors, which (2) created a micro-culture of excellence in online teaching. However, this was not done by the senior leadership

of the Faculty in isolation; rather, (3) leadership was distributed so that individuals and groups were empowered to take ownership of their development and to create opportunities for others to also engage in online teaching. Leadership was also seen in the (4) recognition of the need for practices around online teaching capacity building. Finally, the (5) communication of initiatives and strategies for capacity building was done in a way that engaged others to take control of their own development.

4 Conclusions

Online teaching is expanding its role in higher education. In the context of the Faculty of Professional Studies, and that of many other institutions, this implies that instructors need to develop knowledge and skills to design and teach effective online courses. In order to do so, this study highlighted three main conditions that impacted the process of online teaching capacity building: leadership, web of supports, and personal commitment.

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ICED 2020 proceedings:

Integrated and interactive workbook for fostering the visibility of interconnectivity of disciplines in food science

Melanie M. Erzinger[1], Laura M. Nyström[2]

Department of Health Science and Technology (D-HEST), Institute of Food, Nutrition and Health, ETH Zurich
Schmelzbergstrasse 9
8092 Zurich, Switzerland

Abstract

Food science explores the fundamental relationships between the quality of food and its processing, as well as the effects of diet on health. Food chemistry and food analysis are two core disciplines needed to understand the complexity of food science. The integrated und interactive workbook developed at ETH helps to make the interconnectivity of disciplines visible. With theory texts, interactive videos, electronic dictionaries and quizzes for each individual chapter, the workbook promotes students' active engagement and participation in the learning process inside and outside the lecture hall. Three different formats of the workbook, namely an e-textbook, a web-based platform and a mobile application, will be developed. These digital technologies create flexible learning spaces, can be used in flipped classroom settings, and support students' academic learning process.

1 Introduction

Food chemistry and food analysis are two closely related fields central to food science. Both are essential for understanding the composition, properties, and safety of foods, and they provide basic knowledge that is important for the understanding of other disciplines in food science. At ETH Zurich, the Laboratory of Food Biochemistry of Professor Laura Nyström is responsible for lectures in food chemistry and food analysis. During their Bachelor's degree studies, food science students attend the lecture series Food Chemistry I & II and Food Analysis I & II as well as the basic Food Chemistry Laboratory Course. Unfortunately, students often find individual lecture courses to be isolated entities and do not immediately see links between the different lecture series. The integrated and interactive workbook presented here aims at supporting students' learning in several consecutive semesters, offering several opportunities to link their newly learned content to concepts and themes learned in previous semesters and associated lectures.

2 Workbook structure and content

The workbook will be structured similarly to the lectures in the different disciplines during the semester. For food chemistry, this structure draws on themes involving the main food components, namely lipids, proteins and carbohydrates. Additional topics, e.g. aroma substances, vitamins and food additives, are also included. Food analysis will be structured according to the different analytical methods that are discussed, including multiple spectroscopic and chromatographic techniques and enzymatic analysis methods. The advantage of the workbook structure is that the entry portal of the workbook can be designed

[1] melanie.erzinger@hest.ethz.ch
[2] laura.nystroem@hest.ethz.ch

separately for each course so that the sections are organized and arranged according to the mental logic needed for that topic.

The workbook contains independent thematic modules, where individual text parts can be combined in a tailored order to fit specific needs. Written theory parts are combined with topic related videos, whenever possible in an interactive format. These videos are either self-made or from open access resources. Additionally, the workbook includes multiple choice questions after each individual thematic chapter. These questions lead the students through the whole field and emphasize the most important points. The developed resource of teaching materials guides students throughout the semester and can be used to prepare for exams.

3 Instructional design

Multiple formats of the workbook will be developed. Its content, with all relevant theory parts, exercises and additional material such as interactive videos, schemes and figures, will be collected first in two e-books (in ETH PolyBook format). There is a debate about students' preferences regarding the materials they use to learn scientific content. Studies have shown that students still prefer textbooks to e-books and only accept e-books if there is an additional benefit (Sieche, Krey & Bastiaens, 2013; Allred & Murphy, 2019). Therefore, the e-book developed here contains not only theory text, but combines text with interactive videos, schemes and figures. It also includes vocabulary assistance, i.e. text narration and dictionary/glossary searches, as well as relevant quizzes. It therefore profits from all the advantages an electronic book has over a traditional textbook. To adapt to the modern technologies that are available today, the e-book content will in the future be further transformed into a web-based e-learning platform and, if possible, into a mobile application.

3.1 E-book

The Educational Development and Technology group at ETH Zurich offers various digital learning tools directly linked to Moodle, the learning management system at ETH Zurich. Using PolyBook, long documents like lecture scripts etc. can be created in a digital and attractive form. With existing lecture material on food chemistry and food analysis, two PolyBooks will be created. For each chapter, exercises with multiple choice questions and excursus to related fields (e.g. organic chemistry) will be added. Thematically connected topics will be linked within the PolyBooks Food Chemistry and Food Analysis; this will help the students to understand important links and relationships.

3.2 Web-based platform

Even though the use and the acceptance of e-books and other mobile devices in higher education is increasing, there are some disadvantages to e-books (Waller, 2013; Fojtik, 2015). The major disadvantage is the reluctance of both students and faculty to switch from printed books to e-books (Waller, 2013). To overcome the possible disadvantages of e-books, the content of the two PolyBooks will be transferred to a web-based e-learning platform. The idea is to create two different entry pages for Food Chemistry and Food Analysis, respectively. From there, topics can be selected and students will be guided through related fields. In this format the links between the two disciplines can be made even more visible, and will be a great resource which helps students to become experts in food chemistry and food analysis.

3.3 Mobile application

If the web-based e-learning platform is well accepted by the students, it will be further developed into a mobile application. This will give students the opportunity to use the material on their mobile devices, including mobile phones and tablets, and make the resource even more flexible than the web-based platform in terms of studying time and location.

4 Expectations

4.1 Didactics

The workbook supports independent and self-directed learning (Rockinson-Szapkiw et al., 2013; Henderson, Selwyn & Aston, 2017; Gray and DiLoreto, 2016; Pinto & Leite, 2020). Students can decide on their own how much they want or need to use the workbook. With all the material provided, including interactive videos and quiz questions, the workbook facilitates active learning, because the students need to critically evaluate their own needs and will therefore evolve into independent and confident learners.

4.2 Students' view

Students can use the workbook at any time and place, also offering them flexibility when studying outside of the lecture hall. The workbook will include short summaries of theory and explanations of the most important terms and concepts; exercises to be carried out as part of interactive sequences in lectures or as homework; and self-study material for use during the semester and for exam preparation. All this material will support the students in active learning. Furthermore, the students will be able to reflect on their performance at any given time during the course via self-study materials, and via assessment using graded tasks and quizzes.

4.3 Lecturers' view

The workbook serves as an additional resource for students during the semester. Lecturers can use the content in class, or just refer to it and advise their students to use it for independent study. The main advantages of the teaching material resource developed are that it can be utilized in several ways; be assembled in different combinations for various purposes; and be updated easily, facilitating the preparation of study material for lecturers. This also guarantees the use of the workbook over multiple years.

5 Conclusions

Food chemistry and food analysis are two highly interconnected disciplines in food science. The links between these two subjects are not always visible to students, particularly because they are taught as individual lecture series. The workbook presented here can be used to illustrate the connections between these two disciplines and help students to better understand and follow the lectures. Overall, the integrated and interactive workbook supports food science students in learning the key concepts of food chemistry and food analysis by providing them with inspirational and high-quality study material which facilitates active learning.

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ICED 2020 proceedings:

Evidence-based teaching practices in online courses: The end of a lone-instructor model

Robyn Foshée[1], Milan Vidaković[2]

Center for Teaching and Learning, University of Washington
Gerberding Hall 100
Seattle, WA 98195, USA

Abstract

Participants in our Winter 2020 graduate course on hybrid pedagogies held roles of both student and instructor. This placed them in an apt position to evaluate the strengths of and areas for improvement in technology-supported teaching. At the end of the term we asked them what instructors of online courses should focus their efforts on. Their responses emphasized community building. In this paper we examine building a teaching community as a step toward modeling and fostering a learning community in online courses.

1 Introduction: Pedagogical powers of graduate instructors

Teaching technologies are enticing. It is easy to get carried away and let them take over the course design. To not let the cart pull the horse, at the University of Washington's Center for Teaching and Learning, we introduce teaching technologies as tools in the service of learning goals. In faculty workshops we combine information on evidence-based practices with activities through which participants brainstorm and select strategies that meet specific learning goals, play to their strengths, and can be tailored to the context of their classes.

For graduate instructors we offer a course, *Hybrid Pedagogies: Using Technology in Teaching*. In Winter 2020 (January-March), the authors designed the course to combine theories of evidence-based pedagogy with the practice of implementing technology in teaching. The goals of the course were (a) to examine multiple ways to use technology to support learning goals in higher-education courses, and (b) to identify and explore areas of online teaching and using technology in teaching where there are gaps in current knowledge.

We were keenly aware that our students had a unique perspective on teaching technologies and online learning spaces: as graduate students and graduate instructors—some of them teaching their own classes, and some working as teaching assistants—they stood with one foot each in teaching and in learning. Participating in a course that combined face-to-face with online teaching provided them with an opportunity to evaluate emerging pedagogical approaches and detect areas that hold potential for growth when teaching with technology and online.

2 Course structure: Technology and evidence-based teaching practices

Three elements of the class structure supported the two main learning goals: the hybrid structure of the course, weekly learning and practice cycles, and the final project.

[1] rfoshee@uw.edu, http://uw.edu/teaching/
[2] milan@uw.edu, http://uw.edu/teaching/

2.1 The hybrid course structure

During the ten-week-long term, we met five times in a technology-enhanced active-learning classroom. One week (two-thirds into the quarter) was entirely asynchronous. The class met online four times, via Zoom.

2.2 Weekly learning and practice cycles

The format of each class followed this pattern: theory → practice → reflection → implementation → assessment[3]. The course was structured around a weekly flipped-classroom cycle:

1. *Homework 1: Read and Respond*: Examine the research behind an aspect of pedagogy by completing assigned readings with the aid of a reading guide. Then, reflect on the pedagogy by completing an assignment, typically a reflective short-answer essay or a post on a discussion board.
2. *Homework 2: Tinker with Tech*: Explore 2-3 assigned teaching technologies to support that aspect of pedagogy (students are given existing documentation and resources to learn on their own). Then, put these technologies into practice through implementation tasks.
3. Instructors have two days to go over the homework, discuss it with each other, provide feedback, and create anonymized summaries to be shared in class.
4. During class sessions, in small groups and then as a whole class, students brainstorm the outcomes of their reflections and workshop how to assess the effectiveness of available teaching technologies and make informed choices for tailoring them to their teaching contexts.

2.3 The final project

To solidify mastery of teaching technologies in the context of their own disciplines, for the final project students applied their choice of elements from the class to create a technology-supported module they could use in their teaching.

3 Survey: Graduate student-instructors' responses

At the end of the course, we asked students what using technology in teaching means for teaching and pedagogy in general. One of the open-ended questions we asked in an anonymous survey focused on online teaching:

> *Where should educators focus their efforts to make the most impact for successful online classes (for students **and** teachers)?*

A strong theme in the responses was *instructor presence and interaction*. It did not, however, stand alone in responses, but was connected to other aspects of the class, indicating that instructors should focus on instructor presence and interaction to achieve the following goals:

[3] Pedagogical topics included goals-focused course design (adapted from backwards course design), active learning, flipping the classroom, engaging students synchronously and asynchronously, inclusive teaching, accessibility and universal design, discussion activities and discussion boards, formative feedback, and summative feedback and assessment. Teaching technologies included learning management systems (Canvas), classroom response systems (Poll Everywhere, Zoom polling), video and lecture capture (Panopto), video conferencing (Zoom), collaborative documents (Google docs), annotation software (Hypothes.is), and sharing and discussion (Canvas discussion boards, Slack, Padlet).

- Make students feel a part of a community
- Provide motivation by "being present" both professionally and personally
- Support learning goals, such as through robust and timely feedback
- Model behaviors, engagement, skills, and ways of thinking
- Communicate and sustain clear expectations
- Shape the online space so it feels like an inclusive classroom

4 Analysis: Community-building in online courses

The responses to the survey question surprised us. The ten weeks of the course centered around pedagogy and technology, and in the end-of-quarter course evaluations our students indicated that they felt empowered by the possibilities offered by both. And yet, in response to this survey question, they prioritized the emotional and social aspects of teaching over technology and other aspects of pedagogy.

Promoting human presence and interaction features prominently in multiple theoretical models of teaching and learning[4]. Our students' responses appear to confirm the common thread running through those models: the instructor's engagement on the emotional and social level facilitates student learning by mediating the class. Various aspects of instructor presence and interaction that our students describe comport with and flesh out this mediating function, indicating that the nature of instructor presence and interaction in online courses can be described as *community building*.

Community building, however, often tends to fall by the wayside in course design and implementation. In our class, we dedicated a significant amount of time to forming a learning community, but the focus was still on building knowledge and skills around pedagogy and technology. So, the responses to the survey demanded attention and raised two questions for us. First, if the emphasis on community-building was affected by the students' experience in our class, was the experience more of a positive one (to be modeled) or a negative one (to be addressed and ameliorated)? In the student course evaluations, feedback leaned decidedly toward the former, leading us to the second question: what particular teaching strategies worked in our course that can be reproduced in and tailored to other courses and contexts?

5 Discussion

The interaction we created in the class is what our students identified as a key for online instructors to focus on. We asked ourselves what strategies we used to build instructor presence and interaction. We concluded that the most prominent contributor to building an effective learning community with and for our students was that, as instructors, we first created a teaching community of two. It included the following elements:

1. Planning collaboration: brainstorm learning goals and outline components of the course.

[4] Of the seven principles of learning that Susan Ambrose et al. identify, community building corresponds to the sixth: creating an inclusive class climate that takes into account emotional and social aspects of learning (Ambrose, 2010). In Donald Wulff's alignment model, it maps onto two of the four elements of effective teaching: rapport and interaction (Wulff, 2005). In the Community of Inquiry model, it matches one of the three presences that constitute the model: the social presence, which is found to mediate the other two (Garrison, Anderson, & Archer, 1999; Garrison, Anderson, & Archer, 2010; Shea, & Bidjerano, 2009; Swan, Garrison, & Richardson, 2009). And in Bloom's taxonomy of learning, it constitutes a domain of its own: even though we now usually associate Bloom's taxonomy with the six levels of the cognitive domain, the taxonomy comprises two other domains: affective and psychomotor, the former of which accounts for how feelings affect learning and how learning affects the student, and mediates between the cognitive and psychomotor domains (Bloom, 1956; Krathwohl, Bloom, & Masia, 1964; Anderson & Krathwohl, 2001; Eiss & Harbeck, 1969).

2. Implementation collaboration: ask pointed questions of each other, and play out different scenarios to finalize each activity, assignment, and module. One of us often took on the role of an educational developer consulting with the "main instructor".
3. Reflection throughout the term: after each sequence, review student work and provide feedback to sustain students' motivation and engagement and allow them to shape the course dynamic.
4. Modeling of collaborative interaction: co-create community norms with students and revisit expectations and communication during small-group and full-class discussions.

The first three of these are discussed in the literature on team-teaching[5]. But we also continuously collaborated both with each other and with students (point 4), thus not only fostering but participating in and modeling community building.

Having multiple instructors, though, is not a precondition to build a teaching community. In cases where team-teaching is not an option and there is only one instructor, they can involve a colleague or an educational developer. Partnering with someone who can ask incisive questions is key. Details of this setup may vary, but our experience shows that to model and foster a (learning) community in a class, instructors can benefit from forming their own (teaching) community, even when teaching as a sole instructor.

Whether the emphasis on building a learning community is specific to online classes or more pronounced in online environments could not be parsed from the responses we collected[6]. The next stage of the project is to interview our students about differences between in-person and online settings so as to identify how the online environment and the use of technology shape their teaching practices and teacher identity.

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[5] For different elements and formats of team-teaching in higher education, its benefits for students and instructors, and challenges for instructors (including when assessing its effects), see Dugan & Letterman, 2008; Eisen & Tisdell, 2000; Hatch & Rich, 2005; Lock et al., 2017; Plank, 2014.

[6] Neither could we assess the impact of the COVID-19 pandemic at the end of the term, when all instruction unexpectedly shifted online. Students and instructors having no choice in the mode of delivery and little time to prepare and adjust possibly brought to surface and/or amplified the need for community building.

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ICED 2020 proceedings:

Can video support improve attainment? Evaluating the impact of teaching videos on student performance

Sandor Gellen[1], Fiona Saunders[2], Jack Stannard, Colin McAllister-Gibson, Lisa Simmons

Faculty of Science and Engineering, Manchester Metropolitan University
Manchester, M15 6BH, UK

Abstract

In 2017, the Faculty of Science and Engineering at Manchester Metropolitan University began an initiative that led to the creation of over 2000 videos and screencasts to support students across all their departments. The videos cover solutions for tutorial problems, provide coursework briefing information, or support laboratory work and exam preparation. This paper reports the findings of the quantitative study to investigate the effectiveness of the initiative on unit performance. Whilst adjusting for key student characteristics, regression analysis was applied to measure the links between final unit marks of 1248 undergraduate students and their level of engagement with videos. A positive correlation was found, and a further qualitative study is now underway to elaborate on these results and to explain such impact.

1 Introduction

In recent years, there has been a dramatic increase in the possibilities for using video and other non-traditional resources in engineering higher education (Saunders & Hutt, 2014; Gillie et al., 2017). Despite the growing tendency of using rich-media to support teaching, research into the effectiveness of such resources on student performance has been limited. Furthermore, the rapidly changing technical possibilities and consuming practices of students mean previous findings rapidly become dated.

1.1 Context and previous studies

Recent studies have shown that technology can positively influence learning (Means et al., 2010; Bernard et al., 2014), and that it can be a highly efficient educational tool (Allen & Smith, 2012; Rackaway, 2012; Stockwell et al., 2015). Taslibeyaz et al. (2017) conducted several case studies to show that watching videos was beneficial for changing attitudes, encouraging cognitive learning and retaining knowledge. Similarly, Yousef et al.'s (2014) review of qualitative and quantitative papers found some evidence that use of video-based learning saw improvements in teaching methods and learning outcomes.

Video support, however, is not necessarily effective: Guo et al.'s (2014) study demonstrated that large segments of support videos are disregarded by students, while others argue that some videos contribute little to student performance (e.g. MacHardy & Pardos, 2015). Dash et al. (2016) have shown that video support may not have the same value across all disciplines, but that it might be the best suited to illuminate abstract, hard-to-visualise phenomena and conceptual frameworks that are the foundation of STEM disciplines. Furthermore, a recent review of meta-analyses concerning variables associated with achievement found that communication technology – including video support – has only a small impact on achievement

[1] s.gellen@mmu.ac.uk
[2] f.saunders@mmu.ac.uk

and that it is most effective when it complements (but not replaces) classroom interaction (Schneider & Preckel, 2017). Therefore, there is no clear scientific consensus on what works for whom and in what circumstances, a question that this study begins to address.

1.2 About the initiative

Video support materials were first made available in 2017 in the Department of Engineering as a supplement to face-to-face teaching. Since then, over 2000 videos have been made across the Faculty of Science and Engineering to support student learning and assessment. Short videos were uploaded to the Virtual Learning Environment (VLE). Videos were made in each unit for core concept explanations, worked examples of seminar problems, past examination solutions and training videos. Assessment briefings and feedback videos were also added to the suite of videos across each unit (see Figure 1).

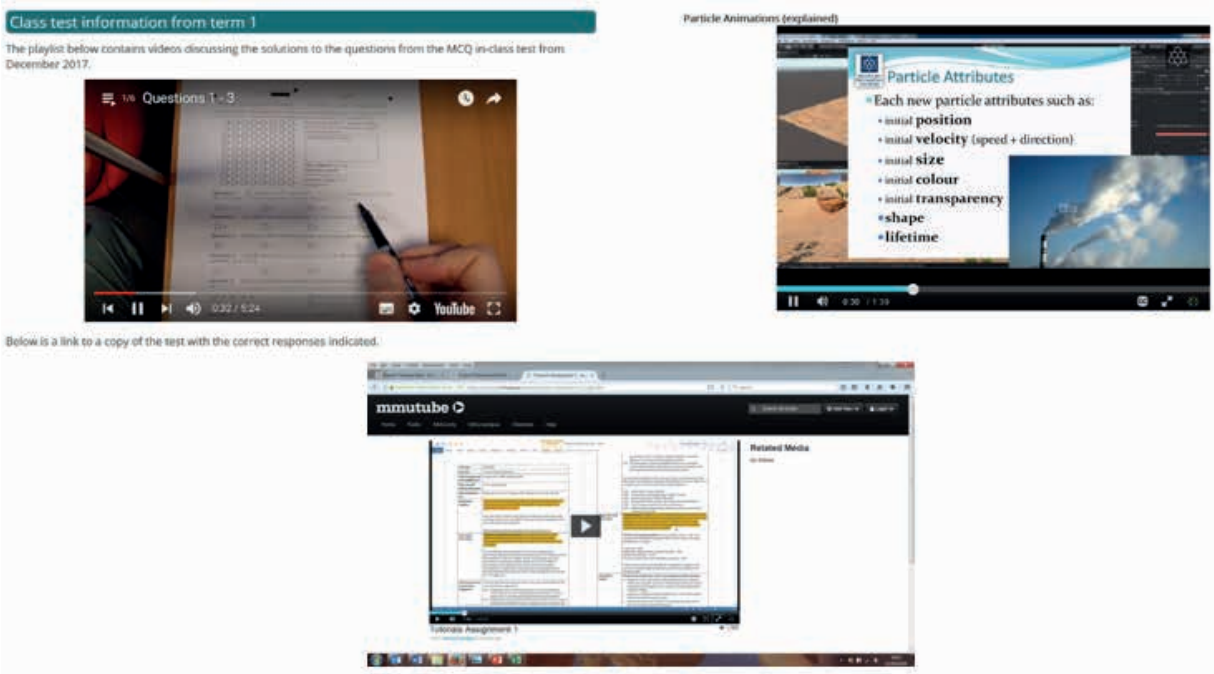

Figure 1. Example videos made in the Faculty

1.3 Aims and objectives

Student feedback on the video support materials (via staff comments and student surveys) has been consistently positive since the initiative began. However, the evidence we have had up to now for the direct impact of the videos on student performance is empirically unproven.

Our aim was, therefore, to investigate whether students' level of engagement with the videos affected their academic performance in a specific unit. To achieve this, student cohorts enrolled in different STEM units with video materials were compared to each other based on their level of engagement with videos. Regression analyses were applied that allowed us to assess the impact of video engagement when other key independent variables were accounted for.

The main objective of this quantitative inquiry was to provide empirical evidence of effectiveness, which – together with a qualitative explanatory phase – would possibly justify a comprehensive cross-disciplinary application of this teaching support strategy.

2 Methodology

The study used secondary data exclusively from 8 undergraduate units across the Faculty. Each selected unit had at least 80 students enrolled for academic year 2018/2019 and at least 5 videos uploaded to VLE. This gave us a sample size of 1442 students. Those studying part-time (30) and those who did not engage with any VLE material in general (164) were excluded. The final sample size was therefore 1248.

In our regression models, we controlled for important pre-entry characteristics (such as socio-economic status and ethnicity). The outcome variable was academic performance (final unit marks). The independent variable of interest was the level of engagement with video materials. As we only had binary information on views (e.g. someone viewed / did not view the material), and because there are varying number of videos available in each unit, a standardised video engagement index was developed that was split by subgroups (units) using z-score standardisation. The complete list of variables used in the study is shown in Table 1.

Independent variables

Variable Name	Level of measurement	Note
Level of Study	Nominal	*Level 4 (1st year undergraduate)/level 5 (2nd year undergraduate)*
Disability group (2-way)	Nominal	*Disabled/no disability*
First generaltion	Nominal	*Yes/no*
Gender	Nominal	*Male/Female*
Age	Nominal	*Young/Mature (mature students are those aged 21 or over)*
Overseas	Nominal	*Splits students based on fee status: Either Home/EU OR Overseas*
Entry Qual	Nominal	*Academic/Vocational: If students have at least one academic and no vocational qualifications (of equivalent size to an A level), they are classed as academic; if they have at least one vocational and no academic qualifications they are classed as vocational;*
Commuter	Nominal	*Commuter group is based on the students' term time postcode's distance from university (whether their travel time is more or less than 30 minutes) and their answers to the travel survey asked on enrolment*
Index of multiple Deprivation	Continuous	*POLAR4 quitile (most deprived neighbourhoods in UK)*
Ethnicity	Nominal	*White/BAME (Black and Asian Minority Ethnic)*
Above average Video views	Nominal	*above average/below average*
View / No view	Nominal	*Viewed at least one VSM (video support material)*
Video Engagement Index	Continuous	*standardised video engagement index was split by Units using z-score standardisation*

Dependent variables

Variable names	Level of measurement	Note
Final mark	Continuous	*standardised by unit*
70% or above (First Class Honours)	Nominal	*yes/no*
60% or above (Good Honours)	Nominal	*yes/no*
40% or above	Nominal	*yes/no*

Table 1: Complete list of variables used in the analysis

3 Results

After establishing initial correlations and tendencies through descriptive and bivariate analyses, regression models were developed to measure the impact of video views on performance.

3.1 Linear regression – Unit performance vs video views

Multiple linear regression was run to assess hypotheses in relation to standardised unit marks, and included the following predictors: video view, level of study, disability, first generation, age, entry qualification, clearing, commuting, multiple deprivation and ethnicity. The model produced R^2 = .186, F(11, 784) = 17.51, p < .001, suggesting that 18.6% of the variance in unit mark is explained by those predictors.

Regression coefficient results show that entry qualification (*b* = .725, p < .001) and ethnicity (*b* = .311, p < .001) act as the strongest predictors of unit mark. Video engagement also functions as a significant predictor of unit mark (*b* = .110, p < .001), whereas other factors do not predict unit performance significantly.

3.2 Logistic regression – View / no view against pass/fail, above 60 and Firsts

Logistic regression analyses were also run to see whether viewing at least 1 video changes the likelihood of either passing the unit (requiring a mark of above 40%), or gaining a good honours degree grade (>60%) or 1st class degree grade (>70%). The analysis included gender, entry qualification, ethnicity and view.

The findings suggest that watching at least one video improves the likelihood of getting a mark above 60%, and it is an even stronger predictor of getting a 1st class degree outcome. However, it does NOT predict unit failure (a mark of below 40%) significantly. In other words, video support seemed to positively impact those students who are predicted to pass the unit but does not impact those who are about to fail their units. The findings suggest that the better a student performs, the more impact viewing video support materials have on their performance. The significant predictors are highlighted in bold in Table 2.

"40% or above" - prediction							
	coeff b	*s.e.*	*Wald*	*p-value*	*exp(b)*	*lower*	*upper*
Intercept	0.922	0.350	6.917	0.009	2.514		
GENDER (M=1)	-0.103	0.216	0.227	0.634	0.902	0.591	1.378
Entry Quals (Acad=1)	**1.659**	**0.227**	**53.366**	**0.000**	**5.254**	**3.367**	**8.201**
Ethnicity 2-way (White=1)	**0.455**	**0.218**	**4.337**	**0.037**	**1.576**	**1.027**	**2.418**
Viewed?	0.383	0.324	1.404	0.236	1.467	0.778	2.766

"60% or above (Good Honours)" - prediction							
	coeff b	*s.e.*	*Wald*	*p-value*	*exp(b)*	*lower*	*upper*
Intercept	-2.191	0.279	61.800	0.000	0.112		
GENDER (M=1)	**0.287**	**0.136**	**4.446**	**0.035**	**1.333**	**1.020**	**1.740**
Entry Quals (Acad=1)	**1.326**	**0.137**	**94.331**	**0.000**	**3.767**	**2.882**	**4.923**
Ethnicity 2-way (White=1)	**0.570**	**0.132**	**18.753**	**0.000**	**1.768**	**1.366**	**2.288**
Viewed?	**1.064**	**0.242**	**19.345**	**0.000**	**2.897**	**1.803**	**4.653**

"70% or above (First Class Honours)" - prediction							
	coeff b	*s.e.*	*Wald*	*p-value*	*exp(b)*	*lower*	*upper*
Intercept	-3.251	0.348	87.341	0.000	0.039		
GENDER (M=1)	**0.522**	**0.145**	**12.927**	**0.000**	**1.685**	**1.268**	**2.239**
Entry Quals (Acad=1)	**1.086**	**0.150**	**52.098**	**0.000**	**2.963**	**2.206**	**3.980**
Ethnicity 2-way (White=1)	**0.654**	**0.137**	**22.791**	**0.000**	**1.924**	**1.471**	**2.517**
Viewed?	**1.261**	**0.305**	**17.063**	**0.000**	**3.529**	**1.940**	**6.419**

Table 2: *Key predictors of unit performance*

4 Discussion

The primary contribution of this study is that it reveals a positive correlation between viewing videos and unit performance. Given that this study measures student performance across the range of STEM disciplines, it confirms Dash et al.'s (2016) claims that videos are effective in illuminating abstract phenomena. Our findings provide new evidence to counter the view of MacHardy & Pardos (2015) that videos contribute little to student performance.

However, these findings need to be treated with caution, as correlation does not necessarily imply causation. One possible effect that we were not able to adjust for is that better students will reach better results in general, and that more motivated students are usually more motivated to watch and engage with the additional video support.

At the first (quantitative) stage of this study, we only aimed to establish an overall correlation between video engagement and achievement – regardless of video type, presentation style, the role of the instructor and other specifications that are known to moderate impact (Carmichael, et al., 2018). As a positive link between students viewing the video resources and their unit performance was detected, we now need to improve our understanding of why and how students used the videos through further qualitative investigations. Moreover, the second phase will also explore the ways by which videos act as a supplementary material to face-to-face teaching, and aims to identify the types of videos perceived as the most useful.

These findings are important for educators, particularly in STEM disciplines such as engineering where concepts and frameworks can be abstract and difficult. And, as the Covid-19 pandemic continues to run its course around the globe, it is likely that more and more students will require on-demand access to additional support resources such as the types of video described in this study, to help them progress successfully through higher education.

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Virtual exchange: Future-ready teaching of multiliteracies across borders and cultures

Judit Háhn[1]

Department of Language and Communication Studies, University of Jyväskylä
Seminaarinkatu 15
40014 Jyväskylä, Finland

Abstract

Virtual exchange is an online form of internationalization at home. Students from different countries collaborate in small, international groups on tasks joined by a common theme. They combine their expertise when solving problems together. The teachers act as mentors, providing facilitation and support for the students during the virtual exchange. The student teams work independently by selecting the tools for the collaboration, allocating the tasks and creating the group's final product.

Virtual exchange is a transnational learning opportunity which enables students to learn and practice how to efficiently combine and make use of their digital, visual, critical, linguistic and intercultural competencies (Boche, 2014) in order to feel ready for and empowered in working life.

1 Introduction

Multiliteracies include a set of literacy practices and soft skills that enable social participation in a digitalized, mediatized and globalized society. As pointed out by the New London Group (1996), the original coiner of the term, teachers should act as designers of learning processes and of learning environments to enable students' agency in their multiliteracy development. In the 21st century there is a need for multiliterate graduates who can operate and collaborate successfully in the global labour market by combining their digital, visual, critical, linguistic and intercultural competencies (Boche, 2014).

In higher education, virtual exchange projects offer a great opportunity for the students to acquire, practice and develop their multiliteracies in facilitated, educational contexts. The Virtual Exchange Coalition (2019) defines virtual exchange as "technology-enabled, sustained, people-to-people education programmes" which make it possible for young people to experience online collaboration in an intercultural context (see also O'Dowd, 2018). In practical terms, students from two or more countries work in virtual teams for 6-8 weeks to answer questions and/or to solve problems centred around a theme.

The projects are usually integrated into curriculum-based courses of the participating HEIs, but are not dependent on formal agreements or contracts. The teachers involved negotiate and agree on a joint theme, the learning outcomes, the schedule, the tools, the shared learning environment, and the tasks. Thus, virtual exchange is built on a flexible teaching and learning framework, which gives scope for creativity and variety in the teaching of multiliteracies.

At the University of Jyväskylä in Finland, where I work as a senior lecturer, I arranged virtual exchange for my students with universities from the Czech Republic, Poland, Singapore,

[1] judit.hahn@jyu.fi

Spain, the Netherlands and Japan (Háhn, 2019). The present study provides an overview of the pedagogical design of virtual exchange, based on my experience as a teacher. You can read more about the projects in my professional blog: https://judithahn.blogspot.com/.

2 The pedagogical design of virtual exchange

2.1 Schedule

Proper planning and pedagogical design are crucial to the success of virtual exchange. Since the collaboration takes place between two or more HEIs, the teachers have to make sure that their jointly designed project fits their own and their students' academic calendars in terms of the teaching periods, holidays, exam seasons, business trips and other work commitments. The projects run for a fixed period, usually 6-8 weeks. It is best to plan virtual exchange when all of the participating institutions have teaching periods. Problems might arise when the students at one university have study breaks, exams or other commitments which prevent them from participating fully in the project. It is important to consider this during the planning of virtual exchange.

In one of my projects, for example, the students from the partner university had a longish job-hunting period in the spring, which kept them too busy to be able to concentrate on virtual exchange. Their tasks were simple (only personal introductions and some warm-up activities), but the fact that they were not on campus caused delays in their task completion. Virtual exchange requires continuous commitment and online availability. It is best to choose a time in academic calendars when the participating students and their teachers are on campus.

2.2 Theme

Each virtual exchange should have a main theme that provides a contextual framework for the tasks. The theme can be discipline-specific: for example, "Teaching English in elementary education", or a broader topic that allows interdisciplinary collaboration, such as "Climate change" or "Student life on campus". By exploring a theme together, the students can learn from each other and thus gain invaluable insights from their peers.

My students from the University of Jyväskylä (Finland) study languages to become language teachers or language experts. In a virtual exchange they were collaborating with language teacher trainees from Japan, comparing the English language textbooks in the two countries. In another project, my students were working together with business and IT students from the Czech Republic, collecting and comparing data about the use of English in their cities, with each group focusing on a different domain of life (e.g. commerce, public transportation, advertising). The language expert students from Finland approached the topic from the perspective of sociolinguistics, while the Czech students interpreted the findings with relevance to the use of English in their future working lives.

2.3 Tasks and platforms

In most virtual exchanges, the students work in groups of 4-7 to solve a series of tasks together. These can build into a bigger project outcome, which can be a group presentation, a video (e.g. a company's "About us" introduction, a promotional or an instructional video), a report, a website, a blog or any other digital, multimodal product that answers a question or solves a problem. In a project with Poland, the international student teams of tourism experts and linguists created promotional videos that advertised the cities of Poznań and Jyväskyä for tourists. At the end of the project there was a virtual display of all the videos, which was followed by a round of feedback from all the students and teachers involved.

The tasks are designed such that they ideally help the students make progress towards the final project outcome. It is good to have interim deadlines and checkpoints, when the student teams submit their reports on their work and get feedback from their teachers. The first week of virtual exchange should be about personal introductions. It is important to break the ice by making the students get to know each other with the help of warm-up activities in an opening video conference and informal social interaction on an asynchronous platform. The groups can also choose a name for themselves and agree on their internal working etiquette.

Based on my experience, it is very good if the project has an online platform that functions as a transnational learning environment. All the important information, such as the project description, the tasks, the deadlines, and the teachers' messages, can be shared in one space this way. In my projects we used Google Classroom, Canvas, Schoology and even a closed Facebook group for this purpose. In addition to the formal learning space, the student teams had to agree on their own communication channels and collaboration platforms. The most popular tools were WhatsApp, Messenger, Line, Zoom, Skype, Google Docs and Google Slides.

2.4 Assessment

The student teams receive written feedback from the teachers on their interim reports and on the final product. In most of the projects the students are required to write a learning diary (or an e-portfolio) that they have to submit when the virtual exchange has ended. In cases where the project is integrated into a course, the students' contribution is usually assessed as part of the course work and can thus influence the course grade. If the virtual exchange is an independent project and not part of a curriculum-based course, the students may get credits for the completion of the project on a pass/fail basis.

3 Conclusions

The increasingly global and connected nature of work-life often requires virtual teamwork, with employees collaborating from a distance, making meaning in a digital, multimodal and multilingual way. Virtual exchange offers a great opportunity for students to acquire the skills and literacies needed for transnational online teamwork.

The projects are greatly dependent on the creativity and commitment of the collaborating teachers. Completing a training course is not a pre-condition for arranging such online projects between HEIs. What is crucial is that the teachers start their planning in time and agree on the project's theme and the learning outcomes. For those who are interested in taking a training course, excellent opportunities are being offered at present by Erasmus+ Virtual Exchange (for more information, see their website https://europa.eu/youth/erasmusvirtual).

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Beyond the student-centered higher education classroom: The student-centered ecosystems framework

Sabine Hoidn[1]

Research Institute of Sociology, University of St. Gallen
Müller-Friedberg-Strasse 8
9000 St. Gallen, Switzerland

Abstract

In student-centered classrooms less time is devoted to plain lecturing ("telling") and more time to meaningful and challenging tasks and activities that increase the level of students' cognitive engagement with disciplinary content as well as active student participation (Hoidn, 2017, 2019). Hoidn and Klemenčič (2020a) argue, however, that student-centered learning and teaching processes need to be thoughtfully embedded in broader institutional ecosystems – so-called student-centered ecosystems which, in turn, are also connected to and influenced by the wider political, economic, social and cultural contexts in which HEIs operate. This paper introduces student-centered ecosystems consisting of five main components which serve as indicators of the presence of student centered learning and teaching (SCLT) in a given educational institution or study program: (1) Curriculum, pedagogy and assessment; (2) Teaching and learning support; (3) Quality of learning and teaching; (4) Governance and administration; and (5) Policies and finance (Klemenčič & Hoidn, 2020).

1 Introduction

"Student centeredness" is attributed to a variety of instructional methods and academic programs and even universities referring to pedagogical concepts, approaches and techniques wherein students and their learning are placed at the heart of the educational process with the aim to foster deeper learning processes and outcomes for students to become self-directed, lifelong learners (Hoidn, 2017). Deeper learning occurs when the learner strives to make sense of the "to-be-learned material" by selecting relevant information, organizing it into a coherent structure and integrating it with prior knowledge (Mayer, 2010). The scholarship on teaching and learning (SoTL) in higher education has moved beyond focusing on specific teaching and learning practices to also considering the design of the entire classroom environment (Sawyer, 2014; Jonassen & Land, 2012). Student-centered classroom environments constitute a sociocultural classroom setting containing learners, instructors, curriculum materials, technology, the physical environment, practices and norms, and other human and material elements that may influence student learning (Gresalfi et al., 2009). Empirical research indicates that SCLT has the potential to establish deeper or more meaningful learning (e.g., Alfieri et al., 2011; Baeten et al., 2016; see also Hoidn, 2017 for an overview). Thereby, the instructor's role remains crucial in designing and enacting student-centered learning environments (SCLEs) in higher education (e.g., Blumberg, 2019).

So far, the implementation of SCLT in higher education (e.g., as part of the Bologna Process) has been hampered by the ambiguities in the definition of SCLT, its key elements and the indicators which demonstrate the presence of SCLT in a higher education institution (HEI) or a higher education system (HES). Therefore, Hoidn and Klemenčič (2020a) propose that student-centered learning and teaching (SCLT) processes need to be thoughtfully embedded

[1] sabine.hoidn@unisg.ch

in so-called student-centered ecosystems (SCEs). SCEs can be defined as culturally sensitive, flexible and interactive systems of SCLT in higher education, guided by (inter)national and institutional policies and strategies and materialized through higher education processes, structures and cultures at institutional and system levels (Klemenčič, 2019). SCEs are the result of purposeful policies developed and implemented in collaboration between administrators, instructors and students and with input from education researchers, employers and other stakeholders in learning and teaching. No one stakeholder alone can transform HEIs from "Instruction Paradigm" to "Learning Paradigm" (Barr & Tagg, 1995).

Without clarity about which components constitute SCLT and a specific set of related indicators to assess and further improve institutional practice, however, it is difficult to evaluate the presence of SCLT in an HEI or an HES (Klemenčič, 2019).

2 Student-centered ecosystems

Hoidn and Klemenčič (2020a) submit that SCEs consist of five main components, which are briefly introduced below. Each of these components comprises several elements which can serve as indicators of the presence of SCLT in a given institution or study program (see Klemenčič & Hoidn, 2020).

2.1 Curriculum, pedagogy and assessment

SCLT builds on what students bring to the table and focusses on active student sense making and knowledge construction. Students are positioned as accountable authors in knowledge construction processes, as active and vocal participants in social interactions, and as responsible co-designers of the educational agenda (Hoidn, 2017, 2019). Instructors are concerned with what the students do and whether student activities lead to appropriate learning (Biggs, 2012). Against this backdrop, indicators of curriculum, pedagogy and assessment are:

- Student-centered conceptions of teaching, that is, guiding students in their learning instead of mainly imparting knowledge
- Students' meaningful engagement with disciplinary content for them to make sense of and acquire the habits of mind of the discipline they are studying
- Authentic and intellectually challenging tasks that afford students with opportunities for conceptual agency and productive talk
- Thoughtful selection of various instructional methods, depending on whether new knowledge is to be transmitted to the students, developed in dialogue with the students or co-constructed independently by the students
- (Formative) Assessment practices that emphasize sense making and allow students to demonstrate their different (mis)understandings and learn from mistakes
- A safe and supportive climate of thinking, dialogue and cooperation with students sharing tentative thoughts and reasons for their answers
- Students as co-designers are given a say regarding program/course policies, assignments, learning outcomes, teaching/ learning/assessment methods, deadlines and so forth

2.2 Learning and teaching support

- Learning support focuses on helping students develop or strengthen knowledge and learning skills needed to succeed in the study program. A coherent institutional offer of student services has to cater to an increasingly diversified student body and may include counseling and tutoring provisions, curricular orientations, writing centers, libraries, and career services.

- Teaching support, on the other hand, aims at teaching staff professional development, instructional support and advancement of basic and applied research on teaching and learning by offering pedagogical training, coaching and mentoring. Continuous professional development, however, requires adequate working conditions and teaching workloads, and an institutional culture that values innovation of learning and teaching, and experimentation.
- Learning technology infrastructure such as online courses (e.g., MOOCs), blended learning formats, the ubiquitous use of mobile devices, videoconferencing, classroom response systems, learning platforms, social media (e.g., blogs, GoogleDocs), gaming and artificial intelligence tutors can support active learning pedagogies in that they allow students to find information using a variety of sources, offer flexible delivery modes that provide students with choice, support personalized learning, and create an interactive classroom environment.
- Active learning spaces (e.g., movable furniture, writing surfaces and integrated information technologies, acoustics, lighting, air quality, temperature) are designed to encourage cognitively active learning. These flexible spaces enable seamless transition between different social forms of learning and greater circulation around the room, thus facilitating better interaction and collaboration between teacher and students.

2.3 Quality of learning and teaching

Internal and external quality assurance allows monitoring and management of quality at the institutional level by collecting and analyzing institutional data. Learning and teaching analytics (i.e. processes of collecting, evaluating, analyzing and reporting qualitative and/or quantitative organizational data) can inform and improve institutional and classroom practices with regard to learning and teaching, decision-making and the allocation of resources. Evaluating study programs, student services and faculty, as well as monitoring graduates' career paths, are measures for getting feedback on the quality of students' education from different stakeholders (including external quality assurance bodies and accreditation agencies), and improve curricula accordingly by increasing instructional quality and fostering truly student-centered HEIs. Here HEIs and quality assurance agencies should take into account the growing importance of empirical research about the quality and effectiveness of SCLT for high-quality higher education, i.e. the SoTL as well as lighthouse projects on innovative teaching. Moreover, recognizing teaching excellence by rewarding and publishing exemplary teaching scholarship and practice including efforts of instructors who steer the SCL approach forward, and giving awardees opportunities to share good classroom examples and innovative learning practices, can stimulate the adoption of innovative and good practices in higher education institutions.

2.4 Governance and administration

Strategic leadership takes societal developments and trends, changes in the goals and purposes of higher education and advances in research on learning and teaching into account, sets clear expectations, and puts necessary resources, structures and processes in place (e.g., guidance, support and monitoring) in order to implement policies on SCLT. Thereby new institutes, centers or departments for teaching and learning can facilitate in-house discussions, research and training, and cooperation among instructors with regard to the design, development and delivery of curricula as well as the assessment of student performance.

Student-centered HEIs allow flexible learning pathways by broadening the curriculum to include elective courses, and by enabling flexible entry routes to study programs as well as flexible delivery modes through, for example, part-time, distance and e-learning provision.

Flexible learning pathways provide students with choices about what, how, when and where they study. HEIs also strengthen community learning connections and partnerships with research, entrepreneurship and with the local community and businesses (e.g., service-learning courses, university community partnerships, internship or field experience, faculty exchanges, practitioners in courses) to feed developments in the labor market, in research and in society back into curricula. Finally, HEIs involve student representatives and other stakeholders (e.g., employers) in institutional governance, quality assurance and curriculum design to increase accountability. The involvement of students as, for example, program committee members at the early stage of curricular design across all disciplines can ensure that students' experiences, views and (mis)conceptions are taken into account to enhance the usefulness of higher education curricula.

2.5 Policies and finance

Higher education policies are the guiding frameworks or roadmaps that depict the collective values of and political vision on the goals and specific objectives of teaching and learning, the actions and actors to achieve these objectives, their evaluation, and the timeline of the policy. Higher education policies on SCLT can stand alone (e.g., the commitment of an HEI to become a student-centered lifelong learning organization; institutional employment policies), or be part of the broader higher education landscape (or other) policies (e.g., the Bologna Process in Europe with its tools and instruments). One of the key challenges concerning such policies is policy coordination in the sense of purposefully aligning institutional policies or combining these within an overarching policy in order to be able to achieve the targeted objectives. Another challenge is rigorous and systematic data collection and analyses that yield evidence for policy decisions.

Finally, SCEs at all levels of higher education governance – institutional, national, supranational – are designed and implemented, and ought to be evaluated, as a collaborative effort in communities of practice on teaching and learning. Such communities of practice inevitably include all major stakeholders in higher education processes and outcomes, such as students, teachers, institutional leaders, policy makers, employers' representatives, teachers' unions, educational researchers and other higher education practitioners or stakeholders (Klemenčič, 2019).

3 Conclusions

Reforms of higher education toward SCLT are a considerable task. The shift from the instruction paradigm to the learning paradigm in higher education as introduced by Barr and Tagg (1995) is still far from accomplished around the world. For such a shift to occur, a change in culture is needed to internalize the explicit purposes and principles of SCLT (e.g., Blumberg, 2019).

Drawing on the recently published Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education (Hoidn & Klemenčič, 2020a), this paper presented five components and a set of indicators to evaluate the presence of SCLT in a given institution, study program, course or higher education system. This SCEs Framework can assist higher education stakeholders in developing their courses, programs, HEIs and HES to become more student-centered (Hoidn, 2020).

Nevertheless, the challenge remains for university leaders, administrators, instructors, students and other stakeholders in learning and teaching in higher education to remain open to change and further develop their policies, strategies, cultures, processes, structures, concepts and practices to create an academic environment conducive to student-centered forms of learning and teaching.

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Creating a "Teaching Portfolio Chart" for reflection and clarifying one's own teaching philosophy

Kayoko Kurita[1]

Graduate School of Education, The University of Tokyo
7-3-1 Hongo, Bunkyo-ku
113-0033 Tokyo, Japan

Lui Yoshida[2]

Center for Research and Development of Higher Education, The University of Tokyo
7-3-1 Hongo, Bunkyo-ku
113-0033 Tokyo, Japan

Abstract

The Teaching Portfolio Chart (TP Chart) is a worksheet for reflecting on teaching, distilling one's teaching philosophy, connecting philosophy and practical methodology, and setting future goals. It was developed based on the concept of the Teaching Portfolio by Seldin, Meller and Seldin (2010). The advantages of the TP Chart are: (1) helping the creator reflect on all their educational activities to find their teaching philosophy with short creation time; (2) the process of creating a TP Chart can support one's reflections, step by step and in an organized way; and (3) an AP Chart presents a singular overview of one's teaching, making sharing with others easy. In this paper we introduce the structure and features of the TP Chart, explain its creation process, and then discuss its future potential and challenges.

1 Introduction

Reflection has been referred to repeatedly as a crucial quality of good teachers since Schön (1984). Recent studies have shown the importance for educators of reflecting on their "being" as a teacher, i.e., of finding their teaching philosophy (Araki, 2015; Seldin et al., 2010). Clarifying this teaching philosophy is valuable in terms of establishing teacher identity and guiding growth (Goodyear & Allchin, 1998).

However, methods of clarifying teaching philosophy through reflection such as creating teaching portfolios (Seldin et al, 2010) and core reflection (Korthagen & Vasalos, 2005) are based on narrative writing and discourse with supervisors. These processes can be time consuming (1 to 3.5 days) and require knowledge and skills.

On the other hand, the Teaching Portfolio Chart (TP Chart), as its name suggests, is a worksheet inspired by the structure of a teaching portfolio (Seldin, Miller & Seldin, 2010). The TP Chart guides the creator's reflection on their educational activities step by step. It takes about 2 hours to understand one's philosophy and set future goals for the future. In Japan, the TP Chart is gaining recognition as a teacher training tool for education at all levels (Kurita, Yoshida & Ohno, 2017).

In this paper, the significance of the TP Chart, its structure and its specific creation method are described, and its future potential and challenges are discussed.

[1] kurita@he.u-tokyo.ac.jp, +81 3 5841 1726
[2] yoshida@he.u-tokyo.ac.jp, +81 3 5841 4072

2 Structure of the TP Chart and its features

2.1 Structure

The TP Chart is a single worksheet (Figure1) which contains the basic items in TP: Responsibility, Improvement & Effort, Outcome & Evaluation, Methodology, Strategy, Philosophy, and Goals. Each box is filled with a number of sticky notes which contain one word or phrase that comes from reflection. Each sticky note is referred to here as an element. An example of a completed TP chart is shown in Figure 2. The visual nature of the chart makes it easy for teachers to grasp relationships and share them with others.

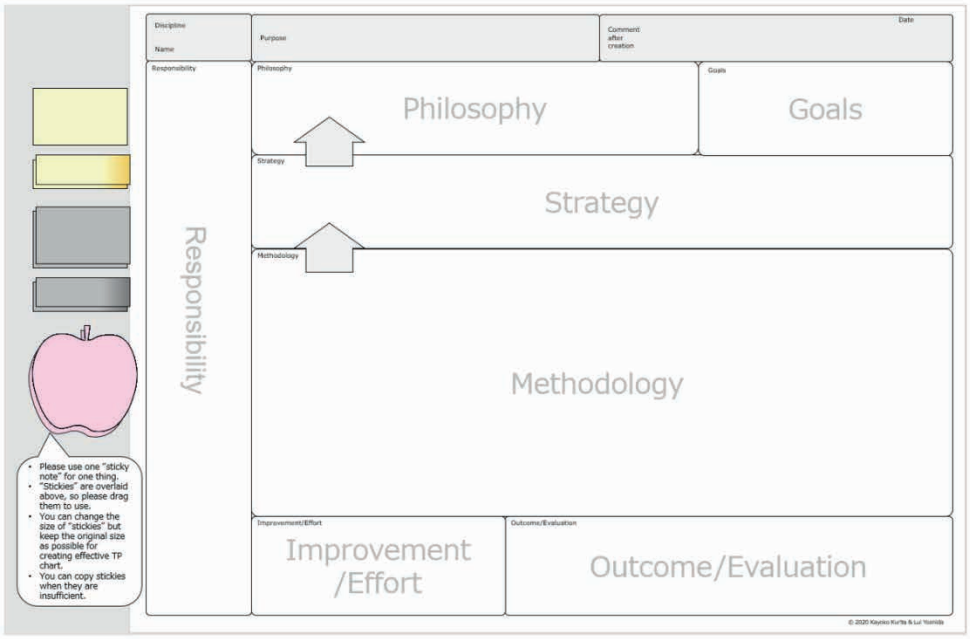

Figure 1: TP Chart worksheet

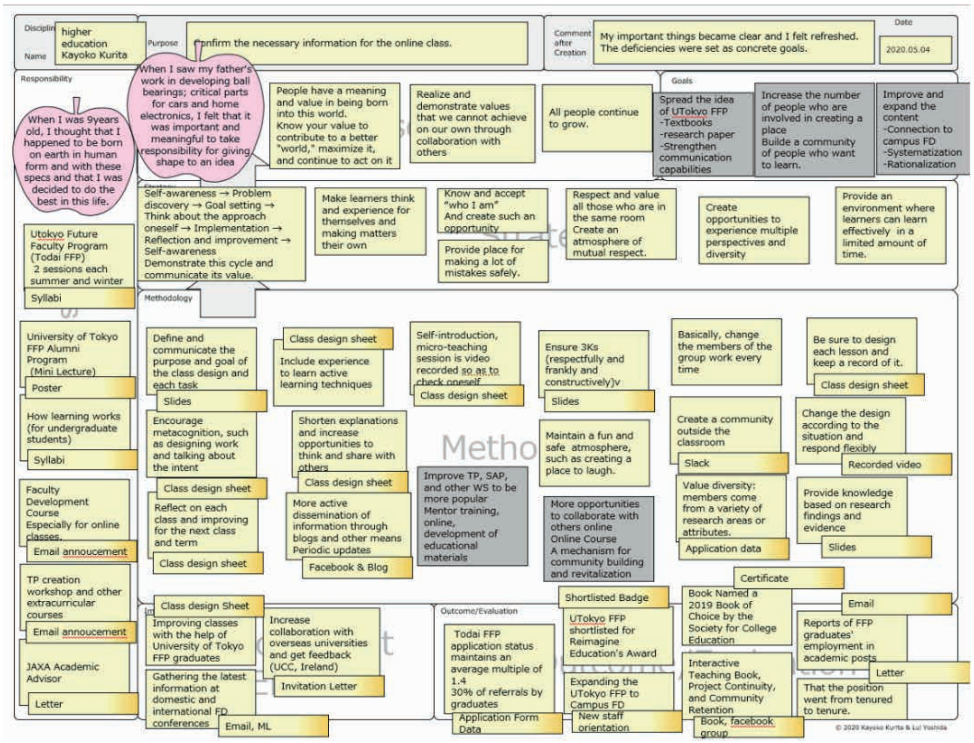

Figure 2: Sample of a TP Chart

2.2 Features

The most distinctive feature of a TP Chart is its format and the process of creating a single worksheet with sticky notes to reflect on educational activities in a step-by-step manner.

The creation process allows creators to reflect on their *whole* educational activities in a short amount of time (typically 2 hours). Even if their reflection is more shallow than in other reflection tools such as the Teaching Portfolio by Seldin, the TP Chart works for identifying their philosophies. It is a great advantage that the short period of time required helps most people participate without hesitation.

The TP Chart uses a step-by-step process. This process guides teachers to easily deepen their reflections without specialized knowledge about specific reflection models. They start by looking back at practical educational activities and then follow the steps to independently discover the teaching philosophy that underpins those activities.

3 The TP Chart creation process

3.1 Overview of creation process with timetable

Basically, the creation of a TP chart begins by looking back at real activities and then gradually approaching the philosophy behind them. The process is shown in Table 1.

3.2 Before starting the creation process

Originally, the TP Chart was printed on a piece of A3 paper. A digital format[3] is introduced here because it could be more useful to start without needing to prepare sticky notes. It is more effective to keep than a paper-based TP Chart.

The color and shape of “sticky notes” in a digital worksheet have a meaning: big yellow ones are for current or past things (lighter color in Figure 2); big blue ones are for future things (darker color in Figure 2); small ones are for evidence; and apple shapes are for personal episodes. Only one element should be written on each “sticky note”.

3.3 Steps in the creation process

Creators fill in each item one by one with elements that are related to teaching activities. Several steps involve sharing the ongoing TP Charts with others in pairs (Table 1).

1. **Discipline & Purpose:** First, for basic information, write your discipline, name and the purpose of the TP chart.
2. **Responsibility:** This item includes all the educational activities you have undertaken in the last year or so.
3. **Improvement & Effort:** This item includes activities or efforts for improvement and improvement in educational activities.
4. **Outcome & Evaluation:** This item includes your accomplishments that represent the student growth which resulted from your educational activities, as well as an evaluation by students, peers or others.

[3] The TP Chart and other materials can be downloaded from https://kayokokurita.info/post-319-2.html.

Time (min.)	Creation steps	Creation format
3	Discipline & Purpose	Individual
5	Responsibility	
2	Improvement & Effort	
3	Outcome & Evaluation	
8	Sharing Time 1	Pairs (4 min. each)
7	Methodology	Individual
7	Strategy	
7	Philosophy	
2	Private Episode Related to Philosophy	
5	Checking Connection between Philosophy, Strategy and Methodology	
8	Sharing Time 2	Pairs (4 min. each)
2	Updating Time	Individual
3	Evidence	
6	Sharing Time 3	Pairs (4 min. each)
4	Goals	Individual
2	Comment after Creation	
8	Sharing Time 4	Pairs (4 min. each)

5. **Sharing Time 1:** Share your TP chart in pairs. The contents of "Responsibility", "Improvement & Effort" and "Outcome & Evaluation" are explained to each other in turn. The key is for the speaker to try to communicate to the other person in a way that is easy to understand. Explaining yourself to others can make you organize and understand your own educational activities. As the listener, on the other hand, you need to listen with interest to the other person, creating a safe and secure place for the speaker to deepen their reflection.
6. **Methodology:** This item includes methods such as what you always do, what you have done consciously because you think it's important, and what is different from others when you look over the sticky notes listed so far.
7. **Strategy:** This item includes the reasons why you use methods listed in "Methodology". The following questions will serve as hints: (a) Why is this method important for students?; (b) What do you want your students to be as a result of your teaching?; and (c) What do you want students to learn and how do you want them to learn it? When methodology elements align with these reasons they are grouped accordingly.
8. **Philosophy:** This step repeats the method used in "Strategy". In other words, try to find the reasons why you are using the strategies with the questions above.
9. **Private Episode Related to Philosophy:** This requires a different perspective than so far. Recall a personal episode that has influenced your philosophy as a teacher and write it on an apple-shaped "sticky note".
10. **Checking Connection between Philosophy, Strategy, and Methodology:** Now, review the responses by starting with Philosophy and connecting Methods and then Strategies.
11. **Sharing Time 2:** Share "Philosophy", "Strategy", and "Methodology" with each other.
12. **Updating Time:** This step is for updating your TP chart after sharing.

13. **Evidence:** Write down the evidence that supports your statements in the elements “Responsibility”, “Improvement & Effort”, “Outcome & Evaluation” and “Methodology”. For each element of each item, consider what corresponds to the evidence and write it on a small “sticky note”.
14. **Sharing Time 3:** Share the elements where you did not find appropriate evidence, and think together about what evidence might be available for them.
15. **Goals:** First, write specific short-term goals on a small darker “sticky note” and place them in the appropriate items. Next, list long-term goals in "Goals".
16. **Comment after Creation:** Write your comment on creating the TP chart.
17. **Sharing Time 4:** Short-term goals, long-term goals and comments are shared in pairs.

After completion, you can use your TP Chart as a foundation for improvement by updating it regularly. You can also use this to communicate with others about good teaching.

4 Potential use and challenges

The TP Chart is expected to become increasingly popular in the future as a faculty development tool because of its ability to facilitate reflection in order to find one’s teaching philosophy. Although online programs are required to comply with COVID-19 restrictions, the program for creating the TP Chart can be transferred online.

In addition, the simplicity of the TP Chart can help many teachers to realize the value of reflection; widespread use of the TP Chart can contribute to raising the quality of education.

On the other hand, although most creators of TP Charts have given positive feedback about them, it is not clear exactly what factors, such as the reflection process, usability, and so on, make it effective. In the future, the effects of the TP Chart need to be clarified.

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Forming future-ready graduates by focusing on the collective dimension of employability

Mariangela Lungren-Resenterra[1]

University of Applied Sciences and Arts of Western Switzerland, Geneva School of Business Administration
Genève, Switzerland
https://orcid.org/0000-0002-1979-765X

Abstract

Preparing future-ready graduates who fit readily into labour markets represents a significant issue for higher education institutions (HEIs) worldwide. Industrial stakeholders and HEIs claim that forming students ready for employment implies providing them with the necessary qualifications and personal skills essential for future work. This viewpoint has been challenged by recent research on employability conducted by Kahn and Lundgren-Resenterra. They argue that such interpretations label higher education merely as a personal commodity acquired and consumed for an individual economic reward, thus undermining possibilities to frame employability as developing collective interests. This paper reflects on reinforcing the collective dimension of learning strategies, thereby avoiding reduction of the value of learning to purely labour market needs. It aims to answer the following key research question: How can HEIs provide learning strategies designed to develop graduates' collective interests towards work through collective reflexivity and corporate agency, whose emancipatory use-value is transferable to workplace collectives? The paper draws on critical realism, and more specifically on Archer's work, to understand how collective reflexivity generates the emancipation of group members. Meanwhile, expansive learning is viewed as an alternative way of learning and knowledge construction as it relies on sharing concerns and interests with peers, thereby triggering change. Expansive learning cycles will be implemented in a Bachelor's-level HR Management course of a Swiss School of Business Administration to evaluate by term's end how students perceive expansion learning as a means of developing their reflexivity and corporate agency, thereby questioning existing current assumptions about employability based on the skillset discourse. Such measures should help HEIs reach beyond the skills agenda discourse dictated by labour markets and provide graduates with learning opportunities that emancipate them to be agents who develop their own narratives for their future work paths, thereby ennobling the role of HEIs.

1 Introduction

In recent years the notion of preparing students to become future-ready graduates who fit readily into the labour market has come to the fore in education policy debates across the world (Barnett, 2016; European Commission, 2016; Minocha, Hristov, & Leahy-Harland, 2018; Small, Shacklock, & Marchant, 2017). How we understand and conceptualise employability, however, has a significant impact on the teaching and learning process, and on what comes to be regarded as indispensable learning outcomes (Holmes, 2013). Tomlinson (2010, 2017) contends that the dominant view in policy debates concerning employability entails providing students with the skills and attributes required by the labour market. McQuaid and Colin (2005) argued that employability, informed as it is by labour market demands, has become shorthand

[1] mariangela.lundgren@hesge.ch

for “individual’s employability skills and attributes” discourse (p. 197), focusing thereby on market economy principles based on demand and supply (Kalfa & Taksa, 2015). Tomlinson (2017), meanwhile, contends that employability perceives education as a means to economic prosperity through the human capital theory. The European Commission Report (2016) regarding employability stated clearly that the development of graduates’ skills and attributes is a way to increase the economic growth of European Union nations by developing students’ human capital.

The human capital discourse, meanwhile, emphasises a supposed connection between higher education and individual employment opportunities as it banks on the assumption that investing in education increases graduates’ future perspectives of employment for personal economic growth (Kalfa & Taksa, 2015). Such a viewpoint results in conceptualising employability as a personal endevour to gain the appropriate knowledge and skill set that one can bring into any kind of work setting for financial success (Boden & Nedeva, 2010; Kalfa & Taksa, 2015; Minotcha et al., 2018). Conceptualising learning in terms of global skills shapes the learning process, however, mainly in relation to market demands rather than according to students’ needs, thereby undermining students’ agency for emancipation as members of the future workforce who have a say in shaping their own future work life narrative.

2 Challenging the current employability concept

Kalfa and Taksa (2015) argue that the human capital discourse around employability has its limitations as it correlates specific skills and knowledge possession with employment outcomes, thereby establishing a direct connection between the two. Kahn and Lundgren-Resenterra (forthcoming), meanwhile, argue that such interpretations label higher education merely as a personal commodity acquired and consumed for individual economic reward, thus undermining possibilities to frame employability to develop collective interests towards work. Higher education is, therefore, considered as a personal learning process leaving little or no space for a collective dimension to knowledge acquisition transferable to work situations (McQuaid & Lindsay, 2005). Meanwhile, Ashforth, Harrison and Corley (2008) contend that it is the collective aspect to work that provides it with sense-making through shared values, beliefs, concerns, and interests supporting cooperation and decision-making that connect individuals to their organisation. Little research, however, exists that explores the role collectives play in higher education learning, except studies focusing on specific collectives such as learning communities, communities of practice or those linked to minorities (Kahn & Lundgren-Resenterra, forthcoming).

3 Employability as a collective process

Kahn and Lundgren-Resenterra (forthcoming) contend that considering a collective perspective on employability helps students prepare to make contributions to work collectives that reach beyond individual financial benefit, thereby acknowledging the human flourishing of all members of a work community. They argue that by integrating collective aspects into the learning process, they increase students’ corporate agency through collective reflexivity essential for human emancipation. Their definition of graduate employability encompasses the capacity of graduates to act as corporate agents within a work setting, thus enhancing work collectives. The development of this capacity to contribute to work collectives is directly linked to how graduates can trigger corporate agency. Here corporate agency refers to groups of people who share the same concerns, beliefs, and values and who shape their own narratives as future workforce members when transitioning from higher education into work settings. How higher education can trigger such corporate agency through a collective approach towards learning is the purpose of this paper, which addresses the following research question: How can HEIs provide learning strategies designed for developing graduates’ mutual interests towards work, thereby enhancing collective reflexivity and corprorate agency whose emancipatory use-value is transferable to workplace situations?

4 Research approach

The study draws on critical realism (Bhaskar, 2008), and more specifically on Archer's work, to understand how a collective approach towards learning triggers collective reflexivity generating the emancipation of group members. Archer (2013) defines collective reflexivity as the mental deliberations used by people individually but who engage with others in joint actions to tackle problems as corporate agents, thereby attaining change. Meanwhile, corporate agency denotes what emerges from the activities of organised interest groups which address shared concerns critically (Archer, 2003) but in a way relevant for future work (Pellegrino & Hilton, 2012). However, the question remains how such collective reflexivity which triggers corporate agency can be obtained in higher education settings, whose emancipatory use-value can then be transferred to work situations.

Expansive learning is helpful to understand the emergence of corporate agency, as it relies on collectives rather than individual approaches to learning and knowledge construction. It is viewed as an alternative way of learning and knowledge construction as it counts on sharing concerns and interests with peers, thereby triggering reflexivity for the formation of agency offering an emancipatory use-value to the objects of human activity (Engeström, 2015). Here expansion refers to cycles of action within a learning process that starts by questioning accepted concepts or practice through collective reflexivity, then continues by analysing their conclusions to find plausible causes or explanatory mechanisms. Such explanations are then examined, modelled and later implemented into a work process to finally be consolidated into a stable form of practice (Engeström & Sannino, 2010, Engeström, 2015). The expansive learning process thus generates knowledge that is transferable to other contexts outside higher education settings, such as work situations.

5 Research implementation

Expansive learning cycles will be implemented in a Bachelor's-level HR Management course of a Swiss School of Business Administration to evaluate by term's end how students develop their reflexivity and corporate agency with emancipatory use-value for employability. Data will be collected through a survey and individual semi-directed interviews. It will then be analysed to explore and understand how students perceive the collective learning approach as a way to advance collective reflexivity for the emancipation of collectives, thereby transforming employability into a corporate concept.

6 Conclusions

Such insights should help HEIs implement teaching and learning strategies reaching beyond the individual skill set discourse dictated by labour markets (Cashian, 2017). Expansive learning strategies would enhance students' collective reflexivity and corporate agency, liberating them from labour market imposition of what learning outcomes should be targeted by HEIs for employment purposes. The learning process would thus acquire an emancipatory use-value relevant for graduates' future work life. This approach helps to question current assumptions about employability associated with individual attributes and skills as the ultimate exchange value for employment purposes. Graduates would transform themselves into future-ready agents who have a say in developing future personla work paths designed for the flourishing of whole collectives, thereby ennobling the role of HEIs.

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ICED 2020 proceedings:

Engineers of the future: Integrating professional competences via PAL

Ann Nestor[1]

Faculty of Engineering Technology (FET), University of KU Leuven
W. de Croylaan 56 - bus 2203
3001 Heverlee, Belgium

Lynn Van den Broeck[2]

Faculty of Engineering Technology (FET), University of KU Leuven
W. de Croylaan 56 – bus 2203
3001 Heverlee, Belgium

Abstract

Higher education institutions increasingly acknowledge their responsibility to guide students, both in their career development and academic growth (Burke, Scurry, Blenkinsopp & Graley, 2017; National Academy of Engineering. 2018), so recognising the impact of (co-)curricular activities on professional competences is crucial (Kinoshita, Young & Knight. 2015). This research looks into the students' perspective on the development of professional competences as a Peer Assisted Learning (PAL) tutor. In total, 27 tutors participated in the PAL programme of the Faculty of Engineering Technology (FET), KU Leuven (Belgium). The process included didactic and pedagogical training which prepared the tutors for their educational tasks. Via intermediate and final group discussions, hindrances and opportunities were discussed and tackled. Finally, an online individual questionnaire shed light on the competences indicated. Tutors and tutees indicated many benefits of PAL for their learning activities, such as fostering the ability to communicate clearly and cooperate better. To conclude, we need to keep giving students the possibility to develop their competences via different types of (co-)curricular activity to ensure student involvement and maintain high-quality education.

1 Introduction

Several authors stress the importance of integrating professional competences into the curriculum, but this requires time (National Academy of Engineering, 2004; Male, 2010). In addition, engineering programmes struggle to give students room to develop professional competences and professional identities (National Academy of Engineering, 2004). Educational institutions also have a responsibility to prepare students to engage in a more self-regulated way of learning. The need to develop specific learning competences could be answered by involving peers in the learning process (Berghmans, Dochy & Struyven, 2009), for example in co-curricular activities as Peer Assisted Learning (PAL). This concept implies the development of knowledge and skills through active support by peers to make sure learning goals have been reached (Berghmans, Dochy & Struyven, 2009).

A broad range of benefits of PAL, for both tutors and tutees, have been reported in many studies. These include cognitive gains, higher involvement, creation of a safe learning environment with lower thresholds and the stimulation of students' self-confidence (Berghmans, Dochy & Struyven, 2009; Ray & Ray, 2012). The FET launched a pilot project in

[1] ann.nestor@kuleuven.be
[2] lynn.vandenbroeck@kuleuven.be

academic year 2019-2020 to look into the perspective of students on the development of professional competences as a PAL tutor. Six courses on four campuses participated in the pilot, which resulted in a total of 27 tutors and 97 first-year tutees.

2 Method

Via three consecutive components (selection, training and assessments), we were able to identify, train and assess the competences of a potential PAL tutor.

2.1 Selection

Selection of potential tutors is based on a face-to-face interview conducted by the didactic team. Here, disciplinary and pedagogical knowledge is tested via cases such as "self-authorship" (testing loyalty, team player and technical and communication competences). The intention of this short interview is to (1) gain a first impression of the competences acquired; and (2) identify the motivation of the tutor. Finally, the didactic team chose the most suitable candidates.

2.2 Training

The selected tutors attend a (two-hour) hands-on training session given by the pedagogical trainer and someone from the didactic team. The session is based on didactic skills (e.g. future-ready teaching methods), course content, and pedagogical aspects. Tutors engaged in different types of exercise, such as role-plays, scenarios, and individual assignments. The pedagogical trainer used activating and interactive teaching methods which the tutors could use during their own teaching assignments. The teacher was responsible for the course-content-related information.

The literature states that there are three types of tutor (Berghmans, Neckebroeck, Dochy & Struyven, 2013; De Smet, Van Keer & Valcke, 2008):

1. Motivational organisers or motivators: tutors who stimulate and motivate tutees to participate via structural-organizational strategies and support
2. Knowledge constructors of questioners: tutors who concentrate on questioning tutees by stimulation and facilitation
3. Informers: tutors who mainly give information, transmit and illustrate their knowledge in a direct manner by providing specific answers to their questions

During PAL training we focused on stimulating tutor types 1 and 2, because we believe that a combination of these profiles is crucial. The study by Bulte et al. 2007 shows that a tutor has three roles: information provider, role model and facilitator (Bulte, Betts, Garner & Durning, 2007)

Eventually, tutors will be able to (1) handle practical and content-related issues during PAL sessions; and (2) reflect on certain competences.

2.3 Assessment of competences

17 out of 27 tutors participated in the assessment of the competences, in two steps:

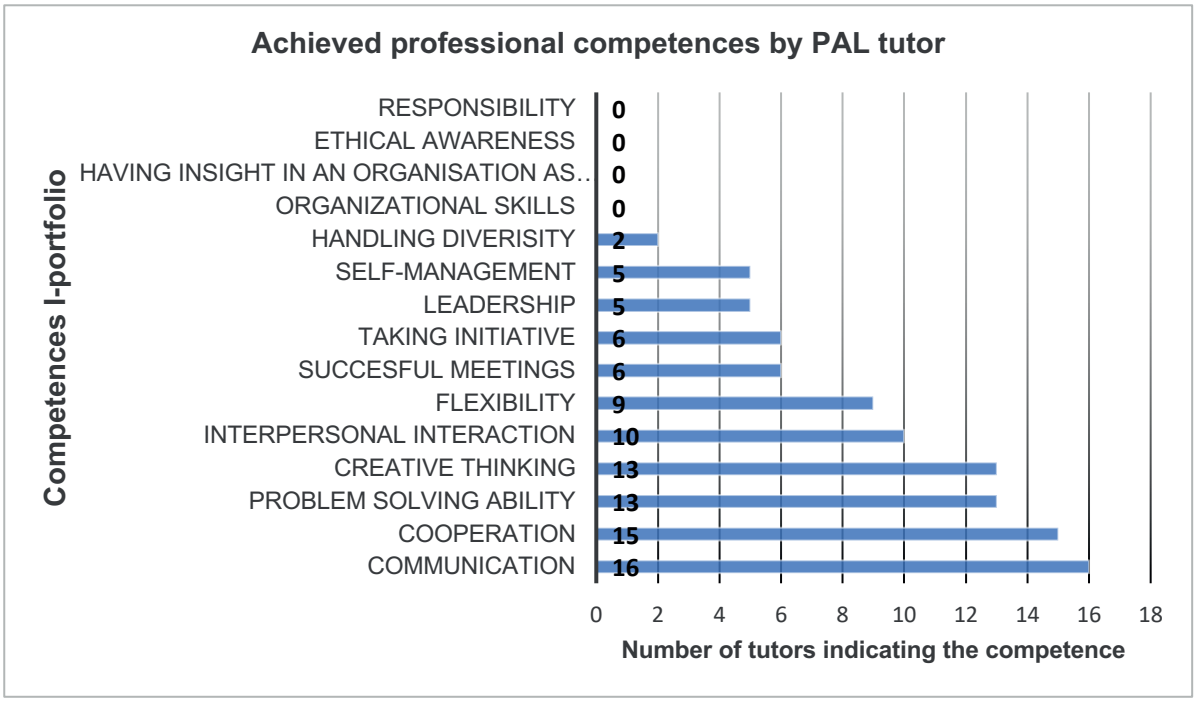
1. During two focus group discussions with the teacher, the tutors received feedback on PAL (process, sessions), experience and trained competences.
2. Via an individual online questionnaire (I-portfolio) the tutors indicated, via self-perceptions, the competences they had improved and explained in detail the difficulties or successes they had had. Afterwards the teacher provided feedback, if asked.

3 Outcomes of the assessments

3.1 Focus group discussion

17 tutors participated in an intermediate and final focus group discussion with the teacher. The tutors indicated that they had made the most progress in coaching skills, didactic skills, analytical skills, presentation skills, clear communicating, motivating and activating peers. The tutors also indicated that they were able to explain matters better (i.e. they went from questioner to informer and motivator). Finally, they were also able to empathize with how other students approached a problem.

3.2 I-portfolio



The statements given during the focus group discussions were compared with the responses of the tutors in their I-portfolios. The following competences were mentioned the most: communication (n=16); collaboration (n=15); problem-solving ability (n=13); and creative thinking (n=13).

4 Discussion

In both assessments, PAL tutors indicated that they had developed communication skills, cooperation skills and the ability to solve problems in a flexible and creative manner. As the study of Bulte C et al. 2007 explains, teaching tutees can have a positive effect on facilitation and communication skills (Bulte, Betts, Garner & Durning, 2007).

This exploratory study shows that tutors benefit from PAL and that they were able to reflect on their competences in various stages of the process. Nevertheless, we need to give tutors the opportunity to explore and strengthen their professional competences even more.

Some skills, such as responsibility and organizational skills, were not highlighted as achieved competences in the assessments, even though these skills are also crucial for engineers (Kinoshita, Young & Knight, 2015; Male, 2010). From the tutees' point of view, they were (N=35) satisfied with the PAL support, but they mentioned that the content knowledge and

professional competences of the tutors could be improved. The tutees felt that the roles of tutors are as facilitators and assessors (Ningrum, 2018).

5 Limitations

- The competences were not assessed prior to the PAL activities.
- We do not know the reasons why they indicated a certain competence (e.g. they do not understand the meaning of the competence, they do not know when they can indicate a certain competence, etc.).
- We also worked with the competences in the I-portfolio, which might deviate from the competences indicated in literature studies.

6 Future research

In the near future, we will develop pre- and post-tests to measure tutors' competences before they start as tutors and at the end of the semester. The indication of and growth in competences are based on self-reflection and self-regulated skills. Self-regulated learning (SRL) is viewed as a proactive process that students use to acquire academic skills (e.g. self-monitoring one's effectiveness) and is also important in social forms of learning such as PAL. (Zimmeran, 2008). We will also conduct personal interviews to analyse self-regulation and competence identification in depth.

We would also like to examine using this option for Student Assistants (SA: students paid to conduct an educational task) and explore the similarities and differences between PAL and SA.

7 Conclusion

This paper shows that PAL offers advantages for tutors and tutees but that some improvements concerning (the level of) some competences are crucial. Further research will give more insight into the identification of competences and will help faculty to upgrade this peer-support programme. Keeping future-ready education in mind, we need to keep giving students the possibility to develop their competences via different types of (co-)curricular activity to ensure student involvement and maintain high-quality education.

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ICED 2020 proceedings:

A practical workshop on Universal Design for Learning and shared experiences

Viveca Olofsson[1]

Högskolepedagogiskt centrum, Örebro University
Fakultetsgatan 1
701 82 Örebro, Sweden

Abstract

Higher educational institutions worldwide are facing the challenges of having diverse student groups. Inclusive teaching using universal design is a means of meeting these challenges. This article gives an introduction to inclusive teaching through universal design. It describes the design and intended outcomes of a pre-conference workshop on Universal Design for Learning (UDL), originally planned for ICED 2020. Lessons learned from a Swedish course in Universal Design for Learning are provided.

1 Introduction

Because of the global commitment to provide high quality and equal education (Agenda 2030; UNESCO, 2017) many higher educational institutions (HEI) are encountering increasingly diverse student groups with differing educational needs. Students may vary with regard to their knowledge bases, socioeconomic backgrounds and/or previous experience of higher education. Also, an increasing proportion of the student population may experience learning difficulties that affect their learning, such as depression, hearing impairment, dyslexia and/or ADHD. Thus, the challenges faced by HEIs in providing equal and high quality education to all the students they have recruited are great, and place high demands on inclusive teaching. The aim of this article is to present a structure and intended outcomes for a pre-conference workshop on inclusive teaching and to share some experiences from a course on Universal Design for Learning for university teachers given at a Swedish university.

Universal design is a proactive approach to teaching which has grown more common within higher education in recent years (Bracken & Novak, 2019; Burgstahler, 2015; Zaloudek, Chandler & Carlson, 2018). Originating from architecture in the 1980s, the universal design approach has been adapted to education, for instance in Universal Design for Instruction (UDI) and Universal Design for Learning (UDL) (Al-Azawei, Serenelli & Lundqvist, 2016; Roberts, Park, Brown & Cook, 2011). Common features in universal approaches are facilitation and enhancement of learning through clear, structured and flexible teaching. In addition, UDL integrates knowledge about cognition, neuro-science and learning (Bracken & Novak, 2019; the Centre for Applied Special Technology (CAST)). UDL is based on three principles:

- Multiple means of engagement
- Multiple means of representation
- Multiple means of action and expression

[1] Viveca.olofsson@oru.se

2 The ICED pre-conference workshop

This practice-oriented workshop had several aims. The participants would have been professionals working with educational development, with varied experiences of UDL. The aims were to discuss the perceived gap between broad recruitment and the need for widened participation in higher education; to enhance knowledge about our students and the (developmental and mental health) factors that affect their ability to learn; and to exchange experiences and/or ideas across national contexts.

In order to share a common understanding of UDL the participants were instructed to acquaint themselves with the UDL's approach to learning. They could choose either to read specific chapters of the book *Transforming higher education through universal design for learning: An international perspective*, or suggested articles. They were also asked to familiarize themselves with the UDL guidelines posted on the CAST website. With a similar level of knowledge about UDL reached, we anticipated informed discussions and valuable exchange of experiences during the workshop.

The 3.5-hour workshop was divided into three parts. The first part was dedicated to gaining some knowledge about students on a group level. Ramsden (2003) claims that it is important to know one's students, and therefore we planned to introduce factors that influence students and their learning, such as brain development, stress, other health factors and their prevalence. Discussions of possible implications for the work of educational developers and an exchange of experiences and ideas were supposed to follow. Knowledge about both developmental and health factors and how they influence learning can support educational developers' arguments for pedagogical development towards more inclusive student-centered teaching strategies.

The second part would have briefly introduced the concept of universal design in education. Universal design for learning is currently being introduced internationally as a means of approaching the varied student group characteristics affecting higher education today (Bracken & Novak, 2019). The introduction would have been followed by discussions about UDL's potential to support inclusive teaching and learning in higher education. The aim of the discussions were fruitful exchanges of knowledge, experiences and practical ideas on how to enhance accessible and sustainable education.

In the last part of the workshop the participants would have been able to work on their own projects, for instance on course specifications or modules, or on "how to change attitudes and motivate pedagogical change."

3 Lessons learned from a UDL course for university teachers

One major aim of the pre-conference workshop was to share experiences. Therefore some of the lessons learned from a mandatory pedagogical course for university teachers at Örebro University would have been shared. That course is part of a set of courses adding up to ten weeks of full-time pedagogical studies for university teachers. This is the recommended minimum level for Swedish higher education and is a requirement at Örebro University. The course comprises two weeks of full-time studies, held part-time over a semester. It was delivered in fall 2019 and spring 2020. Forty-four teachers participated.

In Sweden widened participation has been a sensitive topic. To avoid getting stuck in discussions about the topic we start the course by defining the mission of Swedish universities as governmental institutions. We describe the international and national legislation and agreements that are the cornerstones of teaching in Swedish higher education, and the individual responsibilities of each employee. This strategy showcases the indisputable reasons and motives as to why inclusive teaching is needed and why universal design provides viable

support in educational development. Another aspect influencing how widened participation is received is sustainable development. Integrating sustainable development in education is a prominent task for Swedish higher education, but progress has been slow. We frame widened participation as a means of integrating sustainable development in *how* we teach. By acknowledging the integration of, for instance, quality education and equality, the reasons for widened participation may be strengthened. Due to the clear reasons and motivations for widened participation thus provided, neither the topic nor the need for inclusive teaching have been questioned. The focus is on “how to” instead of “why do”.

We make a point of introducing course participants to our students, at a group level. For instance, we compare admission grade levels with the grades and corresponding knowledge and skills of students with different high-school grades. This illuminates the gap between the actual knowledge and skills of the students admitted and the levels that university teachers expect them to have. The relative breadth of the gap is quite surprising for many of the course participants. When recruiting students a main target group is young adults aged 19 to 25. Research shows that at these ages the pre-frontal cortex, with executive functions such as planning and anticipating consequences, is not fully developed. The influence of stress and major life crises and how they and other stress factors might influence concentration, working memory, the ability to memorize and learning is also introduced. In addition, we show the proportions of students with special needs, talk about the situations of single parents or parents of young children etc. and how these factors relate to learning and possibly our teaching. How these factors influence students, their study situations and learning are discussed together with how they might influence teaching. In sum, at the beginning of the course the participants are introduced to some important characteristics of the student population that influence student learning and the need for inclusive teaching.

A criticism of UDL made by some participants in the fall of 2019 was that UDL might lead to lowered course standards and/or quality by simplifying teaching and learning goals. We argue that UDL does not replace or contradict existing pedagogy. Instead, it serves as a didactic perspective that directs the focus towards the need for clarity, structure and flexibility when planning, conducting and developing student centered, student active teaching activities and curricula. We also referred to research on constructive alignment (CA), which indicates that it is not CA per se that potentially lowers standards and requirements, but how CA is implemented. Those findings probably apply to universal design as well. In light of this experience we consistently refer to UDL as a *perspective on* teaching, instead of a method, and we believe that this might be one reason why such criticism has not continued.

Often teachers perceive that they do not have enough time for course development. Therefore, the examination task for the course is to develop either a learning activity, a curriculum or a study guide according to universal design of learning. This gives participants the opportunity and the time to work on a meaningful project relevant to their own teaching. Overall, we are proud of the quality of the projects the participants have worked on during the course, and of their engagement. Our overall experience with this course has been very positive.

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ICED 2020 proceedings: Supporting academics who teach international students

Gabriela Pleschová[1]

Faculty of Arts, Comenius University in Bratislava
Gondova 2
81102 Bratislava, Slovakia

Abstract

This study discusses insights from literature on how learning and teaching in the context of international students differs from conducting classes for home students, and draws implications for the design of a course to prepare university teachers to effectively support international students. The article describes ways the design course team scaffolded participant learning, highlighting five main issues specific to the learning of international students with an emphasis on course participants.

1 Introduction

Existing studies report on many difficulties associated with the learning and teaching of international students. International students are often considered too shy to contribute in class (Lomer & Anthony-Okeke, 2019; Hussein & Schiffelbein, 2020) and they struggle to take part in group work, due to the negative attitudes of home students (Idris, Ion & Seery, 2019) and the language barrier. Many international students experience the problem of integrating with home students and adapting to a different culture (Cosh 2000). International students acknowledge that they cannot satisfactorily communicate with teachers and each other, but instead of admitting that, they pretend to understand (Terui, 2012). First year students in particular find many aspects of their academic lives abroad challenging, most notably deadlines, workload, written coursework, presentations and the foreign language (Jones et al., 2019). These issues frequently lead to problems with academic honesty (Hussein & Schiffelbein, 2020).

Responses to these challenges include reviewing curricula to make them more inclusive and decolonialised (Tran & Reily, 2019), redesigning classes to respect the principles of an ethically internationalised pedagogy (Lomer & Anthony-Okeke, 2019) and creating groups outside university so that international students can interact with their home peers. Some institutions react by introducing foundational year programmes (Jones et al., 2018), intercultural courses or programmes to develop critical thinking, note taking and content vocabulary (Hussein & Schiffelbein, 2020) or providing written guidelines to their teachers (Arkouidis, n.d). Clearly, good practice needs to go beyond simply designing and teaching classes well in the hope that international students will benefit similarly to their home peers.

[1] gabriela.pleschova@uniba.sk

2 Issues specific to learning and teaching of international students

In 2019 our team was awarded a grant from the Erasmus+ scheme to prepare a course for teachers from Comenius University in Bratislava, Slovakia, and Masaryk University, the Czech Republic. The course is designed to help participants tailor their courses to the needs of international students. When reflecting on what we learned from the literature on the learning and teaching of international students, we found that some of the responses cited above were context specific (e.g. decolonialisation). However, many appeared useful for enhancing the learning of international students beyond the general principles of good teaching. This led us to identify the following five issues requiring attention in course design.

2.1 Understanding and reacting to student diversity

Recognising the ways in which international students differ from their home peers and among themselves is an important starting point in facilitating their meaningful learning experience. This includes becoming aware of student expectations, needs, previous knowledge, how they used to learn in the past (Cosh, 2000), and their cultural and religious backgrounds (Idris, Ion & Seery, 2019). Doing this stimulates teachers to review the course content and methods so that they can make the curriculum inclusive. This can be done by considering questions like: What shared connections do I have with my students? What unconscious bias towards student groups may I have? How do I show respect to all voices? Have I thought of student groups in my content selection, learning activities and assessment strategy? What perspectives have been taken? How is the learning environment participatory? What power dynamics are generated from my approach? (Tran & Reilly, 2019). An example of a tactical step following these questions is to review the course readings, images and deadlines in terms of cultural, ethnic, gender and religious inclusiveness[2].

2.2 Making teachers attentive to the situation of international students

International students who leave their support networks and familiar cultures experience situations unlike their home peers'. These losses may become significant barriers to their learning. For teachers, it is therefore important to consider the challenges international students have to overcome while studying in another country (Marginson, 2014). This includes emotional and psychological difficulties such as stress, homesickness, isolation or financial hardship (Andrade, 2006).

To become empathetic to student realities, it may help if teachers reflect upon own experiences while studying in another country or the experiences of their former international peers (Volet & Jones, 2012). Also, to cope with above-mentioned feelings, students need to build a sense of belonging. This is possible through developing strong working relationships with staff and peers at university, for example through teacher encouragement and friendliness, flexible spoken and online communication, constructive feedback, and learning material shared online (Jones et al., 2018).

What is important to remember is that teachers sometimes expect international students to simply adjust to the local environment. A more viable approach is to look at the learning of international students as a process of self-formation of their own identities rather than a process of adaptation to local requirements (Volet & Jones, 2012; Marginson, 2014).

[2] Lynn McAlpine is acknowledged for suggesting this.

2.3 Allowing students to demonstrate engagement through multiple means

International students are often reported to hesitate to contribute to class discussions. Besides group work, where students can develop confidence through speaking in front of a smaller number of peers, they should have a variety of opportunities to manifest their engagement, for example through writing blog posts and reactions to them. International students can also become more engaged if they can learn about the topics that particularly interest them, for example by proposing the topics of their case studies (Lomer & Anthony-Okeke, 2019).

2.4 Encouraging reflective learning

International students typically enter a learning context that is significantly different from what they experienced in their prior studies. They may come from environments where it is considered inappropriate to challenge another's opinions, where different rules exist for academic honesty, or where different assumptions prevail concerning the issues studied. Students can therefore feel puzzled and insecure about what they should think and how they should behave. Reflective learning, which encourages students to confront and analyse beliefs and assumptions developed during their previous learning, can be an appropriate response to these insecurities (Cosh, 2000).

2.5 Facilitating peer learning

If students have to study independently of their peers, this does not allow them to capitalise on each other's uniqueness and strengths. Peer learning is a student-centred learning method which helps students to exchange knowledge because it is believed that "learning is more effective when knowledge is constructed and shared among peers" (Idris, Ion & Seery, 2019). Peer learning can thus become a powerful way to help international (and home) students to learn from each other. While engaged in peer learning, students can bring broader perspectives, develop greater awareness and generate a fuller consideration of the issues than could any individual student. Moreover, it builds friendships and eases integration with other students (Cosh, 2000). Peer learning can be stimulated, for example, by assigning home and international students to one group and creating enough opportunities for group work inside and outside the classroom (Idris, Ion & Seery, 2019).

3 Areas of focus of courses for academics teaching international students

Aside from designing activities that encourage participants to consider these five issues, we decided to support teachers' learning in two other ways. First, we chose to develop the skills of online teaching, because the Covid-19 pandemic has revealed that online learning may become the main means by which international students can complete their programmes. Second, given our positive experience from past courses (Pleschová & McAlpine, 2016; Pleschová & Simon, 2018) we prepared the course in a way that it engages participant teachers in the scholarship of teaching and learning (SOTL). Third, because our course participants are non-native speakers of English and many applicants expressed a desire to become more confident in conducting classes in English, we included into the course a microteaching demonstration in English where teachers trial a learning method which addresses the needs of international students. This is done in a safe environment where other course participants played the role of students. Each demonstration receives structured feedback from facilitators and peers. Microteaching is followed by completing a writing task in which participants reflect on how they could use the experience and feedback in their future teaching.

4 Conclusions

The result of our efforts is a four-semester course where teachers first attend six workshops to enhance their knowledge and skills pertinent to the teaching of international students. Then they design their own courses with a help of mentor; teach the courses while collecting data on student learning; and evaluate the outcomes in a SOTL paper. The course is being accredited through the Staff and Educational Development Association and will be offered for the first time in autumn 2020. We will undertake a study into how the course helped participants to stimulate improvements in learning among their international students.

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ICED 2020 proceedings: Workshop: Experiential learning for future ready teaching

Gillian Roddie[1]

Tangent, Trinity Business School
182 Pearse St
Dublin 2, Ireland

Dr Karl Thomas[2]

Tangent, Trinity Business School
182 Pearse St
Dublin 2. Ireland

Abstract

Amongst the many proven truths emerging during 2020 is the certain uncertainty about the future. Before Covid-19, the rise of automation across all industries and disciplines saw an increased demand for skill sets in graduates that enabled emerging employees to traverse the unknown, preparing them to be competitive in a job market with an unseen landscape. The global pandemic has accelerated the interest in these skills, and educators need to ensure that attention remains on the development of these skills. This skill curriculum need not compete with discipline-specific skills education, but rather sit alongside it to compliment the development of soft skill competencies using teaching methodologies that can be adapted and curated according to even the most specific industry needs.

For a future world (where 85% of jobs in 2030 do not yet exist), the need for cognitive flexibility, critical thinking, creativity, innovation and complex problem solving is expected to increase. Experiential learning systems allow the exploration of these skills, and the hands-on, minds-on nature of this type of learning ensures that students are ready for real-world application sooner. This workshop invites participants to engage in some of these teaching methodologies, and explores not only the activities, but the follow-up reflection work which embeds student learning into long term acquisition of knowledge.

1 Introduction

This workshop will use three hands-on, experiential learning activities, after which a reflection will be performed to deepen learning engagement. As adult learners we learn by doing, and participation in the workshop will facilitate insightful understanding of the potential for experiential learning as a future facing teaching tool. It also provides educators with the opportunity to empathise with students' experiences and understand common challenges and the resulting learning outcomes. Reflection is a key element of experiential learning, as it provides students with the opportunity to become aware of their own metacognitive processes, and to challenge and interrogate their assumptions, beliefs and thought patterns during their learning experiences.

[1] gillian.roddie@tcd.ie
[2] info@creatovation.ie

2 Workshop description

Each workshop is a stand-alone exercise that can be used in a wide variety of scenarios, and with different numbers of participants. As the workshop will involve a significant amount of participant interaction, it is prudent to use an icebreaker activity that builds and establishes trust amongst the participants sufficient to the context, paving the way for easy and open communication.

2.1 PMI in practice

The PMI technique (developed by Edward de Bono) and explored in his text *Thinking Course: Powerful Tools to Transform Your Thinking* is a thinking technique which challenges our tendency to go with our first opinion, or as De Bono suggests, "when we have no doubt about the situation but have instantly decided." This exercise encourages the user to pause, reflect and find the Plus Points, Minus Points, and Interesting Points about the issue at hand, thus helping students to reach beyond their initial thoughts and develop their ideas further.

Divided into groups of 2 or 3, workshop participants apply PMI thinking to a series of cards with questions and record their findings on post-its. This exercise allows them to engage in divergent thinking from the outset, paving the way for rich creative thinking in subsequent tasks. A second learning intervention happens when participants are encouraged to find ways to flip their initial responses, finding a home for the minus idea in the positive space and vice versa.

Following the activity students are asked to reflect on their experience in their groups, paying particular attention to going beyond their "first thoughts" – Was this a challenge and why? What was holding them back from thinking further? If they were to try this exercise again, what would they do differently? How can this type of thinking be used in real world situations?

While the PMI method is relatively simple, it takes on a high level of application and success when the facilitator has the capacity to employ a divergent mindset and make a critical deep dive on the selected subject.

This exercise encourages the development of a number of key skills, including divergent thinking, collaboration, creativity and communication. Time: approx. 30 minutes.

2.2 Seeking shelter

In the Seeking Shelter activity, groups of three participants each are given two items: a *Star Trek* figurine, and a descriptor of an environment (rain forest, desert, coastline etc.). Each group is tasked with building a shelter for the figurine. However, within each group one person will be given a restriction on their communication, e.g. they cannot speak, cannot touch anything (including their fellow teammates), will be blindfolded or have to wear earplugs. The group must adapt their communication skills accordingly to collaborate within their group in ideating a shelter, facilitating the inclusion of all team members and also communicating their shelter idea to the facilitators.

The shelter must be built to scale for the figurine; no materials can be used or put in place if it is not expected that the figurine could reasonably move them; and it must be agreed that the shelter can withstand the conditions associated with the prescribed environment, including climate and wildlife. This assessment takes place among the entire group, with questions as to the security and stability of the shelter being posed by the facilitators and the other teams.

The reflection exercise following this activity will ask participants to think about the communication challenges they faced during the exercise, and their own responses to them.

Particular attention must be paid to any blindfolded participants, as they are often neglected in favour of achieving the goal of building the shelter.

Skills developed: Communication, inclusion & diversity, critical thinking, collaboration, creativity, problem-solving. Time: approx. 30 minutes.

2.3 Shapes: Drawing exercise

Participants are divided into groups of two or three. One participant per group is given a predesigned image made up of shapes and lines of various sizes, positions and opacity. This participant has the role of describer and is the only member who can see the image. They must communicate the image to their teammates, who then draw the image based on the description with the aim of achieving mimetic accuracy.

During this process the participants must communicate a range of elements to achieve their goal, referencing a number of specific elements. These include, but are not limited to, orientation, landscape or portrait, and related positioning of elements. The challenge is how to communicate proportionality or reference shape type in organic or biomorphic terms as opposed to the more familiar geometric.

The reflection exercise following this activity will ask participants to think about the collaboration challenges they faced during the exercise, and their own responses to them. Assumption, frustration and irritation are key disruptors in the path to success in this activity. All impact the participants' capacity to reason and reflect in the moment so as to better perform their task.

The task draws on participants' leadership skills, communication skills, collaboration and teamwork skills. Time: approx. 30 minutes.

3 Reflections

During the reflection stage, participants are given the opportunity to unpack their process while comparing the results of their efforts. At this point, participants are encouraged, for example, to identify avenues for improvement in their problem-solving process and outcome; to engage with the feelings they experienced during the process; and explore how these impacted their thinking. Participants are asked to objectively describe the task instructions and determine how they interpreted, followed and evolved in their application of the minimalist instructions.

A final reflection task will ask participants to consider how these types of workshop activity could be facilitated within their own education, learning or training institutions.

4 Conclusions

We hope that this workshop description will provide some inspiration for skill development endeavours for future-ready students and graduates. Covid-19 has expedited trends in education and employment that we expected to see, and so while the future remains laden with uncertainty, the demand for core soft skills and agile and adaptable learners remains constant or is increasing. We encourage you to explore the opportunities for future-proofing students and learners with empathy, insight and enthusiasm to help them build resilience and remain enthusiastic on their journeys ahead.

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ICED 2020 proceedings:

Using "escape boxes" to promote constructive learning and positive thinking

Ayelet Shvalb

Afeka Tel Aviv Academic College of Engineering
Israel

Tal Harshoshanim

Orot Israel College of Education
Israel

Abstract

Future oriented pedagogy deals with changes in learning and adaptability to them. Awareness of a personal resource pool, the ability to recognize task-specific strengths and constructive learning are all important components here and can assist in training learners in the 21st century. Our premise is that people use their personal strengths to perform tasks, but they do so subconsciously. The purpose of this paper is to examine how raising awareness of strengths, expanding the personal resource pool and consciously selecting strengths for a specific task – "escape boxes" – can improve both learning itself and the learning experience. The study used Switzerland-themed "escape boxes" that suited the ICED 2020 convention, which was cancelled due to COVID-19. Our study shows that learning through "escape boxes" and awareness and selection of task-specific strengths improve learning and the learning experience.

1 Introduction

The world around us changes frequently; and it has turned into a place where knowledge is vast and available to all. In order to remain relevant, educational institutions are obliged to make changes to accommodate learning in modern life. Skills such as creativity, innovation, critical thinking, accountability and leadership must be integrated into 21st century pedagogy (Scott, 2015).

The Israeli Ministry of Education recently developed a "future oriented pedagogy model" to foster the development of graduates who can successfully face the challenges of the changing reality of the 21st century using their knowledge, skills and values. This model is based on research regarding the future and assumes that education is affected by the external reality in which it operates, and for which students need to prepare (Morgenshtern et al., 2018).

Seligman claims that one of the most fundamental premises in positive psychology is that once we perceive ourselves positively, we will act accordingly. Awareness of our internal resources and strengths allows us to face different challenges. The term "strengths" is commonly used in the literature to address positive fixed traits. An individual who acknowledges their inner resources and implements them will achieve optimal results (Seligman, 2018).

Every person has a resource pool. However, if one is not aware of the resource pool, it becomes less efficient, and poorer. Awareness of the resource pool will help to increase its efficiency, by amplifying the resources and in making them more accessible (Hobfoll, 2011).

The participants in the study were Israeli lecturers from different disciplines, who chose to participate as part of a teaching improvement training program. The first exercise enabled participants to overcome two obstacles which usually lead to failure in task performance: lack of awareness of one's own strengths, and poor compatibility between the required strengths and the specific task at hand. The participants were asked to select three people who they admire and to write down the traits they value in each of them. The traits that came up repeatedly were strengths possessed by the writers. Their ability to recognize these traits and value them means they possess the traits themselves. The participants were then asked to search for proof of existence of the traits in their own lives.

At the end of the exercise, each participant had assembled a personal resource pool, some of it familiar and some of it new. At first, the participants struggled to accept the new resources, but after personal introspection they accepted them. They declared that it was interesting and inspiring to learn new strengths in themselves, something they would not have done without the exercise.

2 Discussion

After expanding their personal resource pools, the participants were briefed on the next stage in the research: learning general knowledge about Switzerland through "escape boxes". The participants were asked to select three strengths from their resource pools which could serve them in the learning task. They chose resources that matched the essence of the task, such as the ability to cooperate, flexibility etc.

The rationale behind this is that the ever-changing world presents learners with new challenges. The resources that are automatically selected for learning are no longer as useful as before. Learners must match the required resources to the specific task at hand. Those who are flexible in selecting their resources, while being aware of as wide a range as possible, will be able to adapt to the current education system (Morgenshtern et al., 2018).

"Escape boxes" are a current learning method which can be adapted to different age groups and fields of knowledge for practice, memorization, assimilation, or to build familiarity with new content. The method involves a competitive group-based game, which uses the advantages of escape rooms and brings them into the classroom (Veldkamp et al., 2020). "Escape boxes" are becoming increasingly prominent in the education system, at all ages and in various disciplines.

The game presents a competition between groups where they must answer challenging and diversified riddles; the first group to complete the challenge wins the game. The game has several locked boxes. The minute the participants are able to solve the riddle and find the correct (3-digit) code to open the lock, they can move on to the next level, which involves a more sophisticated box. Hints regarding the solution are found both inside and outside the boxes, and it takes creative thinking to notice them. As opposed to escape rooms, here it is recommended to use any available tool, even online searching. The game integrates several learning styles in one task to get the participants out of their comfort zones, facilitate creative thinking and promote methodical work – while cooperating with the rest of the group, using the group's strengths and even increasing the mental strength of its members.

In a second part of the workshop the participants were randomly divided into 4 groups of 4-5 people. Each group was given a game kit on Switzerland. They were then given a general explanation regarding the number of tasks, the boxes and how to move from one task to

another (as previously explained). The riddles selected for the activity addressed various aspects of Switzerland and involved arranging historical events on a timeline, sorting cards into categories, assembling a 3D puzzle of a map of Switzerland and solving a general knowledge crossword puzzle (see images 1-4).

At the end of the workshop there was a meeting of all the participants, which was documented and analyzed by verbal feedback. The analysis showed that the participants enjoyed the activity immensely. They reported that they had acquired new knowledge on Switzerland. They felt that the small number of participants in each group allowed them to feel included and able to express themselves. Competitiveness was more dominant between groups, while within them there was full cooperation. This cooperation reflected reality, where we are required to cooperate with our colleagues and maximize everyone's personal abilities. The preliminary activity, where the participants were required to reveal their strengths, emphasized their variety of options, and sometimes even unearthed forgotten strengths. They believed that this teaching method was like a support group in which students could feel comfortable experimenting without fear of failure, and desired to use the method in their own courses.

Alongside these advantages, however, the participants raised concerns about their ability to create their own "escape boxes".

3 Conclusions

Our first conclusion is that learners must be trained to examine the tasks they face, and to search for the proper resources in their resource pool. Second, constructive teaching tools are necessary in today's reality, to keep teaching relevant in the eyes of the students. It is important to use diversified tools and to adapt them to different teaching disciplines. Third, learning through "escape boxes" enables all participants to express themselves in their own ways, and thus maximizes their cooperation. The fact that "escape boxes" can be adapted to any level and any area allows innovation in the traditional teaching process, which makes this tool particularly attractive.

We regard awareness of strengths to be of great importance in higher education, and suggest that the "language of strengths" should be implemented in all academic institutions, via theoretical and practical training programs for all lecturers.

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ICED 2020 proceedings:

Bridging the gap between thinking and doing: Industry expert adjuncts and future-ready teaching methods

Erica Walker[1]

Department of Graphic Communications, Clemson University
200 Godfrey Hall
Clemson, SC 29634, USA

D. Matthew Boyer[2]

Department of Chemical and Biomolecular Engineering, Clemson University
142 Earle Hall
Clemson, SC 29634, USA

Abstract

This study examines the experiences of three industry expert adjuncts (IEA), a specialized type of adjunct instructor who maintains a full-time career outside of academia while teaching a university course. The courses they designed and taught during this study focused on helping students bridge the gap between the classroom and the profession.

1 Introduction

In higher education, we often lament a perceived gap between the classroom and the workplace with regard to what and how knowledge is created within the traditional academic structure. To address this issue, future-ready teaching methods should effectively connect knowledge produced in a classroom to knowledge needed outside of class. This challenge has led instructors to look for ways to provide students with “real world” experiences.

Internships and co-op programs are one option that provide industry exposure through full time, short term employment with a company. These programs, however, require a significant investment from both the company and the university and become difficult to implement with a large number of students (Hora et al., 2017). Other solutions to increase real world exposure include case studies, virtual or game-based learning, situated project-based learning, and service learning projects (Chesler et al., 2013, 2015; Gasper & Lipinski, 2016; Walker, 2016), but these may not provide sufficient industry experience to adequately prepare every student.

Another way to provide industry exposure is by employing industry expert adjuncts (IEA) as classroom instructors. IEAs are a specialized type of adjunct instructor teaching a semester-long course while also maintaining a full time, non-academic position (Boyer & Walker, in press). IEAs are not just technical experts in their fields; they also bring best practices and creative problem solving from an industry context into the classroom. A 2014 report stated that IEAs make up less than 2% of contingent faculty positions (House Committee on Education and the Workforce Democratic Staff, 2014), but that number is growing. Previous studies show that this type of adjunct can bring a wealth of industry knowledge and experience into the classroom which can aid in the preparation of students for specific professions (Bettinger & Long, 2010; Gasper & Lipinski, 2016; Peer Review, 2010).

[1] eblack4@clemson.edu
[2] dmboyer@clemson.edu

Building from successful aspects of traditional apprenticeships where an expert works side-by-side with apprentices showing them how to complete tasks within a trade, cognitive apprenticeship is an educational framework that encourages instructors to share how they think about and approach tasks within their own industry (Collins et al., 1991; Stalmeijer, 2015; Walker, 2019). Educational frameworks can help educators, especially beginning teachers, connect learning objectives to assignments and assessments. By implementing the cognitive apprenticeship framework in the classroom, IEAs can share important insights into their own professional practice while also capitalizing on their desire to mentor students.

2 Context

The initial courses offered in this study were housed in the same academic department and focused on exposing students to the specific career expertise of the IEA. Each course addressed unique learning objectives. Course enrollment was open to students from all majors and provided credit hours from the hosting academic department. Throughout the study, all three IEAs maintained a full time job working outside of academia and held class three to five hours a week for fifteen weeks each semester.

Leading up to the first semester the course was offered, the IEA met with a curriculum developer two to three times a month for approximately three months. During these meetings they co-developed course materials based on the cognitive apprenticeship model, discussed best practices for assessment, created recruitment materials to advertise the course, set up the learning management system, and discussed general onboarding to the academic department and the university as a whole.

Once the learning objectives were determined, the curriculum developer facilitated the translation of the IEA's expertise and course goals into unique and measurable classroom experiences. Course development included elements of the cognitive apprenticeship framework (Collins et al., 1991; Stalmeijer, 2015; Walker, 2019), such as combining knowledge and strategies; situated, real world assignments; and the moving of students from observing the instructor demonstration to scaffolded hands-on experiences to reflection on how they would approach the task independently next time.

3 Methods and findings

Using a phenomenological approach to analysis, this study examines the experiences of three IEAs who were contracted to design and teach courses from Spring 2017 – Fall 2018, each IEA coming from a different area of expertise within creative production. To provide a rich, ongoing source of documentation and qualitative data, the IEAs, the curriculum developer, and enrolled students participated in semi-structured video interviews. The interviews spanned a two-year time period from course development through the first four to six semesters when each course was taught. In addition, course materials, classroom footage, student work, and other resources were collected to provide useful evidence for analysis.

The video interviews were transcribed and coded into themes using NVivo qualitative software and the emergent coding process. Findings from the interviews were then considered in relation to the course materials and other resources collected. For this paper, integration of data sources was used to reveal descriptive and interpretive phenomena related to student confidence and job-readiness.

A central theme emerged which concerned the classroom content in all three courses. The IEAs, the curriculum developer and the students all commented that the courses included an emphasis on both *skill work* and *professional skills.* Emergent coding revealed that skill work was defined as the hard skills necessary to complete a task within the industry, and professional skills centered around confidence, communication, critical thinking, working under

tight deadlines, and collaboration. These two skills content areas align with the cognitive apprenticeship knowledge areas that are necessary to gain expertise: domain knowledge (skill work) and strategies (professional skills). During the interviews, students stated that they felt more prepared to enter industry after developing both skill work and professional skills through the courses, and all three IEAs discussed the importance of incorporating both types of knowledge in order to prepare students for future careers.

In addition, students noted that the IEA instructors shared their professional network as a way to develop professional skills. IEAs provided “real world” feedback directly to students and also invited professional colleagues and guests into the classroom to share their career paths and provide feedback on student work. These aspects of the course align with the sociology aspect of cognitive apprenticeship, including building a community of practice and situated learning within a real world context.

4 Discussion

Industry expert adjuncts spend time in both the professional world and in the classroom each week. This impacts the content of their courses because they can provide recent examples and integrate them into hands-on activities and discussions. One IEA stated, “I'm literally coming from my office over to class. I can translate things that may have happened to me that day or the previous week and…bring that into the classroom.” The advantage is that course content can stay up-to-date and students are exposed to timely industry best practices.

Students benefit from frank conversations and the ability to pose questions to an industry insider. As the IEAs share their career experiences, students realize that they had similar struggles when they first started out in their fields. Exposure to insider information about culture, salaries, setbacks and more helps students gain confidence, be future ready and less fearful as they transition from the classroom to the workplace.

As one IEA shared, “If…they're passionate about this industry, I want to make sure that they have the tools that they need to feel successful and to be successful.” A common trait of IEAs is a passion for mentoring students and impacting the next generation of leaders in their fields. They have decided to commit time and energy to developing and teaching a course on top of their ongoing career and family commitments. They believe that they have something of value to contribute and think that the classroom is the best way to share it with students. Courses designed with the cognitive apprenticeship framework in mind emphasize these aspects of teaching by combining the career experience of the IEA with their desire to mentor and prepare students for their future careers.

5 Conclusions

In the words of one IEA: “Having an active industry professional and practitioner is something that I don't know that there's a total substitute for, because there's a lot of theory background [traditionally academic] that's really, really important to students, but there's also a lot of practice background [traditionally industry] that's really important for careers.” IEAs bring a point of view into the classroom that adds to the university experience. When these courses are combined with courses taught by academics, students benefit from a well-rounded education that prepares them for the future.

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ICED 2020 proceedings:

The impact of the faculty-student relationship on student course engagement

Xing Zhang[1]

Graduate School of Education, Shanghai Jiao Tong University
Dognchuan Street 800
Minhang, Shanghai, China

Abstract

This study introduces the situation of the faculty-student relationship and students' course engagement and analyzes the influence of the former on the latter. The research sample included 457 undergraduates, who come from Shanghai Jiao Tong University. The study found that almost all undergraduates can participate fully in class, but take part in fewer participation/interaction activities. The faculty-student relationship places the highest score on "Satisfaction" and the lowest score on "Conflict". Conflict is a negative predictor of attitude engagement; the Support scale and the "Closeness" scale have a positive impact on student engagement, in contrast to the "Attitude" scale.

1 Introduction

With the development of popularization of higher education, quality has been gradually replacing quantity as the focus of future work. Undergraduate teaching plays a key part in enhancing higher education quality. The classroom is a context that aims at good teaching and learning. As one of the most important factors in this context, the faculty-student relationship not only comprises a large part of the teaching process, but also runs through the whole process of higher education, greatly affecting students' learning outcomes (Carini et al., 2006; Kuh, 2003; Yunhee Bae & Sunyoung Han, 2019).

Student course engagement is an important predictor of course learning outcomes. There is no uniform definition of student course engagement, but scholars all agree that it is a multidimensional structure. Skinner and Belmont (1993) defined course engagement as "students' effortful, active, constructive, enthusiastic participation in learning activities within the classroom." Handelsman et al. (2005) suggested that student course engagement includes skill, participation/interaction, emotional and performance components.

In the research described in this paper, the faculty-student relationship refers to a special interpersonal relationship established by interaction between teachers and students during the common teaching process (Huang Xiting, 2004; Li Jinyu,1994; Zheng Xiaoquan, 2005).China's higher education has unique characteristics. This paper mainly discussed the current situation of the faculty-student relationship and student course engagement in Chinese universities and the impact of the former on the latter.

[1] zhangxing1@sjtu.edu.cn

The research questions were as follows:

1. What are the characteristics of the faculty-student relationship in undergraduate courses?
2. What are the characteristics of student engagement in undergraduate courses?
3. In undergraduate courses, how does the faculty-student relationship affect students' course engagement?

2 Literature review

2.1 Theoretical framework

College Impact Models is an important theoretical source for the study of college students (Wang Shu, 2010). Among the theoretical models, the "I-E-O model" is one of the most influential. This research uses Astin's IEO model as its theoretical framework. According to this model, the impact of universities on students is the result of three related factors: "I" means input, which refers to the student's characteristic and background before enrollment; "E" means environment, which refers to the people, school policies, culture, etc. which students encountered on or off campus during their studies; "O" means output, which refers to the knowledge, skills, attitudes, values, beliefs and behaviours of students after graduation (Astin,1999). Input contributes to the results not only in a direct way, but also in an indirect way, that is, through the environment of the school. This model attempts to explain the impact of the environment on the overall or individual changes or growth of students, with particular attention to the impact of faculty, school projects and policies (Long & Amey, 1993). The conceptual framework of this research is shown in Figure 1.

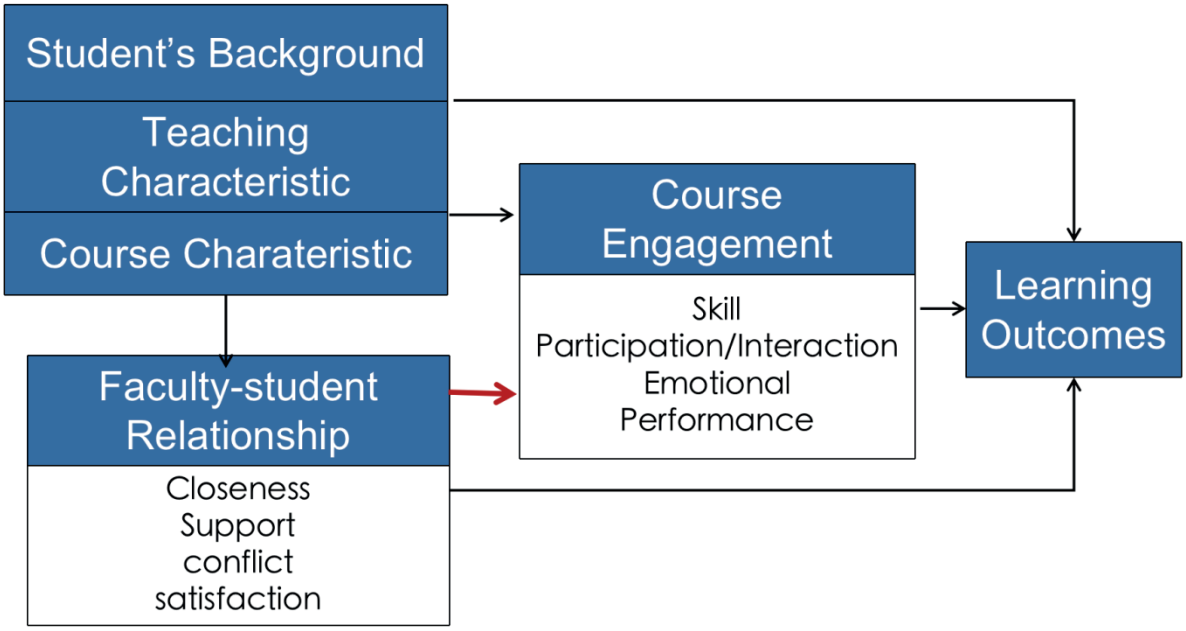

Figure 1: Conceptual framework

2.2 The faculty-student relationship

Regarding current studies of the faculty-student relationship, apart from a few researchers who reported positively (Wang Peng, 2016), most researchers find that there are still some problems. For example, the relationship is indifferent and features lack of emotion (Deng Xianbo,2008); "faculty-student dialogue" has become "faculty-to-student" (Wang Xiaomei, 2010); and the classroom is "dominated" by teachers, and dull (Xie Huicun, 2003). The team

at Tsinghua University also found problems: a “research priority” orientation makes teachers neglect interaction with undergraduates (Shi Jinghuan & Wen Wen, 2010).

There is less research on the faculty-student relationship in higher education than in pre-college education. Research findings have found that personal personality and past experience are more important than age and gender in an intercultural environment (Hsieh, 2012). It follows that cultural background often affects students’ expectations of the faculty-student relationship (Zhou et al., 2008). Grade and subject are also influencing factors. In addition, for online learners, lack of interaction may have a negative impact on the faculty-student relationship (Bergström, 2010). A single positive connection with the teacher can influence the student’s view of the teacher overall (Cox, 2011). The development of the Internet has a huge influence on communication between teachers and students, and the "micro-communication" method prevails. Social-media software such as WeChat has become an important platform for faculty-student communication, which has changed the traditional face-to-face communication mode (Zhang Yujing et al., 2019).

2.3 Student course engagement

Research into student engagement can be divided into two categories. The first focuses on analyzing characteristic problems. For example, Tsinghua University, Nanjing University and some other institutions evaluate the undergraduate education process by comparing themselves with similar institutions based on the results of undergraduate engagement surveys (Wen Wen & Guan Liusi, 2011; Lu Yun & Lv Linhai, 2015). The second category focuses on exploring the mechanism of student engagement in relation to learning outcomes. For example, some findings show that student engagement has a positive mediating effect on students’ growth, and a positive effect on academic performance, knowledge acquisition and cognition developmental self-evaluation (Qu Liaojian & Sun Liang, 2019. et al).

At the college level, many studies assess engagement at the “macro level,” including the National Survey of Student Engagement (NSSE) at Indiana University (NSSE, 2013) and the Tsinghua University Undergraduate Education Survey (Shi Jinghuan & Wen Wen, 2010). Handelsman et al. (2005) believe that if you want to improve university education and the student experience, it is necessary to pay attention to student engagement at the level of specific courses, because the greatest impact teachers have on students is reflected in the behaviour and feelings of students in the classroom. They developed the Student Course Engagement Questionnaire (SCEQ). This questionnaire follows the standard psychometric process, which has 23 items divided into four dimensions of engagement: skill, participation/interaction, emotional and performance components.

3 Method

3.1 Participants and procedure

This study collected data from Shanghai Jiao Tong University – a top first-class university in China. Using cluster sampling and stratified sampling methods, and taking the class as the sampling unit, random sampling was conducted among 1642 undergraduate courses in the autumn semester of 2019 and 50 classes. 474 questionnaires were returned, of which 457 were valid. The response rate was 20.9%.

gender	male	283	61.9%
	female	174	38.1%
grade	freshman	231	50.5%
	sophomore	133	29.1%
	junior	85	18.6%
	senior	8	1.8%
subject	engineering	231	50.5%
	science	69	15.1%
	bioscience	19	4.2%
	humanities and social sciences	134	29.3%
	top student program	4	0.9%
household registration	the agriculture household	104	22.8%
	non-agriculture household	353	77.2%
high school	national key high school	93	20.4%
	key high school in province	204	44.6%
	key high school in city	120	26.3%
	ordinary high school	33	7.2%
	other	7	1.5%
enrollment	gaokao	391	85.6%
	special program	66	14.4%

Table 1: Descriptive statistics of the participants.

3.2 Measures

The questionnaire used in this study mainly collects four categories of information: students' background information, student course engagement, the faculty-student relationship, and teaching and course characteristics.

This study used the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman et al. to measure the level of students' course engagement. The original questionnaire included 23 items in four dimensions of engagement. The research of Zhou Zijing (2008) and Lin Shuhui (2018) proved the reliability and validity of SCEQ in the Chinese environment. According to the characteristics of this research, some items were appropriately modified.

The faculty-student relationship questionnaire we used referred mainly to Qu Zhiyong's scale, which is based on the research of Pianta (Pianta, 1997). The questionnaire includes four dimensions: closeness, support, satisfaction, and conflict. This study refers to the four dimensions of the questionnaire, and the specific items, after modification, are based on the characteristics of higher education.

Items	M	SD	Factor loading	Cronbach' s Alpha
Student course engagement				
Making sure to study on a regular basis	3.32	1.255	0.781	0.908
Putting forth effort	3.65	1.076	0.792	
Doing all the homework problems	3.72	1.022	0.765	
Looking over class notes between classes to make sure I understand the material	3.21	1.144	0.800	
Being organized	3.20	1.120	0.747	
Listening carefully in class	3.71	1.013	0.715	
Thinking about the course between class meetings	3.67	1.050	0.781	
No absenteeism except for accidents	4.61	0.833	0.945	0.886
Being punctual for class	4.63	0.762	0.845	
Finding ways to make the course interesting to me	3.84	1.044	0.754	0.906
Desiring to learn this course	3.64	1.104	0.813	
Raising my hand in class	2.95	1.223	0.779	
Asking questions when I don't understand the instructor	3.04	1.212	0.772	
Having fun in class	3.66	1.042	0.811	
Going to the professor's office hours	3.15	1.266	0.785	
Being confident that I can learn this course well	3.75	1.012	0.778	0.813
Doing well in class	3.42	1.088	0.868	
Faculty-student relationship				
I often discuss grades or homework with the instructor	2.53	1.102	0.728	0.834
I often discuss course-related topics with the instructor outside of class	2.73	1.16	0.755	
I often discuss career plan with the instructor	2.22	1.123	0.807	
I often discuss philosophy and values with the instructor	2.42	1.173	0.705	
The instructor respects my learning ability in the course	3.87	0.884	0.737	0.870
The instructor often encourages me when I am not confident in answering questions	3.45	1.032	0.703	
I can get timely feedback from the instructor(oral/written)	3.42	1.118	0.712	
I cherish the relationship between the instructor and me	3.88	0.937	0.755	
The instructor is not opinionated	3.73	0.945	0.798	
I am willing to do other research with the instructor	3.54	1.074	0.706	
I hope to improve my relationship with the instructor	3.88	0.929	0.777	0.905
The faculty-student relationship is exactly what I hope for	3.97	0.908	0.851	
When I have difficulties, the instructor will help me in time	4.04	0.885	0.887	
I am very satisfied with my relationship with my teacher	3.82	0.958	0.848	
I feel treated unfairly by the instructor	1.41	0.798	0.703	0.771
The instructor often punishes or criticizes me	1.39	0.788	0.725	
I find it difficult to get along with the instructor	1.56	0.823	0.775	

Note: M = mean; SD = Standard Deviation

Table 2: Descriptive statistics, factor loadings, and reliabilities in the measurement models

3.3 Statistical analyses

First, descriptive statistics were collected and correlation analysis was conducted. Next, after controlling for other related variables, multiple regression was used to analyze the impact of the faculty-student relationship on student course engagement.

4 Results

As Table 3 shows, in students' course engagement, attitude scores the highest, and participation/interaction scores the lowest. In the faculty-student relationship, satisfaction scores the highest, and conflict scores the lowest. Except for conflict, there is a significant positive correlation between the positive scales of the faculty-student relationship and the four

scales of student course engagement. Conflict between teachers and students is negatively correlated with attitude engagement, support and satisfaction, but positively correlated with intimacy (See Table 4).

Regression analysis shows that the closeness of and support inherent in the faculty-student relationship has a positive impact on skill, participation/interaction and performance engagement; satisfaction does not affect participation/interaction engagement, and attitude engagement is only affected by conflict (See Table 5).

Scales	Min	Max	M	SD
Student course engagement				
Skill Engagement	1	5	3.50	0.884
Attitude Engagement	1	5	4.62	0.756
Participation/Interaction Engagement	1	5	3.38	0.951
Performance Engagement	1	5	3.59	0.964
Faculty-student relationship				
Closeness	1	5	2.48	0.931
Support	1	5	3.65	0.779
Satisfaction	1	5	3.93	0.812
Conflict	1	5	1.45	0.665

Table 3: Descriptive statistics of student course engagement and the faculty-student relationship

	Skill Engagement	Attitude Engagement	Participation/ Interaction Engagement	Performance Engagement	Closeness	Support	Satisfaction	Conflict
Skill Engagement	1	.335**	.732**	.648**	.462**	.571**	.512**	-0.052
Attitude Engagement		1	.299**	.286**	.108*	.328**	.321**	-.239**
Participation/Interaction Engagement			1	.750**	.615**	.672**	.551**	-0.053
Performance Engagement				1	.508**	.592**	.535**	-0.058
Closeness					1	.551**	.403**	.283**
Support						1	.721**	-.152**
Satisfaction							1	-.250**
Conflict								1

*significant for p < 0.05; **significant for p < 0.01.

Table 4: Correlation between student course engagement and faculty-student relationship.

Table 4: Correlation between student course engagement and the faculty-student relationship

Variable	Model 1 Skill engagement	Model 2 Attitude engagement	Model 3 Participation/interaction engagement	Model 4 Performance engagement	Model 5 Student course engagement
Closeness	0.210**		0.398**	0.295**	0.281**
Support	0.214**		0.264**	0.215**	0.244**
Satisfaction	0.106*			0.160**	0.121*
Conflict		-0.126**			
Female	-0.095**			-0.129**	
Freshman	0.066	0.073			
Sophomore	-0.103**		-0.064*		-0.081**
Junior				0.062	
Senior					
Teaching	0.216**	0.373**	0.264**	0.145**	0.284**
Course Pressure	0.216**	0.088*	-0.091**	-0.127**	
Engineering				-0.123**	
Science				-0.112**	
Bioscience					
National Key High School					
Key High School in Province					
Key High School in City				-0.06	
Ordinary High School					0.060*
Humanities and Social Sciences					
The Agriculture Household			0.053		
First Generation College Students					
Enrollment					
Adjusted R^2	0.493	0.206	0.582	0.463	0.586
Sig of Model	0.000	0.000	0.000	0.000	0.000
N	457	457	457	457	457

Student course engagement = (skill engagement + attitude engagement + participation/interaction engagement + performance engagement)/4.
*significant for p < 0.05; **significant for p < 0.01.*

Table 5: Multiple regression summary.

Table 5: Multiple regression summary

5 Conclusions

On the one hand, there is little undergraduate absenteeism in class, which is only related to conflict. The conflict score between teachers and students is low, and students enter the classroom on time. On the other hand, scores for students' classroom participation/interaction are also relatively low. It is even possible that they did not follow the class carefully. The factors affecting participation/interaction are closeness and support, but the scores for these two scales are not particularly high. In addition, closeness is positively correlated with conflict, indicating that the more closeness there is between students and the instructor, the more contradictions and conflicts there are. This supports the perception of some teachers' indifferent attitude towards students. However, a decrease in closeness will have a more serious impact on student engagement. Universities should not one-sidedly emphasize attendance, nor should they ignore indifference. Instead, they should improve the level of students' course engagement by enhancing the interaction and understanding between teachers and students.

Acknowledgements

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Significant lifelong learning: A framework for preparing future-ready graduates in the age of uncertainty

Laura Zizka[1]

Ecole hoteliere de Lausanne // HES-SO Western Switzerland University of Applied Sciences and Arts
Route de Cojonnex 18
1000 Lausanne

Rachel C. Plews[2]

Center for Advancing Teaching & Learning Through Research, Northeastern University
215 Snell Library
360 Huntington Avenue
Boston, MA 02118

Abstract

Student learning has predominantly been debated based on the cognitive knowledge and skills acquired. More recently, scholars have examined the concept of a deeper, more holistic learning, i.e., significant learning where learning stimulates further learning to, subsequently, create lifelong learners. This conceptual paper aims to examine how significant learning has been discussed in the past to create a framework for the future-ready graduate which educational developers can use to reimagine student learning outcomes aligned to critical interactions of the learning experience. The proposed framework is referred to as Significant Lifelong Learning and can be applied to traditional or any variation of online learning environments.

1 Introduction

Lifelong learning, first introduced by Edgar Faure in the UNESCO report *Learning to be* (Kirby, Knapper, Lamon, & Egnatoff, 2010), is often described from two broad perspectives – the educational perspective, as a goal to instill in learners in higher education, and the professional perspective, as a necessary characteristic of workplace learning.

These two contexts illustrate a shift from a performance orientation to a goal orientation, combining the cognitive domain of learning with the more affective areas of learning, including the human dimension, caring, and learning how to learn.

Fink's (2003) taxonomy of significant learning combined these three affective areas of learning with fundamental knowledge, application, and integration to present a more holistic view of student learning described through learning goals. The five attributes of lifelong learners – an inquiring mind, helicopter vision, a sense of personal efficacy, information literacy, and a repertoire of learning skills (Candy, Crebert, & O'Leary, 1994) – are typically described through this affective lens. These attributes are not easily taught; therefore, much of the previous research in this area focuses on the presence and measurement of attributes through scales designed to assess lifelong learning attributes, including the Characteristics of Lifelong

[1] laura.zizka@ehl.ch
[2] r.plews@northeastern.edu

Learning in the Professions (Livneh, 1988), the Oddi Continued Learning Inventory (Oddi, Ellis, & Roberson, 1990), and the Effective Lifelong Learning Inventory (Crick, Broadfoot, & Claxton, 2004).

This paper aims to address the following question: *How can we create significant learning experiences through interactions built to encourage authentic lifelong learning for future-ready graduates?*

2 Literature review

2.1 Learning taxonomies and course design

Traditional learning taxonomies, including Bloom and Anderson and Krathwohl (2002), can be useful in course design as the levels of progression determine what students should be able to do in terms of specific, observable behaviors. In a study conducted by Stanny (2016) that consisted of document analysis of 30 web resources using Bloom's categories and verbs, no verb was consistently assigned for all 30 lists.

Out of 788 verbs, 433 were unique, and 236 verbs appeared in only one category; the analysis shows that authors vary in their interpretation of the verbs. Words can hold different or several meanings in different contexts, illustrating the need for a more comprehensive taxonomy for student learning.

The Taxonomy of Significant Learning (Fink, 2002) presents an interactive framework that illustrates that all learning relates to other types of learning. The focus is on the relationships between outcomes, activities, and assessments and on the idea that learning in any area could enhance learning in another area. The six dimensions of Fink's Taxonomy are foundational knowledge, application, integration, the human dimension, caring, and learning how to learn. While the first three dimensions align with Bloom's cognitive domain, the second three are more closely aligned with affective learning outcomes. This idea that learning is multi-directional closely relates to the goals and attributes of lifelong learning.

2.2 Lifelong learning

Considered a goal of education and necessary for the workplace (Kirby et al., 2010), lifelong learning, or "life-wide" learning, is one's capacity to respond to changing circumstances, to learn throughout a career, and to integrate theory and practice to respond to previously unmet situations (Bligh, 1982). This concept emerged from Faure's work in the 1972 UNESCO report "Learning to be", which called for a reform of existing education systems to consider all areas of learning, both formal and informal, as a learning society. The aim was to shift the focus from an individualistic, humanist view towards a more economic view centered on employability and the workforce (Boshier, 2005; Merriam et al., 2006). Later works, including the 1996 OECD Report "Learning for All" and the 2000 report on the Commission of European Communities, reinforced these initial ideas.

Candy et al. (1994) introduced five attributes of lifelong learners that promote their ability to engage in learning. The first attribute – an *inquiring mind* – is linked to the depth of learning and the ability to engage in deep learning instead of surface learning. The second attribute – *helicopter vision* – is an individual's epistemological beliefs or an awareness of how knowledge is created and its potential limitations. The third attribute is a sense of *personal efficacy*, or confidence in his or her ability to learn in relation to personal goals and academic performance. The fourth attribute is *information literacy,* or how we access and make meaning of information. Finally, the fifth attribute is *learning how to learn,* or the awareness and utilization of common skills and strategies for learning.

The openness to experience, as demonstrated through motivation, engagement, and persistence and the ability to deal with change, are also characteristics used to describe lifelong learners. The acquisition and development of these attributes permit learners to set goals, apply appropriate knowledge and skills, engage in self-direction and self-evaluation, locate required information, and adapt their learning strategies to different conditions (Candy et al., 1994).

As these attributes are not easily taught, much of the work done in this area focuses on the presence and measurement of attributes through scales designed to assess lifelong learning attributes, including the Characteristics of Lifelong Learning in the Professions (Livneh, 1988), the Oddi Continued Learning Inventory (Oddi, Ellis, & Roberson, 1990), and the Effective Lifelong Learning Inventory (Crick, Broadfoot, & Claxton, 2004).

2.3 Learning interactions

Educational experiences are composed of various interactions: learner interactions with course content, learner interactions with the instructor, and learner interactions with other learners (Moore, 1989; Nilson & Goodson, 2017). The learners' additional interaction with technology emerged with the uptake of distance learning initiatives (Moore & Kearsley, 2005), and, more recently, with emergency remote learning during the COVID-19 pandemic. These interactions are significant to learning because they lead to improvements in student learning, along with a sense of community, increased student engagement and satisfaction, and increased persistence and retention (Nilson & Goodson, 2017).

These learning interactions have been analyzed with regard to student satisfaction with courses, particularly online courses. According to the findings of previous literature, the learner-faculty relationship is the most significant, followed by the learner-content relationship. Learner-technology interaction is affected by the differing efficacy of, comfortability with, and access to technology. The least significant factor was the learner-learner relationship (Strachota, 2003).

3 A proposed framework for Significant Lifelong Learning

The key concepts in Section 2 have been elaborated upon in the figures below. Each figure contains additional information to illustrate the concepts more effectively. Our proposition for a new framework for Significant Lifelong Learning (SLL) is presented in a visual format in Figure 5.

4 Discussion

As we can see in Figures 1, 2, and 3, the importance of SLL is dependent on the types of learning interactions in an educational experience, lifelong learning attributes, and the dimensions of Fink's significant learning taxonomy. Specifically, these different interactions encourage a holistic approach involving learning with content, learning with others (other learners and the instructor), and learning with technology. The latter is particularly appropriate in the landscape of blended learning, which many higher education institutions have already implemented as part of an institutional strategy, or more recently as a response to the global pandemic. The lifelong learning attributes in Figure 2 illustrate the areas in which students should have attained or progressed within their higher education experience to prepare themselves for continued learning in the real world after graduation. Figure 4 represents the dimensions of Fink's Taxonomy of Significant Learning, which focus on the relationships between the cognitive and affective domains of learning. In Figure 4, we add the innermost framework, which focuses on faculty, content, and the environment targeted explicitly at learners in blended contexts, as this represents the current reality in higher education. Finally, in Figure 5, we combine all four frameworks into a multi-level SLL circle. We propose that these frameworks, brought together, interact with one another to provide a more comprehensive web

of interactions, dimensions, and attributes that ultimately lead to a framework for significant lifelong learning.

Figure 3. Dimensions of Fink's Significant Learning for Significant Lifelong Learning. Source: Fink (2003)

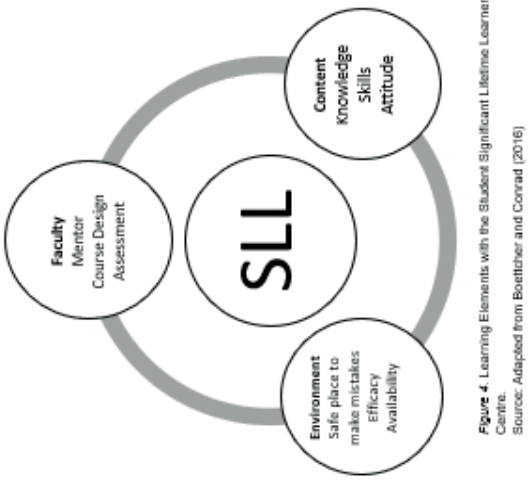

Figure 4. Learning Elements with the Student Significant Lifetime Learner in the Centre. Source: Adapted from Boettcher and Conrad (2016)

Figure 1. Learning Interactions for Significant Lifelong Learning. Source: Adapted from Moore and Kearsley (2005)

Figure 2. Lifelong Learning Attributes for Significant Lifelong Learning. Source: Adapted from Candy, Crebert, and O'Leary (1994)

Figures 1-4

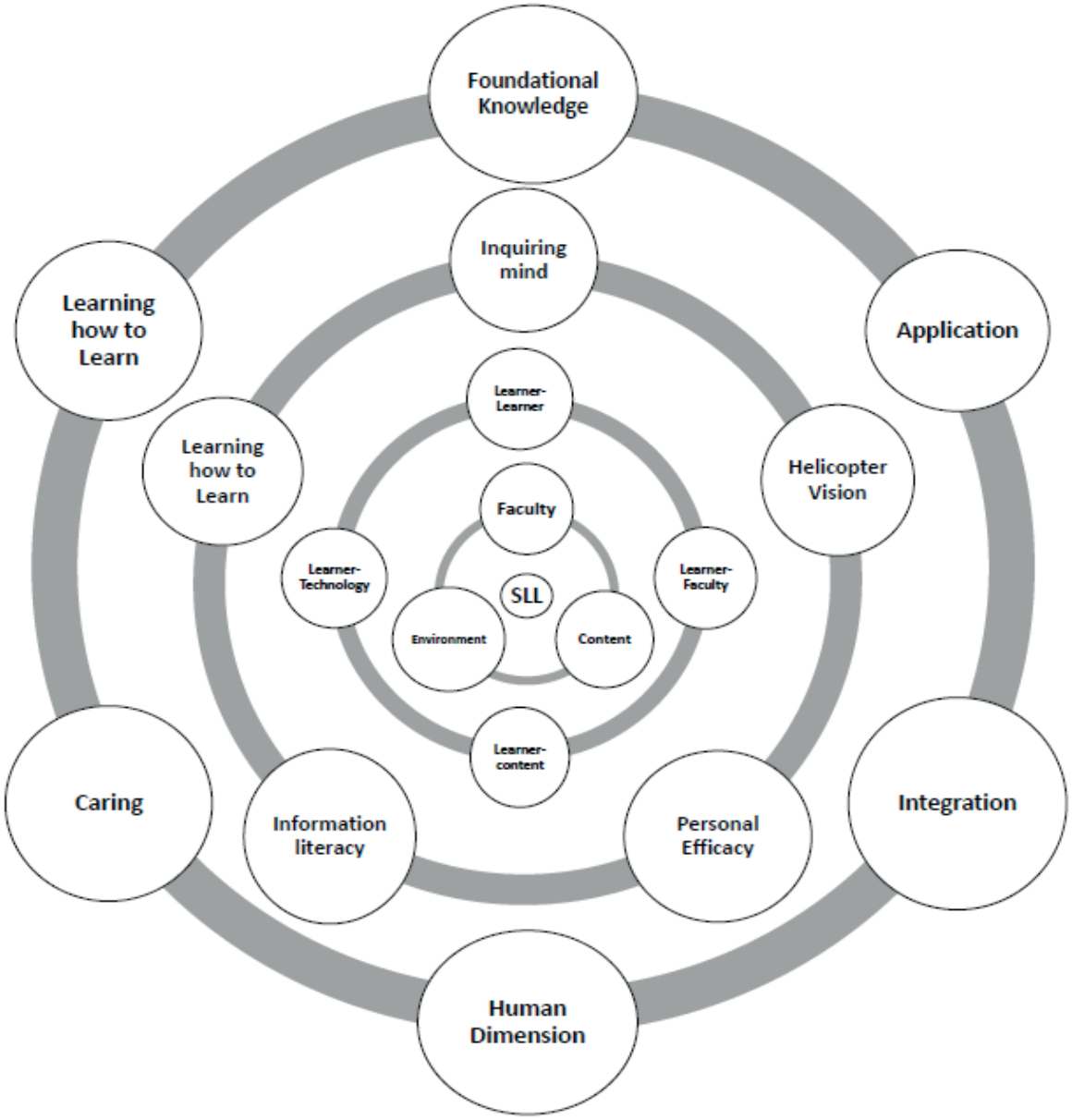

Figure 5: Significant Lifelong Learning framework

5 Implications for future research

The purpose of this conceptual paper was to identify the key elements that encourage significant lifelong learning. Grounded heavily in the previous literature, we attempted to create a framework for the future-ready graduate which educational developers can use to reimagine student learning outcomes aligned to critical interactions of the learning experience. A thorough analysis of the relationships within the framework was beyond this paper's scope, but will be provided in a forthcoming in-depth research paper. The next step is to test this framework in the academic field through surveys and interviews to analyze both student and faculty satisfaction with the learning experience as a whole in all learning contexts, ranging from traditional face-to-face environments to blended or fully online environments.

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Future-ready assessment

Inspired, forward-looking developments in education often fail at the assessment stage, where old-fashioned methods still prevail. How can we retain the momentum of innovation right through assessment? What new perspectives are needed? How can we leverage the many digital tools we now have at our disposal?

ICED 2020 proceedings:

An innovative approach to implementing and evaluating formative assessment strategies in higher education: A Norwegian case study

Isabela Pires Darcie[1]

Program for University Pedagogy, Department of Education, University of Bergen
Christiesgt. 13
5015, Bergen, Norway

Robert Gray[2]

Program for University Pedagogy, Department of Education, University of Bergen
Christiesgt. 13
5015, Bergen, Norway

Abstract

Norwegian higher education courses still predominantly employ traditional lectures and summative exams. At the University of Bergen, a recent project (TALIDA) has supported the redesign of over thirty courses by introducing formative assessment strategies. This paper presents how the redesigns are being evaluated. Our research methodology addresses the need for new perspectives in the evaluation of the quality of learning in future-oriented teaching practices. We pay special attention to a select number of courses chosen to undergo a careful mapping and analysis of their activities. We employ the "writerly interactions" framework (Gray, 2019; Gray, 2017) to analyze the quality of the interactions between learner and course content as a measure of meaningful learning.

1 Introduction

As education moves away from the one-size-fits-all model to accommodate new social demands, the question of quality—and how to evaluate it—becomes a hindrance to exploring innovative techniques. This matter is accentuated in higher education, where professional requirements add to the weight of the evaluative aspect. The evaluation of future-ready, innovative teaching and assessment calls for the development of new evaluation paradigms that can clearly communicate the benefits of these pedagogical strategies while maintaining academic systems of accountability.

Although Norwegian universities were notoriously described over twenty years ago as "exam giving institutions" (OECD, 1997; Raaheim, 2013), a large majority of courses still consist only of traditional lectures followed by a single high-stakes final exam. Recently, in a renewed effort to better prepare students to become professionals qualified to face the complexity of the 21st-century work environment, both the Ministry of Education and the University of Bergen have introduced new guidelines for pedagogical reform. One initiative has been the TALIDA (Teaching and Learning in the Digital Age) project, which has supported course redesign by introducing active learning and formative assessment methods. In this paper we outline our ongoing strategy for evaluating the redesign results, and discuss the preliminary findings.

[1] Isabela.Darcie@uib.no
[2] Robert.Gray@uib.no

2 The TALIDA project

Introduced in 2017, the TALIDA Project has supported the redesign of over thirty courses across all seven faculties at the University of Bergen. Most redesigns focused on the development of new assessment practices, favoring formative tasks that are shown to provide benchmarks of student progress and opportunities for instructors to adjust instruction (Hattie & Timperley 2007; Wiliam, 2011; Bigg & Tang, 2011). The participating instructors also worked towards implementing digital tools to drive student learning and engagement, researching their own teaching, and navigating the administrative regulations governing teaching and assessment at the university.

Each course was considered individually in order to acknowledge their different needs and objectives, as well as to account for the resources—both practical and financial—available in each case. Participants followed a series of steps to redesign their courses, from critically evaluating and reformulating the learning outcomes to developing new teaching and assessment methods that ensured students achieve those outcomes (Biggs, 2014). Instructors also participated in specialist workshops (on course design, student engagement, and assessment techniques) and had several informal opportunities to share ideas and give each other feedback (Gray & Nerheim, 2018)[3].

3 Research approach

Bearing in mind that each course had specific needs and goals, we decided that each instructor would be responsible for determining what success meant in their own courses and how to evaluate it. Nonetheless, in order to continue supporting the implementation of active learning methods and alternative assessment strategies across the university, we also sought to understand how the design of specific tasks influenced student engagement and learning. Therefore, we divided the project evaluation into two phases: (1) the collection of individual course evaluations presented by their main instructors, and (2) the evaluation of the quality of student engagement with course content.

3.1 Phase 1 — Instructors' experiences

We concluded the first phase in 2019 and are currently analyzing the data. Data was collected from individual interviews with the main instructors of each course. The interviews were designed to capture the instructors' experiences with the redesign process. Preliminary results show that students reported high rates of satisfaction with the courses and said they found value in the new methods employed. This seems to be corroborated by instructors reporting significant differences in quality from previous semesters where more traditional teaching and assessment methods were used, with most of them mentioning improved attendance, in-class participation, and performance. Several instructors said they made significant discoveries about teaching and learning and that the collective experience of participating in the project with other instructors created an environment of support and accountability that was crucial for their success.

3.2 Phase 2 — Applying new approaches

We will conduct the second phase in 2021, focusing on evaluating the quality of the interactions between students and the course content centered on the "writerly interactions" framework (Gray, 2019; Gray, 2017). This framework applies concepts from literary theorists such as Barthes (1974), Bakhtin (1981), and Eco (1989) to analyze the quality of teaching and learning processes by allowing us to reconceptualize courses as "texts", where meaning—in the form

[3] A more detailed description of the TALIDA project was the theme of a presentation at the previous ICED conference in 2018.

of textual, spoken, and visual significations—is co-constructed by instructors and students. Gray proposes that the student should participate actively in the construction of meaning through a process of (re)writing rather than passively "reading" the content proposed by the instructor. The instructor, therefore, should intentionally create opportunities for the student to construct and explore their own interpretations of the content being offered. As Gray (2019) puts it,

> *Meaningful interaction should involve a process of negotiation which leads to unanticipated, collectively achieved ends that depend at least as much on the creative input of the student as on the predetermined learning objectives or outcomes developed by the instructor.* (p. 475)

In applying this framework to evaluate the redesigned courses, we seek to identify the scope and degree of the students' interaction with course content and investigate how their grasp of the subject is affected by the newly introduced pedagogical strategies.

The data will consist of the course content (activities and formative assessment tasks), student-produced documentation (task responses and written reflections), and interviews with students. After identifying the opportunities for student creative input in the course content, we will examine the language used in the products of the corresponding activities (student-produced documentation) to determine the dialogical quality of the learning activities and how they connect to the courses' learning outcomes. We will interview students about their experiences to gain deeper understanding of their learning processes and experiences in transitioning from traditional to novel teaching and learning methods. We will also draw parallels between the interviews and the findings from the documentation analysis to investigate how the interviewees perceive and correlate their learning to the pedagogical strategies.

4 Discussion

Although the advantages of formative assessment have been well examined in higher education (Hattie & Timperley, 2007; Wiliam, 2011; Nicol & Macfarlane-Dick, 2006), the traditional summative exam is still prevalent in Norwegian higher education (Dysthe et al., 2016; Raaheim et al., 2018). This approach deprives learners and instructors of the opportunity to use assessment "as a mechanism to further enhance and consolidate learning" (Hattie & Timperley, 2007, p.104). Indeed, many instructors in the TALIDA project reported that implementing formative assessment in their courses has significantly impacted student learning. Not only did students become more "able to make stronger interdisciplinary connections and demonstrate more sophisticated thinking" (Gray & Nerheim, 2018, p. 16), but instructors were also able to benchmark student progress throughout the course and adjust instruction accordingly.

These preliminary results serve well the purposes of accountability and encourage the development of other similar projects within the University of Bergen—especially as they add to a growing body of research into the benefits of active learning and formative assessment in Norwegian higher education (Jeno et al., 2017; Egelandsdal & Krumsvik, 2017; Ludvigsen et al., 2020). However, there are still many obstacles to be addressed in order to enact sustainable change in assessment culture in Norway. For example, "top-heavy bureaucracy" (Gray & Nerheim, 2018, p. 19), as described by one participant, was a constant challenge in the course redesigns. In some cases, administrative barriers to education development completely prevented the implementation of the redesign. With the second phase of our research, we hope that exploring a new framework for evaluation will lead to fresh insights that can contribute to the development of solutions to lessen these hurdles.

5 Conclusion

The evaluation of future-ready teaching and assessment methods requires equally forward-looking paradigms and methodologies. Accordingly, as part of the TALIDA project we have proposed a framework for the evaluation of such methods that combines the direct input from instructors and students with the analysis of course structure and products of student learning. Our strategy focuses on assessing to what extent course design and implementation provide opportunities for students to actively contribute to the construction of meaning—a key element in better preparing students to tackle the complexity of the 21st-century work environment.

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ICED 2020 proceedings:

Moving from secrecy to transparency: Turning grade appeals into learning experiences

Vidar Gynnild[1]

Department of Education and Lifelong Learning, Norwegian University of Science and Technology (NTNU)
NO-7491 Trondheim, Norway

Abstract

Assessment lies at the heart of the student experience, and grades should be assigned fairly and reliably to the extent possible. Even though nobody would object to this goal, assessment and grading are never a straightforward process, because they require both theoretical insights and practical skills. Subjective judgment is necessary in most instances. Assessment standards are also hard to get to grips with, and not easily communicated to students. This paper draws on a case study of diverse appeals procedures at the University of Oslo involving thousands of students over a 10-year period. The frequency of appeals nearly doubled during the decade, and grades featured greater gaps once access to the originally assigned grades was denied. In conclusion, assessment standards are challenging concepts to deal with. This paper suggests interventions to turn appeals processes into positive learning opportunities.

1 Introduction

A great deal of research documents the importance of assessment in higher education (Brown & Knight, 1994; Rust, 2002; Sadler, 1987; Snyder, 1971). "Assessment" essentially implies judgments on the extent to which students' work meet appropriate standards, and it powerfully frames students' learning and what they achieve. Historically, teachers and examiners have been charged with assessment of students' work; however, transitions are underway to develop students' capacity to make judgments on their own and their peers' work. Since grades are high stakes, though, institutions have been reluctant to get students involved in exam types of grading while still acknowledging the role of assessment as a learning activity.

This study sheds light on students' opportunities to get engaged in grade appeals processes with an emphasis on their qualifications to do so. In Norway, students are free to appeal grades for any reason; this includes the right to challenge academic judgment. The process is digitized, simple and straightforward for students; however, it has led to a notable increase in appeals. A study conducted at the University of Oslo confirmed an annual growth in appeals of three to six per cent over the period from 2006 to 2017 (Gynnild, 2019), and there is no sign of a reversed trend. This is of course costly and time consuming, requiring considerable effort from appeals teams. Unfortunately it has led to little if any improved student learning.

Up until August 1 2014, universities and colleges in Norway were free to choose between two different appeals procedures: one in which the appeals committee enjoyed full access to the already assigned grade, and one in which access was denied. Proponents of both principles defended their practices by reference to fairness and reliability. Access to already assigned grades would equip the appeals committee with a reference point on which to base their new decision, while no access might prevent impacts from potentially flawed prior decisions.

[1] Vidar.Gynnild@ntnu.no

The national student union argued strongly in favour of a nationwide appeals framework with an expressed desire to keep appeals processes separate from already assigned grades and any associated correspondence. Concerns were related to fairness and objectivity rather than missing learning opportunities during the appeals process. “Blind” appeals emerged as a buzzword to express processes “uncontaminated” by potentially flawed prior judgments. Except for access to examiner guidelines and grade descriptions, appeals teams started from scratch to deal with the challenging task of judging achievement fairly, reliably and validly.

The introduction of “blind” appeals resulted in unexpected outcomes. The frequency of appeals increased, while inter-rater reliability decreased (Gynnild, 2019), and on average students earned grades to their disfavour. Some were left in a state of confusion, questioning reliability and consistency in grading. Students called for more transparency and opportunities to reflect and discuss the application of standards and criteria as part of the appeals process. This also motivated the current research question: *How can grade appeals be transformed from a state of secrecy to a more transparent process in which the respective student can be a partner?*

2 Theoretical approaches

Summative assessment aims to bring evidence of the extent to which learning outcomes have been achieved. *Formative assessment* typically provides feedback on students’ work during the semester, while *sustainable assessment* seeks to build students’ capacity to judge their own learning. The capacity to judge both one’s own work and that of others is an educational outcome of great importance, and this paper aims to explore how respective students can be included as partners at initial stages of appeals processes.

Currently, *summative assessment* is something done to the students rather than a learning opportunity. Candidates are given an explanation of grades on demand; however, this is not mandatory, and students are not granted opportunities to contest and change grades at this stage. The focus is typically on the examiner’s justification based on model answers, or written criteria that can be hard for students to get to grips with. Appeals can subsequently be filed with or without any prior explanation from the examiner. This simply requires the student to tick a box on a web page with no opportunity to further explain or argue the case.

In Norwegian higher education, *formative assessment* is typically ongoing and integral throughout the semester. This can be offered by teachers or learning assistants; however, in science and engineering feedback often ends up in procedural guidelines for correct answers. In social sciences and the humanities students receive holistic feedback without the use of rubrics, so opportunities to practice peer and co-assessment are limited, and standards remain as abstracts within the minds of the professors (Sadler, 2012). Assessment literacy is not yet acknowledged as a learning objective, and students gain little insight and practice in this area.

In *sustainable assessment*, standards are constituted and enacted by students and academics jointly. This offers an opportunity of exploring assessment standards in context, how they are negotiated and agreed among professionals. The idea of standards as stable reference points is challenged, and the focus is rather on learning and participation. Once students learn to identify high quality work, the expectation is that increased self-confidence will boost efforts because there is an end in sight with less need for external attention (Ajjawi, Bearman, & Boud, 2019).

In the remainder of the paper I will briefly outline how *sustainable assessment* can be enacted as a learning opportunity in appeals processes. I do not propose that students be involved in high stakes grading as a normal procedure, but wish to underscore opportunities to inculcate them with the theory and principles of assessment and help them to develop skills in this area.

3 Practical guidelines

These are my guidelines for students' participation based on *sustainable assessment:*

- Once grades are settled, students can ask for an explanation of the grade as a mandatory first step. This meeting serves the purposes of clarification and justification.
- If this does not satisfy the candidate, s/he can submit a written appeal arguing the case based on written materials, such as criteria, rubrics and examiner guidelines.
- The appeals panel enjoys full access to all data and documents to inform the case.
- The process is guided by values such as respect and mutual learning. The appeals panel considers all relevant information and makes a final decision to close the case.

4 Conclusion

A large-scale study at the University of Oslo supports the notion that students and examiners are in confusion when it comes to the application of standards in appeals processes. Higher education reforms have long strived to improve learning; however, appeals procedures still fall short of achieving that ambition. Counterproductive practices without student involvement have for years operated under the cover of fairness and objectivity. The propositions in this paper aim to criticise current practice, particularly highlighting the learning potential of appeals. Having students as co-creators of standards is probably the only way in which they can be active participants in rather than passive viewers of high stakes decisions. It is still important that guidelines become an integral part of learning activities, and that they do not emerge as a surprise in the event of an appeal.

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ICED 2020 proceedings:

Students helping students to provide valuable feedback on course evaluations

Adriana Signorini[1]

Centre for Engaged Teaching and Learning, University of California-Merced
5200 North Lake Rd
Merced, CA 95348, USA

Abstract

One of the purposes of the course evaluations or student evaluation of teaching (SET) tool is to help instructors enhance the teaching and learning experience in their courses. However, student feedback can often be more unconstructive than useful because students are usually asked to evaluate instruction with little or no formal training. The project described in this paper aims to improve the quality of student responses to open-ended questions by partnering with students who demonstrate to their peers the importance of SET and how to compose potent answers for instructors. For the project brief instructional videos were developed and delivered to over 23 classes before students completed the SET. A mixed methods approach was used to analyze the collected data. The study provides a future-ready professional development opportunity for students and faculty, and makes the rubric and videos available for other institutions to use.

1 Introduction

The University of California-Merced Center for Engaged Teaching and Learning opened in 2008, and started to sponsor the Students Assessing Teaching and Learning (SATAL) program soon afterwards. This is a student-faculty partnership program that engages undergraduates in assessment at the program and classroom level (Signorini & Pohan, 2019). The Students Helping Students project began in 2016, after receiving a POD Network grant to implement a peer-led presentation on the importance of the SET instrument and on how to leave detailed and useful feedback for instructors. Based on the positive impact of the preliminary phase of this project, as described in Signorini, Abuan, Panakkal, Dorantes (2019), the peer-led presentation was turned into a series of seven- and three-minute videos.

The investigators enlisted the participation of writing instructors, and SATAL undergraduate interns developed and recorded the instructional videos, which were delivered in the participating classrooms. To find out whether or not this initiative was successful, the following questions guided the study:

1. Does the usefulness of student feedback that students provide to their instructors on course evaluations or student evaluations of teaching (SET) improve after participating in a peer-led video presentation about SET?
2. Do students find the peer-led video presentation and the feedback rubric useful in composing potent responses for their instructors?

2 Literature review

The question of the validity of SET procedures and practices had led centers for teaching and learning (e.g., TEval), higher education associations (e.g., the American Association of

[1] asignorini@ucmerced.edu

University Professors) and many researchers to seek and design new tools to replace them since the mid-to-late 1990s (Berk, 2006, 2005; Clayson & Sheffet, 2006; Rhem, 2020; Wieman, 2015). However, it is clear that without a unified and strategic effort to achieve this, SET are here to stay. Fortunately, student-assisted teaching approaches that focus on how and why students learn (Barr, 1995) are becoming increasingly common across the globe.

Students have been included in pedagogical planning as "co-creators" of teaching approaches, course design, and curricula, and as pedagogical consultants (Bovill, Cook-Sather, & Felten, 2011; Cook-Sather, et al., 2019; Cook-Sather, Bovill, & Felten, 2014) and student ambassadors (Peseta, et al., 2016). More and more staff and faculty have also been engaging students as partners, which differs from just collecting the student perspective on pedagogical practices.

Research by Clayson (2009) and Price et al. (2010) suggests that instructors need to specifically teach students about the feedback process, why it is important, and how it is related to course evaluations. This is important not only for improving response rates but also for soliciting more thorough answers to the open-ended questions on SET. If instructors do it, it may on the one hand result in more actionable feedback from students, plus higher response rates. On the other hand, it also presents a clear ethical dilemma. If students are the agents who prepare other students for completing the SET, instructors should be able to expect more actionable responses that can be applied to significant course adjustments while also nurturing student abilities in assessment.

3 Methods

This study used a mixed method approach where quantitative and qualitative data were collected, analyzed separately, and reported in the results (Creswell and Creswell 2018). Undergraduates from the SATAL team developed and recorded seven- and three-minute videos on the importance of the SET instrument and on how to leave detailed and useful feedback for instructors using a rubric (see Appendix). The following table represents the study's implementation of the seven- and three-minute videos.

Group	Pre	Mid	Final
Semester(s)	Fall 2013 – Spring 2015	Fall 2018 – Spring 2019	Fall 2018 - Spring 2019
SET responses	205 (10 courses)	250 (13 courses)	112 (10 courses)
Peer-led video presentations	None shown	7-min video shown mid-semester	3-min video shown before final evaluations
SET timing	Final, online	Mid-semester, paper	Final, online

Table 1: Study timetable

The seven-minute video was delivered in 13 classes in AY 2018-2019, midway through the Fall 2018 and Spring 2019 semesters, and the three-minute video at the end of the Fall 2018 and Spring 2019 semesters, immediately before students completed the end-of-semester SET. The mid-semester SET were used for formative assessment only and comprised the "Mid" group. The "Final" group was composed of official SET completed online at the end of the Fall 2018 and Spring 2019 semesters. Students in their courses completed a Mid and a Final SET immediately after the video presentations. Mid SET were completed on paper, while Final SET were completed online.

A total of 567 SET responses were gathered from 33 writing classes taught by six volunteering instructors during the academic years 2013-2014 through to 2018-2019. The SET responses consisted of three open-ended questions from the official SET currently used by the writing program:

Q1. “How would you describe your writing ability now compared to the beginning of the semester?”

Q2. “Identify and evaluate aspects of this course that have been especially helpful to you.”

Q3. “Describe aspects of this course that you would change if you had the opportunity.”

SET collected from 10 classes prior to AY 2018-2019 were used as controls (the “Pre” group). Participating faculty defined helpful feedback and designed a rubric accordingly (Appendix).

Faculty underwent a norming session prior to rating the quality of student responses to these questions in their own SET as “H” (highly useful), “S” (somewhat useful), or “N” (not useful). Courses were matched across groups; each instructor submitted rated SET for at least two sections of a given course in the Pre group and another two in either the Mid and/or Final groups. Each section included up to 20 students.

Data were analyzed for group differences in the quality of feedback provided, in aggregate and by question and course division (upper or lower). Pearson’s chi-square or Fisher’s exact test were used to calculate significance as appropriate. A bias-corrected form of Cramer’s V was used to calculate effect size from frequencies.

To assess net change in feedback quality, scored sums were calculated by weighting responses such that highly useful responses ranged from 70-100% useful, somewhat useful from 1-69%, and not useful as 0%. H responses were weighted at 0.85, S responses at 0.35, and N responses at -0.2.

Findings were robust to a wide range of weights, of which the weights above represent the mean. The negative weight of N responses represents the negative utility of reading and sorting through SET that provide no actionable feedback. The percent change in scores was used to measure effect size.

Participating faculty and students’ perceptions of the experience were collected through post surveys.

4 Results

SET improved on all questions from Pre to Mid based on aggregated data. However, controlling for class division[2] reveals that this improvement was not uniform. Class division was a highly significant and moderately strong predictor of feedback quality, with upper division[²] students providing more useful feedback ($p < .001$, $V = .212$). Additionally, upper division students’ SET improved significantly from Pre to Final ($p < .001$, $V = .424$), but not from Pre to Mid, except on Q3, where they improved moderately ($p < .027$, $V = .242$).

Lower division[³] students improved slightly from Pre to Mid on Q1 and Q2, but not from Pre to Final on any of the questions or in aggregate. Their responses did not improve on Q3 in either the Mid or Final conditions.

A total of 276 students, or 70%, rated the video as highly effective and effective. Upper and lower division students rated their skill development equally. However, only students in UD courses performed better in their SET responses. Most of the students found the provided rubric useful (88%, or 345 students).

[2] Class division stands for the student standing year. [²]Upper division students stands for year 3 and 4 students while [³]lower division students stands for year 1 and 2 students at a 4-year institution.

Most students (318, or 81%) recommend that the video be delivered in other courses. A total of 174 students, or 44%, mentioned that they prefer a peer-led video to a faculty-led video, while 86, or 22%, have no preference in this regard.

Based on the faculty survey results, participating faculty would recommend the video to other instructors, and upon analyzing students' comments, faculty identified concrete ways to enhance their courses for content and instruction.

5 Implications

- The peer-led video is a very effective training tool as-is when administered in UD courses just before final course evaluations.
- UD students have been exposed to more college teaching, and thus to a greater variety of course structures and activities. This could explain the exceptionally large difference in feedback quality between UD and LD students on Q3, which is the only question that requires students to draw upon experiences from outside the course. Q3 could be revised for LD students in the future.
- The difference in treatment response between divisions may be because the video gives them a mental model to integrate skills and knowledge that UD students already possess. However, LD students may not possess the same foundation and thus would not show the same improvement. Tailoring the video to LD students might elicit more useful feedback from them.
- Multiple exposures to the video content may improve feedback from LD students, since it models good examples for them to follow.
- Peers could be significantly more effective at helping fellow students understand the purpose of SET and why it is essential to complete them and compose thoughtful answers to open-ended questions – and therefore potentially improve the validity of SET.
- Faculty agreed that the study recognizes students' role in the SET process in achieving more quality and useful answers to open-ended questions.

6 Conclusions

This project not only benefited faculty, who gathered actionable feedback to adjust their courses, but also the students in their classes, who received direct instruction on how to provide valuable course feedback. Presentation feedback surveys and course evaluation responses show that this presentation was, overall, highly successful in explaining to students the importance of course evaluations and in demonstrating how to compose useful quality feedback. The intervention indicated that responding to SET is a skill that needs to be modelled and explicitly taught by peers rather than instructors through examples, practice and repetition. Other institutions are welcome to implement these free asynchronous resources, which are located at https://cetl.ucmerced.edu/SATAL_Video.

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Appendix: Rubrics

Instructors collected and rated the usefulness of student comments according to the following criteria:

Highly Useful	I clearly understand the experience the student is having, what I am doing well, or what I could do better. I know what I should continue doing in this class, and exactly what I can do to improve my course and/or instruction. Any improvements that need to be made are plausible and are within my control.
Somewhat Useful	I have a general or vague idea of what is going well or what I should change to improve my course, but it is not completely clear. I can make a change to my course or instruction, but I may not get the result this student is looking for. I may not have the ability to completely make this change.
Not Useful	I don't know what I can do to improve my course at all based on this answer. It tells me nothing about my class or pedagogy. I can't tell if the student is having a positive learning experience or negative experience, and/or exactly why. I have no control over making this change.
0	No response.

Students receiving feedback training were given the following instructions and rubric:

You are welcome to address any aspect of the course you wish, but I would particularly appreciate your feedback about the following:

- Giving and attending to feedback
- Analyzing readings
- Developing a topic
- Composing an argument and integrating evidence
- Crafting an essay

How to Provide Valuable Feedback on Course Evaluations

	Criteria	Highly Useful	Somewhat Useful	Not Useful
1.	Offer commentary on attributes of the learning environment.	"I find the instructor very caring and that motivates me to try harder in this class"	"The instructor cares about my learning."	"My instructor's hair is cool."
2.	Answer all parts of the question focusing on description rather than judgment.	"My writing ability now is better than at the beginning because now I am more confident in my work and writing based on the feedback I received from instructor and peers."	"It improved a lot. I noticed that my critical thinking ability has improved a lot."	"Hard class."
3.	Attribute positive or constructive feedback to specific aspects of the course. Use examples that support your answer to the question.	"Before this class I was every unsure on how to do a research paper, now that I have taken the class I am more confident in my writing skills. I understand how to format a research paper correctly and how to follow MLA."	"Instructor sometimes describes things unclearly, but I always ask questions if I am confused about anything."	"Research projects are stressful"
4.	Focus on the course and the quality of instruction given regarding the course learning outcomes.	"I loved the projects, in particular group discussions were very important to understand the readings."	"Peer review, presenting, and office hours helped me with learning."	"I wish that Cat Courses told us when assignments are due"
5.	Offer suggestions that are relevant and plausible to the course or instruction and why you think they would help your learning.	"If I had the opportunity, I would include more journal writings or just open ended writing assignments so students could grow more."	"I wouldn't change anything."	"This class is too early."

Future-ready disciplines and curricula

The growth of knowledge is exponential and technology is developing rapidly and radically. How do we ensure that curricula remain relevant and responsive to contextual challenges and to student needs? How do we best work to decolonise western-centric curricula and integrate ways of knowing and learning from the Global South? How do we embed a necessary critique of existing power relations that restrict opportunity and potential? What competences do future graduates need and how do we anticipate these? How do we prepare graduates to be future-ready in a constantly changing digital world, and for the challenges of artificial intelligence?

ICED 2020 proceedings:

Future proofing assessment: Using a design thinking approach to embed graduate qualities in a time of change

Luce Abrate[1]

Sydney Business School, University of Sydney
Sydney, Australia

Karen Garlan[2], **Graham Hendry**[3], **Corinne Caillaud**[4]

Sydney School of Health Sciences, Faculty of Medicine and Health, University of Sydney
Sydney, Australia

Abstract

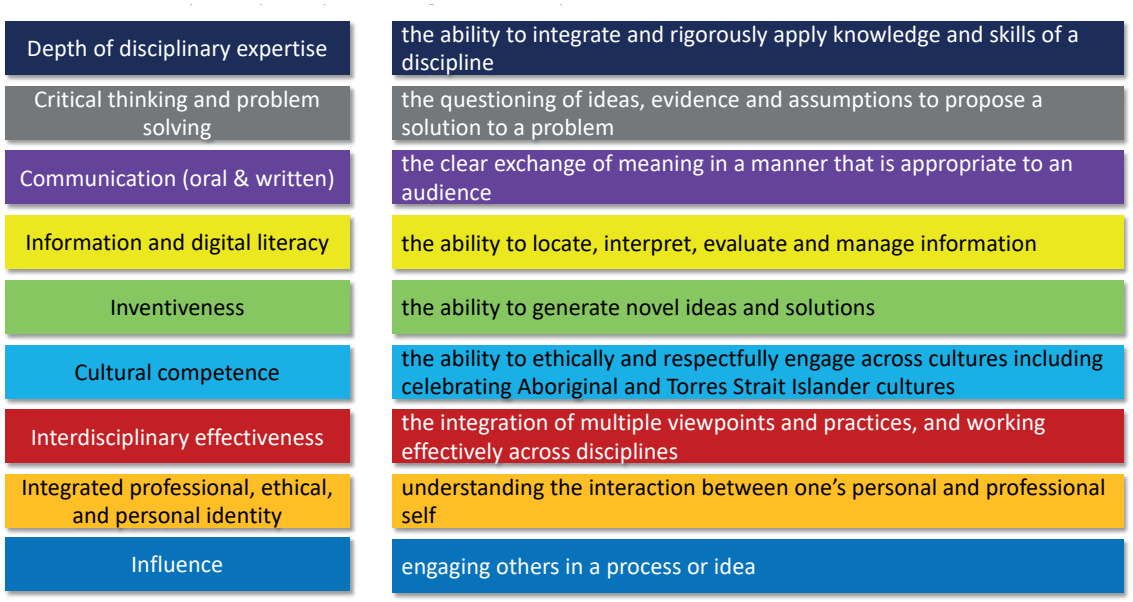
Many universities say they embed employability skills, or "graduate qualities", in their curricula but the University of Sydney has committed to *assessing* students' development of nine graduate qualities to guarantee their achievement and students' job-readiness. Within the School of Health Sciences at the University, we have taken a design thinking approach to support staff in embedding these graduate qualities in their teaching and learning. A key step in our approach has been to establish a blog with student partners in which they share their interpretations of the value of the graduate qualities for their future careers. From our analysis of key ideas in students' posts we suggest new types of assessment that will help develop and measure their graduate qualities.

1 Introduction

While embedding graduate qualities in course curricula is not a first for Australian universities, assessing the development of such qualities is a new and ambitious objective for the University of Sydney. Figure 1 lists the nine qualities, with brief definitions. Our goal in the School of Health Sciences has been to engage with multiple stakeholders through a *design thinking approach* (Brown, 2008; Willness & Bruni-Bossio, 2017), which involves empathising with and understanding what it is staff and students need, and taking innovative steps in designing assessments to meet these needs and achieve the university's objective. A key initiative we have taken is to establish a "students-as-partners" (Cook-Sather, Bovill & Felten, 2014) blog[5] to capture students' perceptions of the graduate qualities and raise awareness of these qualities among all students and staff.

In this short article, we focus on how our students interpret the value of the university's graduate qualities. Based on students' interpretations, we conclude with brief suggestions for types of assessment that we believe will develop these qualities in relation to students' chosen careers.

[1] luce.abrate@sydney.edu.au
[2] karen.garlan@sydney.edu.au
[3] graham.hendry@sydney.edu.au
[4] corinne.caillaud@sydney.edu.au
[5] A link to the blog can be provided upon request.



Source: https://www.sydney.edu.au/students/graduate-qualities.html

Figure 1: University of Sydney graduate qualities, with brief definitions

2 Health professional students' blog

2.1 Context of students' posts

During 2018 students in the School of Health Sciences were invited to choose *two* of the nine graduate qualities and contribute posts to a blog about the value of these qualities for their future professional careers. To help students reflect on their chosen qualities, they were also prompted to informally interview a practitioner in their discipline about the practitioner's views of the same qualities. The resulting posts combined students' personal views with what they learned from their informal interviews. At the time of writing, a total of 15 students from across five courses (Health Sciences and Nursing, Medical Imaging Science, Occupational Therapy, Physiotherapy and Speech Pathology) have made at least two posts and uploaded one short video explaining their interpretations. The combined length of all posts totals around 15,000 words. Three of us (LA, KG and GH) independently analysed all posts to identify and summarise key ideas.

2.2 Summary of key ideas in students' posts

The first key idea is that students believe it is important to build rapport and trust with patients, so that patients *feel motivated and willing to collaborate and participate in their healthcare*. Students thought that developing Communication, Cultural Competence, an Integrated Professional, Ethical and Personal Identity, and Influence all related to this goal. By developing Communication and Influence students could explain patients' healthcare to them without using jargon, for patients to "take better control" of their health outcomes. Students also thought that developing Cultural Competence was necessary to communicate well with and influence their patients and build trust. Students believed that by becoming aware of their own attitudes, values and beliefs they could develop respect for and be able to adapt to a patient's unique attitudes, values and beliefs in relation to healthcare. This ability to build trust also related to students' development of an Integrated Professional, Ethical and Personal Identity, which they perceived as enabling them to apply values and standards of their profession, and behave ethically, while also expressing their own empathic personal style.

The second key idea is that students believe it is important to take a *respectful, holistic team approach* to patient care. This goal is also related to Communication and Influence, and also

to Interdisciplinary Effectiveness. By developing Communication and Influence, students could convey information accurately to engage with, and tactfully advise, other health professionals about both goals for treatment and patients' unique values and preferences. Students also thought it important to respect other health professionals' expertise, and recognise how it complements student's own knowledge and skills in a holistic way, in order for patients to receive the best possible care from the whole team.

A third key idea is that students believe in *the importance of patients' uniqueness*. This meant that students thought developing the graduate qualities of Inventiveness, and Critical Thinking and Problem Solving, were important for them to be able to create personalised plans to cater to individual patient preferences, interests and situations. By developing their problem-solving, students could use their depth of disciplinary expertise to adapt in flexible ways to individual patients' needs. Students firmly believed that personalising treatment motivates patients to engage with their healthcare plans. Students also thought that being inventive meant being able to anticipate future problems and take a holistic approach to patient care.

Finally, students thought that Information and Digital Literacy related to taking a team approach to patient care, and is about using technology in beneficial ways, e.g., by accessing research databases to find the latest clinical evidence and digital record systems to efficiently manage patient information. Being information and digitally literate also meant being able to use technology in innovative ways to cater to patients' uniqueness, e.g., by using a video to educate a patient about their condition. Students were less forthcoming about depth of disciplinary expertise (only one student has so far made a post about this), and may have taken this quality for granted.

3 Conclusions

In this brief article we have summarised how health professional students have interpreted the value of the university's graduate qualities for their future careers. A key finding is that students perceive *integrated combinations of graduate qualities* as being valuable in relation to three key goals in healthcare. These goals are to build patients' trust and collaboration in their healthcare, and for health professionals to take a holistic approach that caters to patients' uniqueness.

We believe the integrated combinations of qualities perceived by students should be reflected in the design of assessment tasks that will help students develop the qualities, and so make them more employable. These tasks could be undertaken in the university setting and help prepare students for learning through experience in work-integrated placements. For example, to develop Communication, Cultural Competence, an Integrated Professional, Ethical and Personal Identity, and Influence, students could *create a short video* to educate patients from a particular cultural background about their healthcare for a condition of the students' choice. To develop Communication, Cultural Competence, and Influence students could *design scenarios and questions for written or performance exams*, about attitudes, values and beliefs in relation to healthcare, for peers to tackle and respond to. To develop their Integrated Professional, Ethical and Personal Identity, as well as their skills in Communication and Influence, students could *make an oral presentation* to peers about how they would apply ethical values and standards and express empathy in response to a real-world ethical dilemma. To develop their Communication, Influence, and Interdisciplinary Effectiveness, students could *create a video or website* for their peers or a lay audience about their own and other health professionals' goals for patient treatment in relation to a particular patient or client scenario. Finally, to develop their Inventiveness, and Critical Thinking and Problem Solving, students could *create a healthcare plan*, e.g., a home modifications plan in Occupational Therapy or an exercise programme in Physiotherapy, to cater to a client's preferences and/or situation. Peers and practitioners could also rate these plans for their potential to motivate and engage real patients.

In conclusion, our "students-as-partners" blog has captured students' views and interpretations of the value of the university's graduate qualities for their future careers. These perceptions and interpretations have enabled us to begin designing course assessments that will help students achieve their graduate qualities in valid ways to enhance their employability.

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ICED 2020 proceedings:

Redesigning the BSc. in tourism of HES-SO Valais-Wallis to address the future challenges of the touristic economy

Dominique Fumeaux[1], Alain Imboden[2]

School of management, HES-SO Valais-Wallis
3960 Sierre, Switzerland

Abstract

Since 2018, the University of Applied Sciences HES-SO Valais Wallis has been working on the development of a new undergraduate degree in tourism with professional fields of competency as its main structuring principle. Its design relies on competency-based learning outcomes, an integrated assessment strategy, a digital portfolio of competencies, the embedment of soft skills throughout the program and the adoption of applied summative assessments in third-year modules.

1 Introduction

Tourism is one of the fastest growing industries worldwide and there is no sign this trend will change anytime soon (OECD, 2018). Tourism is also highly exposed to disruption and digitalization and is thus in constant transformation. Tourism education has therefore to embrace this evolution in order to remain relevant (Deloitte, 2018; Rennfors, 2017; UNWTO, 2019; WEF, 2018). In this context, in 2018 the University of Applied Sciences of Western Switzerland initiated the development of a new competency-based Bachelor's degree in tourism that is to be offered for the first time in September 2020.

The question leading this development has been how to design a curriculum which enables students to develop the competencies required to be competent as future tourism professionals while also allowing them to construct profiles and expertise based on their motivations and interests.

If the approach of structuring degrees around competencies in order to improve the employability of graduates is well covered in the literature, its application to specific professional fields like tourism is far less discussed (Blömeke, Zlatkin-Troitschanskaia, Kuhn, & Fege, 2013; Cecil & Krohn, 2012; Dragoo & Barrows, 2016). The aim of our institution was therefore to document the development of this new curriculum, the challenges encountered along the way and the application of key principles guiding this development. The overall approach in defining this new curriculum has been co-creative, involving internal and external stakeholders at different stages of its design.

In order to prepare our graduates for the tourism industry of tomorrow, profiles of future tourism professionals and fields of competency were defined based on data collected by survey between June and July 2018. This survey was distributed to alumni as well as a panel of around 60 participants composed of Swiss and international tourism scholars, industry professionals and higher education experts. These profiles and fields of competency became the backbones of the new program. Their integration into the curriculum was coordinated by both module and competency leaders working together to insure consistency across the

[1] Dominique.Fumeaux@hevs.ch
[2] Alain.Imboden@hevs.ch

degree. The 13 fields of competency incorporated into the new program as well as the approach and principles adopted to undertake its development are presented next.

2 Developmental approach and key structuring principles

The mission of a university of applied sciences is to support students in developing professional competencies in order to ensure high employability and professional success. Universities of applied sciences also strive to maintain a close relationship with industry by undertaking applied research and offering study programs which respond closely to the needs of the labor market.

The development of a new Bachelor's degree program in tourism adhered closely to this mission by relying on 13 fields of competency, co-defined by scholars and industry professionals, and around which modules and learning outcomes were designed. As the institution was developing a program around competencies for the first time, a few principles were adopted to guide the process and are presented next.

2.1 Defining competency-based learning outcomes

The 13 fields of competency that were developed throughout the new program are:

- Tourism
- Finance
- Digitalization
- Marketing
- Management
- Communication
- Sustainability
- Languages
- Entrepreneurship
- Soft skills (emotional intelligence-leadership-cognitive flexibility
- Polity and society

Based on these 13 fields of competency, a designated group of professors and academic staff representatives defined module titles and their respective ECTS credit allocations using data on skills and activities collected by survey. They also determined the fields of competency to be included in each module. The result of this work indicated for each module what fields of competency were to be included, their respective weight and the type of learning to provide (acquisition / application / analysis & creation), as per the example below:

Introduction to Management (6 ECTS credits)

Fields of competency developed:

- Management (Mgt) 40%
- Soft Skills (Ss) 40%
- Digitalization (D) 10%
- Sustainability (S) 10%

Type of learning:

- Acquisition 95%
- Application 5%

The next design phase involved the nomination of module and competency leaders who would lead the elaboration of learning outcomes, module descriptions, assessment strategy and (later on) schemes of work. The main challenge of this phase was to move away from subject-oriented learning outcomes to instead formulate them as components of competencies to be acquired and assessed. For the module *Introduction to Management* given as an example above*,* this produced the following learning outcomes:

- Mgt1: Understand the role of management in a corporate system.
- Mgt2: Acquire the basic concepts of the functional structures of a corporate system.
- Mgt3: Understand the market concept in relation to the company, the competition and the suppliers.

- Mgt4: Classify management approaches based on different business models.
- Ss1: Know the main concepts and ideas related to terms such as multiple intelligences, knowledge, know-how, social competence and skills.
- Ss2: Know the personality types and the challenges and principles related to group dynamics.
- Ss3: Follow a personal program to develop a social competence related skill using the e-portfolio.
- D1: Describe the impact of the digital transformation on corporate management.
- S1: Define the term Corporate Social Responsibility (CSR).

As learning outcomes were progressively defined, a matrix of learning outcomes was generated in order to insure their complementarity per semester of study (horizontal coherency) as well as throughout the program (vertical coherency). This matrix would become essential to keep track of how the 13 fields of competency were incorporated across modules, to review their complementarity and to avoid any overlap or duplication.

2.2 Adopting an integrated assessment strategy

Another principle structuring the design of the program was the adoption of an integrated assessment strategy where in each module all competency-based learning outcomes would be incorporated into a unique assessment. Here as well, the challenge was to move away from an assessment per subject or theme to instead assess how competencies would be developed in combination with each other in a module.

2.3 Implementing an e-portfolio of competencies

Because the purpose of the program is to develop professional competencies, keeping track of how students are acquiring and mastering them is essential. Therefore, new students will be introduced to a digital platform called an “e-portfolio” that will enable them to monitor and reflect upon the development of their competencies while enrolled in the program. The e-portfolio will also serve as a tool for faculty to assess this development (see the learning outcome of Ss3 in Section 2.1 as an example).

2.4 Developing soft skills and linguistic flexibility

The importance of soft skills and languages for tourism professionals is undeniable (Rennfors, 2017; UNWTO, 2019). The presence of soft skills in the program was therefore emphasized and articulated around three dimensions: emotional intelligence, leadership and cognitive flexibility. These dimensions were translated into learning outcomes embedded in a series of modules throughout the program. As the program would be delivered in 3 languages (French/German/English), cognitive flexibility was coupled with linguistic flexibility to design language modules in which students with different mother tongues would be working together on tasks specifically defined to practice and assess such skills.

2.5 Embedding applied projects and external collaborations

While the program it replaces had an internship semester, the new Bachelor’s degree in tourism does not and will instead embed as assessments applied projects tied to external private or public partnerships in all third-year modules. This principle was adopted to allow more rigorous supervision of how competencies are developed in a professional context. It will also better support students’ learning of how to analyze and create within the defined framework of an applied project using skills acquired during their studies.

3 Conclusion

As mentioned in the introduction, the new undergraduate program in tourism is to welcome its first students in September 2020. To ensure its successful implementation, module and competency leaders will play an essential role in listening to students and peers during the semesters to come. Through its design and the principles it relies upon, this new program represents an important change in how faculty approach their teaching, in how students should be assessed and in how these students will learn and grow. While it will be regularly reviewed, the outcome of this process will ultimately become clearer as students graduate and start their careers in the tourism industry. Their level of professional success and their feedback to our institution will then become precious indicators of the relevancy of our new degree.

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ICED 2020 proceedings:

Exploring future work processes – Conclusions from an interdisciplinary project in Building Information Modeling

Jonas Lilienthal[1], Ines Sonnenschein[2]

Wandelwerk. Center for Quality Development at FH Münster University of Applied Sciences
Johann-Krane-Weg 21
48149 Münster, Germany

Abstract

In an iterative design process, a new interdisciplinary module prototyping digital workflows in the area of Building Information Modeling was created. The process, accompanied by academic developers, followed the design-based research approach and used a multi-method-evaluation design. Based on the data obtained, core elements and the key difficulties of interdisciplinary collaboration in educational settings are described in a heuristic model illustrating the interplay of challenges and learning potentials in three dimensions of two levels each. Although limited by the sample size, the model might be used (and further tested) for the development and monitoring of digitally supported interdisciplinary cooperation projects in higher education.

1. What do we aim for? / Background of the project

The environments we live and work in are subject to massive changes. Future graduates will operate in conditions that are more dynamic, less predictable, more complex and harder to analyse. These developments need to be reflected in the competence profiles our educational institutions focus on. Research highlights “collaboration, communication, ICT literacy [as well as] social and / or cultural skills [and] citizenship” as commonality of different approaches to future-ready curricula, but identifies gaps in implementation and practice (Voogt & Roblin, 2012, p. 309). One way of fostering such a set of competences is to address real-world problems with digital tools using an interdisciplinary and project-based approach (Harth, 2019). However, interdisciplinary research and teaching at higher education institutions is still far from mainstream as it opposes the disciplinary creation and transmission of knowledge (Frodemann, 2017).

FH Münster University of Applied Sciences has therefore set the goal of counteracting this gap with the help of Wandelwerk, Center for Quality Development, which has helped to initiate and support more than one hundred teaching development projects.[3] The project described here prototypes a new educational approach to developing competences needed in the field of Building Information Modeling (BIM). BIM is an approach for representing the planning, construction and operation of buildings digitally and thus enhances cooperation across different processes and professions (Pilling, 2009). Even though the field is developing dynamically, a gap between vision and implementation persists (Miettinen & Paavola, 2014).

[1] jonas.lilienthal@fh-muenster.de, +49 251 83 64131, https://www.fh-muenster.de/wandelwerk/
[2] ines.sonnenschein@fh-muenster.de, +49 251 83 64166, https://www.fh-muenster.de/wandelwerk/
[3] The project “Wandel bewegt 2.0” is funded by the Federal Ministry of Education and Research under the support code 01PL16069. The responsibility for the content of this publication rests with the authors.

The aim of the project "BIM interdisziplinär" is to address both the potentials and the difficulties of interdisciplinary project-based learning with digital tools by developing and implementing a seminar located at the interfaces between architecture, building sciences, construction management and structural engineering (Strotmann, 2019).

2. How did we proceed? Concept and evaluation

As academic developers, we supported senior lecturers from different departments in developing and implementing their innovative educational concept. In an iterative process and following the Design Based Research (DBR) approach (The Design-Based Research Collective 2003), we provided theory-based input and evaluation. Using a mixed-method design, we aimed at investigating the potentials and challenges presented by the more open and more interdisciplinary educational approach developed in the project.

2.1. Course design

The course was implemented as an elective module in the Master's programs of the departments of architecture, building sciences, construction management and structural engineering. The learning outcomes encompass the competences needed for interdisciplinary work in BIM, the handling of digital tools and their interfaces in the BIM process, and the general openness employed in this exploratory approach. The course itself consists of three phases:

1. Understanding the challenge and team-building
2. Project work and knowledge acquisition
3. Presentation and documentation of solutions

During the first phase teams of four to six students were created and briefed on the challenge; they then started from scratch to create building outlines. In the second phase the weekly four-hour course was used to introduce the basics of all three disciplines involved in the task and for reports by practitioners from the different professions on their experiences with BIM and the digital tools used in the process. The teams also conducted three interim presentations aiming at feedback, knowledge exchange between the teams and support regarding problems. Based on this feedback they started the third phase, where they had to prepare and conduct a final presentation and hand in a project report.

2.2. Data acquisition and evaluation

Following DBR, we provided theory-based input beginning with the concept development and evaluated the educational concept iteratively. We collected data in two cycles. To support course development we gathered feedback from the students mid-term on what helps and what hinders their learning (Snooks, Neeley & Williamson, 2004) and used problem-centred (group) interviews (Witzel, 2012) for insights into collaborative processes. Finally, we piloted end employed a standardised questionnaire focusing on the collaborative process and competence development pre- and post-test.

Table 1: Dataset – Overview

	Iteration I	**Iteration II**
Students in mid-term evaluation	n = 28	n =23
Students in (group) interviews	n = 4	n = 3
Pre- and post-questionnaire	n=18	n=15

In both iterations, we directly discussed the mid-term evaluation with the lecturers to allow adjustment of single aspects even during the semester. Additionally, we analysed results from all instruments and derived implications for the educational concept together at the end of each term. Comparing these results with literature and other projects, we identified typical challenges presented by interdisciplinary, open-ended courses.

3. What did we learn? Results

Overall, the data indicates the educational potential of a course design that fosters students' future-readiness through digitally supported, interdisciplinary collaboration in an open setting where no pre-defined process or solution exists. On a more detailed level, we derived aspects for designing educational settings which focus on digitally supported, interdisciplinary collaboration. Based on the qualitative and quantitative data we constructed a heuristic model to present typical challenges and the resulting potentials for competence development in different dimensions, each consisting of an individual and a collaborative level.

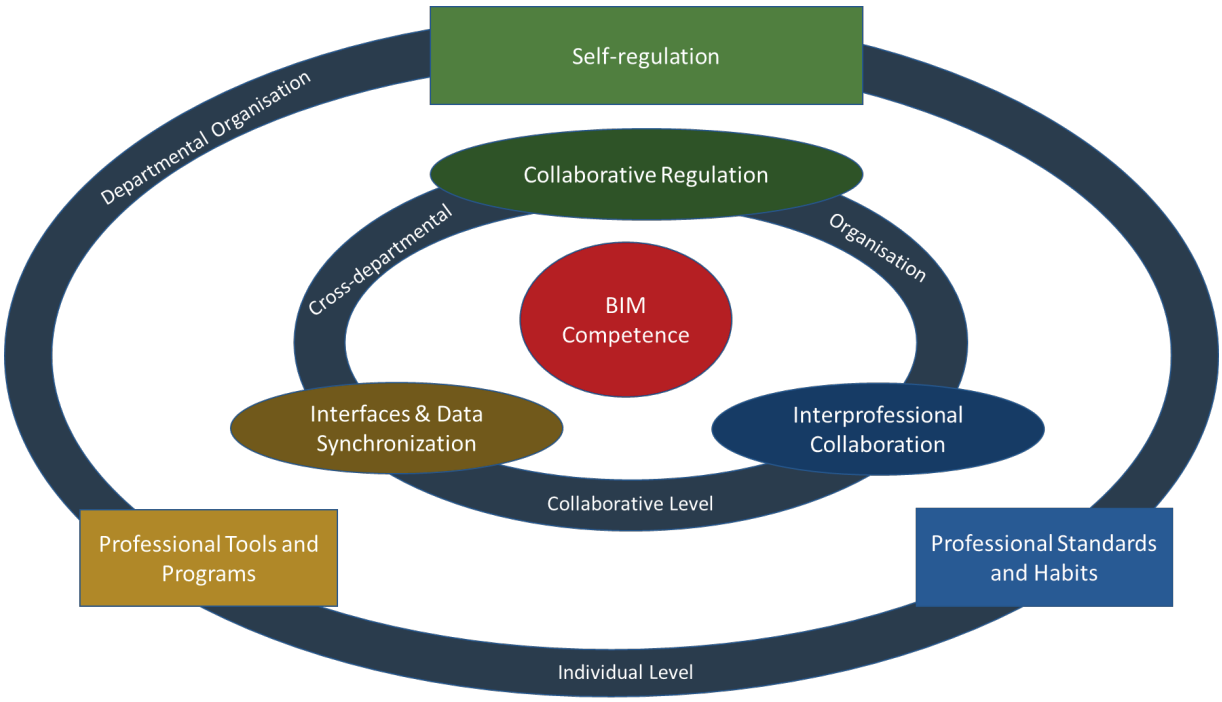

Figure 1: Challenges in different dimensions

3.1. Departmental and cross-departmental organisation

A foundational dimension is organisation, because the department needs to integrate the new module into its programme. On a second level, interdepartmental conflicts need to be solved. Here, finding a common window in the educational schedules of the students and lecturers was challenging.

3.2. Professional standards and interprofessional cooperation

The first dimension relevant for competence development involves standards and habits. On a first level, each student had to adhere to the professional standards of his or her discipline, for example aesthetic aspects in architecture. On a second level, they were challenged to collaborate in a less defined area. Becoming familiar with the other professions, their methods and their ways of thinking was regarded as the most important learning outcome across all instruments, but a closer look into the interviews and group discussions revealed few examples of collaboration. Mostly work was clearly divided cooperatively.

3.3. Professional tools & programs and interfaces & data synchronisation

The second dimension describes challenges resulting from the digital tools used in the collaborative process. First, each student worked with his or her own professional tools, but then the different digital tools needed to communicate and exchange data. Students felt that prototyping and troubleshooting these processes while managing the project timeline was a great challenge and learning opportunity.

3.4. Self-regulation and collaborative regulation

Regulation, as the third dimension, relates to the other two. On a first level, students needed good self-regulatory skills to monitor and sustain their workflow in an intense project. On a second level, they encountered collaborative challenges requiring regulatory processes of the group to deal with upcoming interindividual, cross-disciplinary and / or technical challenges. The interviews again provided insights into different patterns and roles developed by the students. The lecturers acted as role models by demonstrating constructive patterns and roles they had previously experienced in research and projects.

4. Summary and discussion

The DBR approach enabled us to generate deeper insights into the challenges, potentials and developmental processes of digitally supported interdisciplinary cooperation in higher education. Even though sample size was limited to one project, we were able to construct a heuristic model by using a mixed-methods approach and comparing our findings with theory and experiences from other projects. The approach may be used in other educational scenarios implementing digitally supported interdisciplinary cooperation. To stabilize the model and its components more empirical saturation is needed, meaning a more systematic comparison with other cases as well as literature.

One side effect of the evaluation was that during the interviews students reflected on their experiences of interdisciplinary cooperation spontaneously and drew new conclusions. Consequently, we propose including similar prompts for reflection in interdisciplinary modules to support student learning.

Overall, the heuristic model indicates a key risk: the number of challenges in different dimensions and on different levels can overburden students and frustrate educators. Digitalisation is an important aspect of future-readiness for interdisciplinary cooperation, but dealing with this dimension can take up so much space that not enough is left for the development of reflected interdisciplinary cooperation.

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ICED 2020 proceedings:

Towards an integrated support policy based on connected curricula and blended learning

Sylke Vandercruysse

Educational Development & Technology Unit, VIVES University of Applied Sciences
Doorniksesteensweg 145
8500 Kortrijk, Belgium

Lies Demeulenaere

Educational Development, VIVES University of Applied Sciences
Doorniksesteensweg 145
8500 Kortrijk, Belgium

Abstract

VIVES University of Applied Sciences is striving for future-oriented education. Students are prepared for the professions of tomorrow by confronting them with the complexity they will have to face as professionals. “Connected curriculum” and “blended learning” are the two central educational concepts that shape this ambition. Both are confirmed in the educational policy plan of VIVES and are supported and stimulated in policy terms. In this article, we will elaborate on both concepts and explain how an integrated support policy was elaborated based on them.

1 Connected curriculum and blended learning

“*Connected curriculum*” is defined more broadly than usually is the case. In addition to striving for connection between learning content and teaching methods (e.g., Perkins, 1993) and how education and research can be integrated within each other (UCL, Young & Perović, 2016), VIVES attaches importance to connections within the institution itself, with the professional field and with society. Hence, we strive for strong connections among all crucial actors in higher education. This strengthens and enriches the learning environment, for example through activities in the professional field, in an international or interdisciplinary context.

The “*blended learning”* approach is defined in VIVES as “integration of on- and off-campus learning activities and a learning goal-oriented use of educational technology with a focus on active student-centred learning environments.” The didactic focus is that teachers, depending on the learning objectives, integrate both face-to-face and distance moments in order to optimize learning activities and evaluation. There is no “ideal blend”. A learning goal-oriented approach is always paramount. As a result, different interpretations of a blended learning environment are possible (see Figure 1).

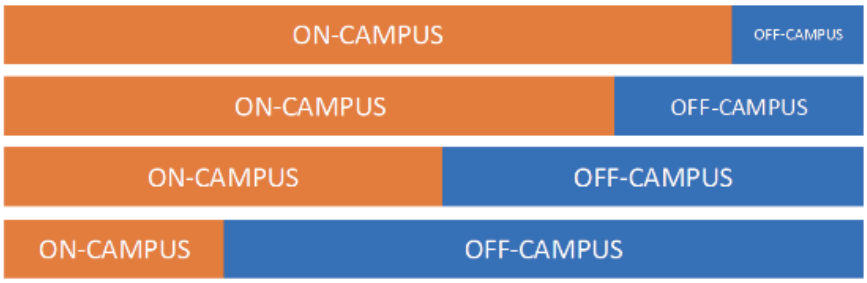

Figure 1: Different approaches of a blended learning environment

2 Professionalization as leverage

The educational concepts connected curriculum and blended learning are both included in the policy plan of the VIVES university of applied sciences. The educational developers of the institution support teachers (teams) in implementing the policy plan. Educational developers within VIVES are therefore strongly committed to mobilizing and supporting teachers in developing blended learning environments. The challenge is to find a specific and easily accessible way to reach as many teachers as possible, from innovators and early adopters to laggards (Rogers, 1995). Hence, in implementing educational innovation there are various groups of teachers with different characteristics, which means that they implement the innovation at a different pace (cf. the "diffusion of innovations" theory, Rogers, 1995). Designing blended learning environments is not easy for "the late majority" or for "the laggards" (Rogers, 1995) among the teachers. Many questions arise when (re)designing a course unit, for example: Which technology or tools are available? How can I implement them and what can they be used for? Do I still achieve the goals of my course?

When giving support to teachers, it is important to focus not only on the what and how, but also on the why (Last, 2019). Teachers need to understand the added value of blended learning and of the learning-goal-oriented use of educational technology. Instead of introducing blended learning as something that replaces current teaching methods, it is important for teachers to realize that blended learning is something that can strengthen and support their current teaching practice. This awareness is essential if teachers are to break away from routines.

It is important that teachers recognise the added value of blended learning and of the learning-goal-oriented use of educational technology. The challenge is to find a specific and easily accessible way to reach as many teachers as possible, from innovators and early adopters to laggards (Rogers, 1995).

3 Towards an integrated support policy

VIVES applies an integrated support policy based on the Arena Blended Connected learning design method, the "ABC method" (UCL, Perovic & Clive, 2015). This method aims at creating exciting blends of learning activities at course and/or program level. The ABC LD method, based on research by University College London, is a very specific and efficient method for (re)designing curricula or course units. The building blocks of the method – learning activities, acquiring knowledge, researching, applying, discussing, producing and collaborating – were researched by Prof. Laurillard within the conversational framework theory (Laurillard, 2013a, 2013b).

The ABC method is used in VIVES as the basis for an integrated support policy. This integration manifests itself in the connection of the units of educational development and educational technology, which use the same building blocks and terminology from the ABC

method to elaborate their support policies. Here various existing and new educational concepts and support materials are combined which are either based upon or augment the original ABC method.

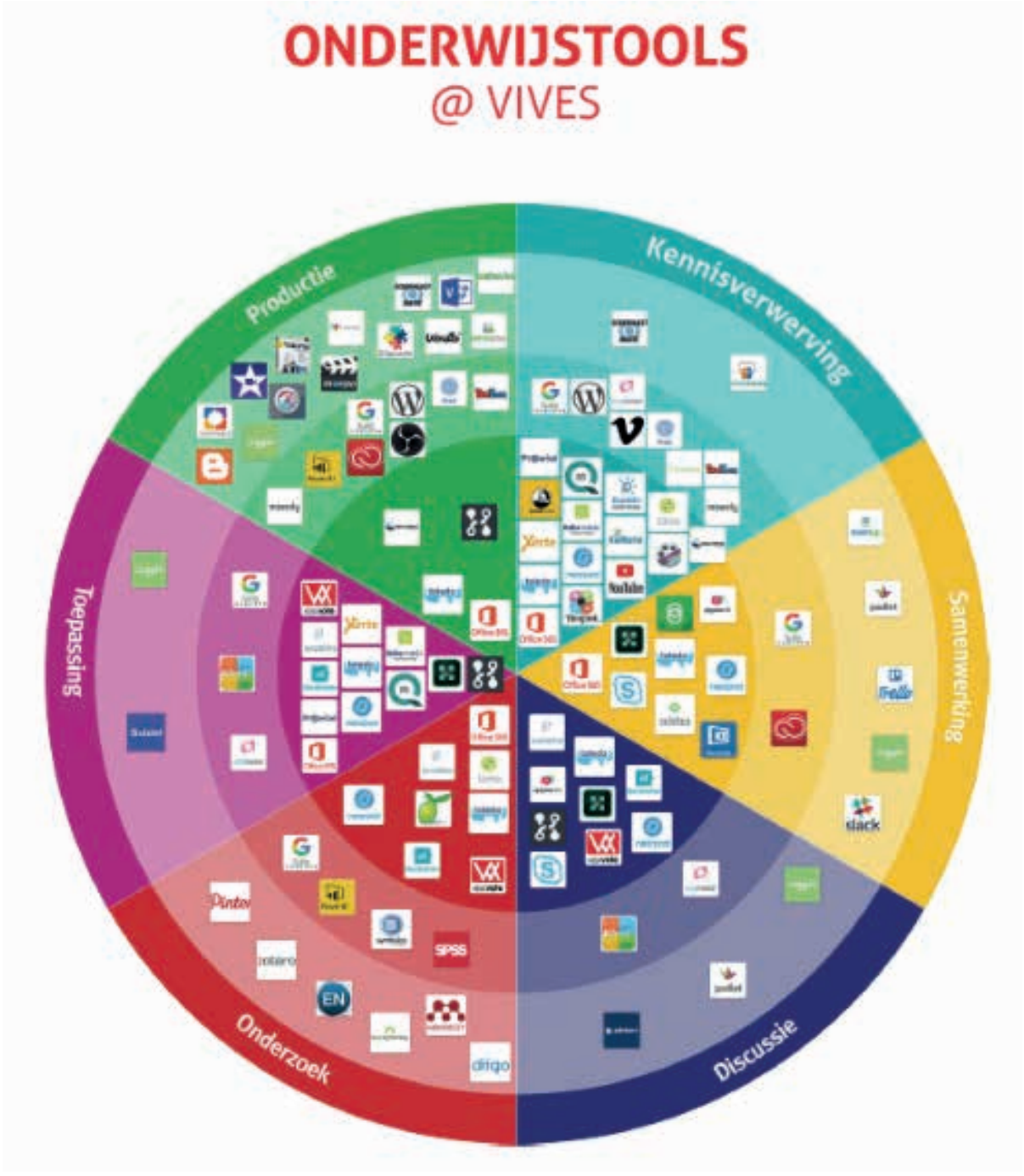

Figure 2: Educational tools per learning activity

One example of how the original ABC material has been applied in the educational development and educational technology units is the elaboration of the professionalization material from the educational technology unit. The range of educational tools and the associated support are presented in an “app-wheel” based on the classification of the six learning activities. Because of this visualization, teachers immediately see which tools are available for the chosen learning activities. VIVES also added the level of support to this in order for teachers to see which level of support they can receive for the chosen tool. Three levels of support are available:

- *Strongly supported tools*: Manuals, research and licenses are available for these tools. ~ tools in the inner circle
- *Supported to a limited extent*: Either a manual, professionalization or licenses are available for these tools. The tool is supported by offering one (or two) of the three forms of support. ~ tools in the middle circle
- *Inspiring tools:* These tools are provided as an opportunity, for inspiration. No manuals, updates or licenses are provided. ~ tools in the outer circle

The wheel is dynamic: the tools in the wheel are subject to change. For example, a tool can shift because of new functionalities of the learning activity, but the tool can also be placed more inwards or outwards in the circle depending on the level of support. For each tool, a tool page is available on the VIVES intranet where all teachers can find explanations, support materials, etc. concerning it.

Next to adjustments and further elaboration of the ABC materials and method, VIVES offers teachers different workshop variants, for example the Start2Blend trajectory. This trajectory is much more intensive than the ABC workshop itself. It consists of three sessions of one and a half to two hours in which the participating teachers are individually prepared. They are supported afterwards. This trajectory is given in a blended format (the “teach as you preach principle”; Kroll and Laboskey, 1996). Hence, the participating teachers get to know the concepts of blended learning and immediately start working with one of their own courses. In each session there is a different didactic focus.

A second workshop variant is a short inspiring workshop in which teachers get acquainted with what blended learning is and why it can be used. In this workshop, teachers experiment briefly with the learning activities and possible working methods. This workshop is primarily intended to get “the late majority” and “the laggards” (Rogers, 1995) excited about this innovation. If, after this brief experience with blended learning, teachers want to continue or further discover blended learning, they can follow the ABC workshop or the Start2Blend trajectory.

A third variant consists of workshops that we design at the request of an individual teacher or teacher team. For these workshops we work in a demand-oriented way and adapt the material and the approach of the ABC method very flexibly.

4 Experiences with blending learning and the ABC method

By integrating support options for teachers across educational topics and different units within the institution, teachers and educational developers speak “the same language”. This integrated approach appears to be successful. Teachers perceive it as meaningful and instructive. In particular, the time and space teachers get during the workshop to exchange experiences and hold discussions with colleagues are considered as valuable. The method is used within the institution not only to (re)design a powerful blended learning environment, which was the original goal of UCL, but also for awareness raising, reflection, discussion with colleagues, etc.

In addition to its benefits for teachers, the educational developers and technologists at VIVES experience the method as a useful tool for working hands-on with teacher(s) (teams). The teachers themselves also have a growing need for innovative teaching. Stimulated by a range of professionalization activities, educational developers offer specific examples of how blended learning is growing at VIVES University of Applied Sciences.

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ICED 2020 proceedings:

Integrating transferable skills into an existing curriculum: The example of Geospatial Engineering at ETH Zurich

Andreas Wieser[1]

Institute of Geodesy and Photogrammetry, ETH Zurich
Stefano-Franscini-Platz 5
8093 Zurich, Switzerland

Eva Buff Keller[2]

Eva Buff Beratungen GmbH
Haldenstrasse 84A
8400 Winterthur, Switzerland

Simon Graf[3]

Institute of Geodesy and Photogrammetry, ETH Zurich
Stefano-Franscini-Platz 5
8093 Zurich, Switzerland

Abstract

In this contribution we present an approach to integrating improved formation and consolidation of transferable skills into the Bachelor's program Geospatial Engineering at ETH Zurich. We report how the development of competences in argumentation, critical thinking, technical/scientific writing, visualisation, presentation, learning management, teamwork, and project management was supported without changing the structure of the existing curriculum, providing additional courses or assigning other lecturers. The approach focused on feasibility under the temporal, structural and financial limitations of an academic programme. Its pillars are (i) stakeholder participation, (ii) transparency, (iii) communication, and (iv) supporting material for both students and instructors.

1 Introduction

Graduates from a university need a broad range of competences for a successful and rewarding professional career. Apart from general methodological competences and domain specific competences this comprises a broad range of social and personal skills. Taking into account how important transferable skills are for employability and job satisfaction (see e.g. García-Aracil & Van der Velden, 2008; Brall, 2009; Abelha et al., 2020) and for successful studies, academic programs should support their development. Students should also recognize these skills as very powerful assets in their personal and professional lives. They should be aware of their own proficiency and understand that this proficiency (e.g. in writing, argumentation or critical thinking) can and needs to be developed. This requires the explicit addressing of transferable skills within the curriculum (Leckey & McGuigan, 1997).

[1] andreas.wieser@geod.baug.ethz.ch
[2] eva.buff-keller@bluewin.ch
[3] Now with Zurich University of the Arts: simon.graf@zhdk.ch

In the course of a revision of the BSc programme in Geospatial Engineering[4] at ETH Zurich the working group decided to explicitly enhance the development of the following eight competence areas:

- Argumentation
- Technical and scientific writing
- Visualisation
- Presentation
- Critical thinking
- Learning management
- Project management
- Teamwork

This selection was triggered not only by considerations of employability but also intrinsically motivated by the requirements for studying successfully. We chose to tightly integrate the fostering of the transferable skills with fundamental and domain specific teaching, and thus explicitly to address transferable skills throughout the curriculum rather than with extra courses. In line with the related literature (e.g. Leckey & McGuigan, 1997; Buff Keller & Jörissen, 2015) we expected that this would be more effective than addressing such skills additively.

In this paper we briefly describe the process (Section 2), the documents generated for lecturers and students (Section 3), and the means for establishing transparency (Section 4).

2 Process

Discussions about the goals and requirements of the curriculum revision started informally in early 2016 among the main professorships involved in the Bachelor's program. The formal revision process was mainly carried out in 2017 and included a workshop with stakeholders from outside the university. The revised curriculum started in fall 2018. Early on, the working group decided to focus on method and domain specific competences within the formal revision process, and to deal with the transferable skills in a degree program initiative separately. This allowed quick implemention of the necessary structural changes to the curriculum while leaving more time for careful planning and implementation of the transferable skills across the curriculum. Figure 1 shows the timeline of the revision and the initiative.

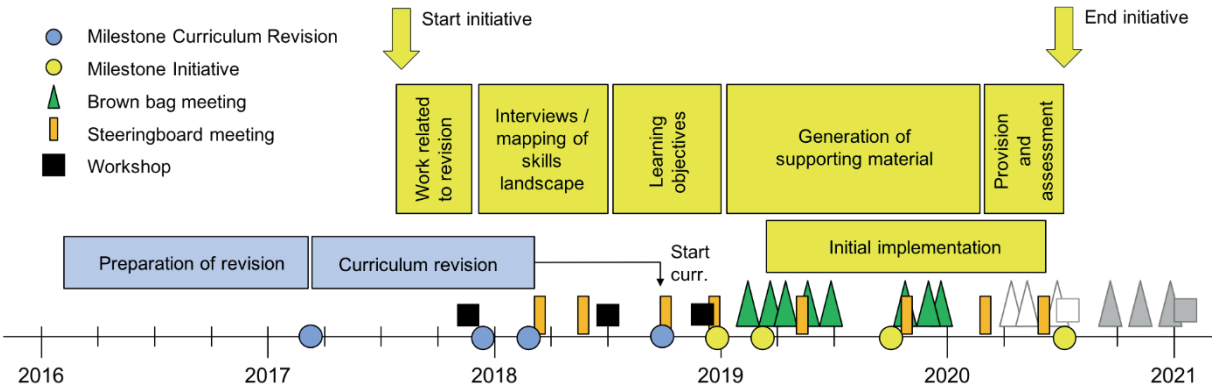

Figure 1: Timeline of the curriculum revision and the degree program initiative

We started by mapping the initial landscape of transferable skills within the curriculum. This was based on bilateral interviews with the lecturers. Using a specially prepared questionnaire we identified (i) which skills were already fostered, assessed or required in any of the courses; (ii) which teaching methods and materials were used; and (iii) which transferable skills, based

[4] The name was changed from Geomatics and Planning to Geospatial Engineering during the revision.

also on the qualification profile, the students should have acquired by graduation. These interviews supported the initiative beyond the information explicitly provided. The lecturers became better aware of the initiative and had the opportunity to give input at an early stage, and the project team received a first indication of which particular lecturers and courses could help to foster specific transferable skills in line with the structure, goals and requirements within the course; the personal interests, background and engagement of the lecturer; and class size and composition.

Building on the results of the interviews, we developed a catalogue of objectives and explicit learning outcomes for the above skills. The elaboration of the objectives started with a workshop at which various stakeholders (lecturers, potential employers, teaching experts etc.) discussed, prioritized and extended the results of the interviews. Another workshop took place half a year later to broadly discuss a draft of the explicit outcomes before they were fixed (see Figure 1).

From that point, we developed a hierarchical set of short documents for in-class and self-study use (see Section 3); implemented brown bag meetings for low-threshold exchange and networking between the lecturers; and created an interactive web-tool for visualisation of the transferable skills across the curriculum (see Section 4). Finally, we aligned the learning outcomes with the existing courses, involving only the lecturers who were interested and felt capable of fostering the respective skills within their courses. This commitment was established and recorded in further bilateral meetings.

After initial implementation, which started for some competence areas in spring 2019, an evaluation survey among students and lecturers using a questionnaire similar to that described in Chan & Fong (2018) was planned for Spring Semester 2020. As a result of the unanticipated adaptations to teaching and learning due to the Covid-19 pandemic this survey had to be postponed.

3 Supporting material

There is a vast body of literature on each of the above competences, and a list of recommended reading might be enough to support self-study or skills fostering within classes. Nevertheless, we decided to generate a hierarchic set of documents for each of the competence fields in order to better support both the students and the lecturers by (i) making it easier for them to get started, and (ii) assuring that they all have low-threshold access to the same material. Each of the sets comprises an outline, several fact sheets, advanced documents, and working material like checklists or templates (see Figure 2). So far these documents are available in German only; a translation into English has recently started.

The outline and fact sheets make the students aware of the competences and of the available supporting material. They are encouraged to use the templates and checklists proactively and on their own. Nevertheless, the lecturers are encouraged to explicitly integrate these documents into their courses. They may expect the students to be familiar with them according to the implementation plan (see Section 4).

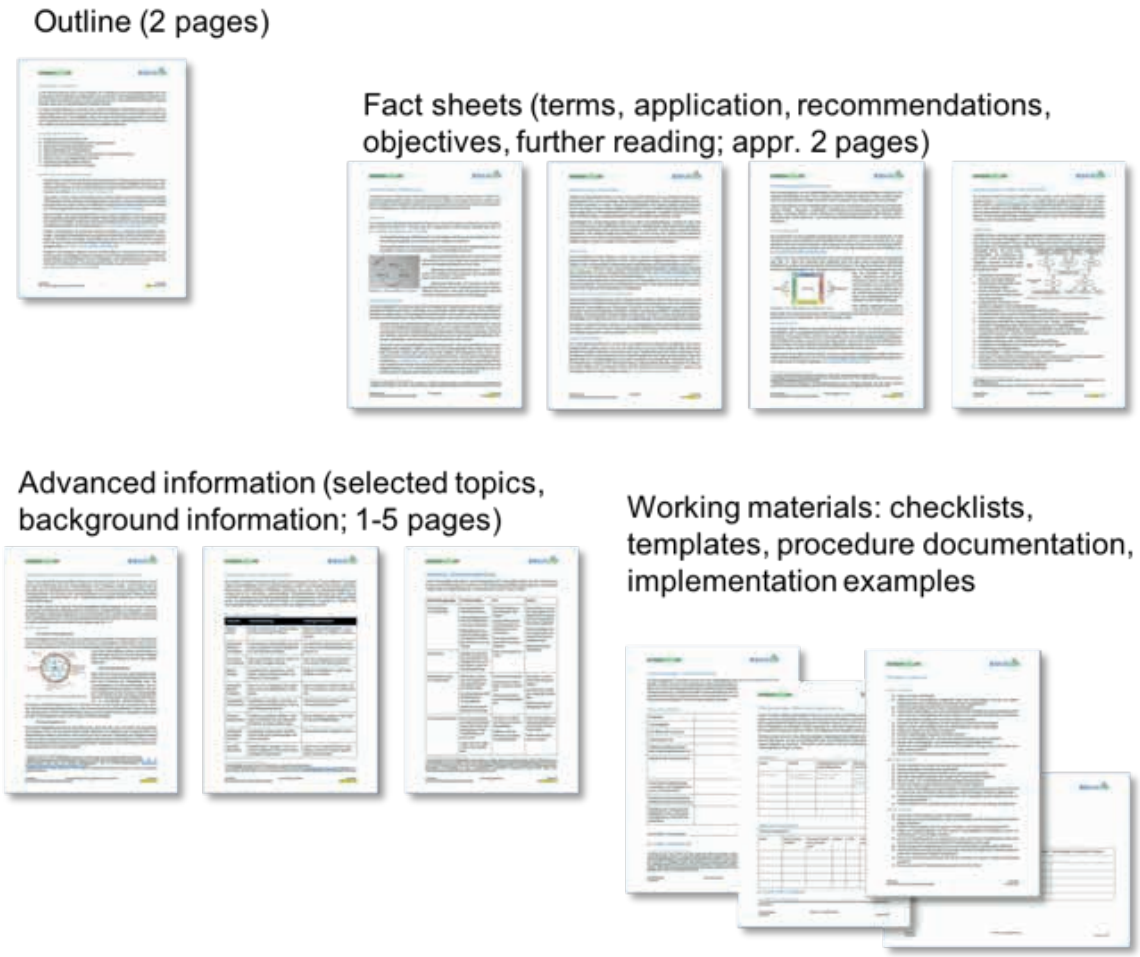

Figure 2: Types of supporting document with typical extent per document

4 Transparency and communication

All the documents are provided freely on the webpage of the study program. Additionally, the learning outcomes and their association with the courses of the BSc program can be visualized using a JavaScript program which colors a display of the course plan to indicate which competences, domains or objectives are integrated into which courses and to which level (introduction, deepening, application, performance assessment); see Figure 3. This visualization is based on the implementation plan, i.e. the agreement which states the specific objectives which lecturers address in their courses. This creates transparency across the curriculum and allows lecturers to understand which transferable skills they can build upon in their courses and which associated supporting material the students are aware of.

To further develop mutual awareness among the lecturers, enable exchange of practical experiences, and facilitate lecturer engagement in the enhancement of transferable skills, we have established brown bag meetings covering teaching related topics. They take place roughly once per month during the semester. They provide a low-threshold opportunity for moderated discussion, and are typically preceded by a short introduction to the topic by an invited expert or the moderator. Feedback and attendance indicate that these meetings are a useful tool not only for exchanging teaching related information but also for better integrating new or external lecturers.

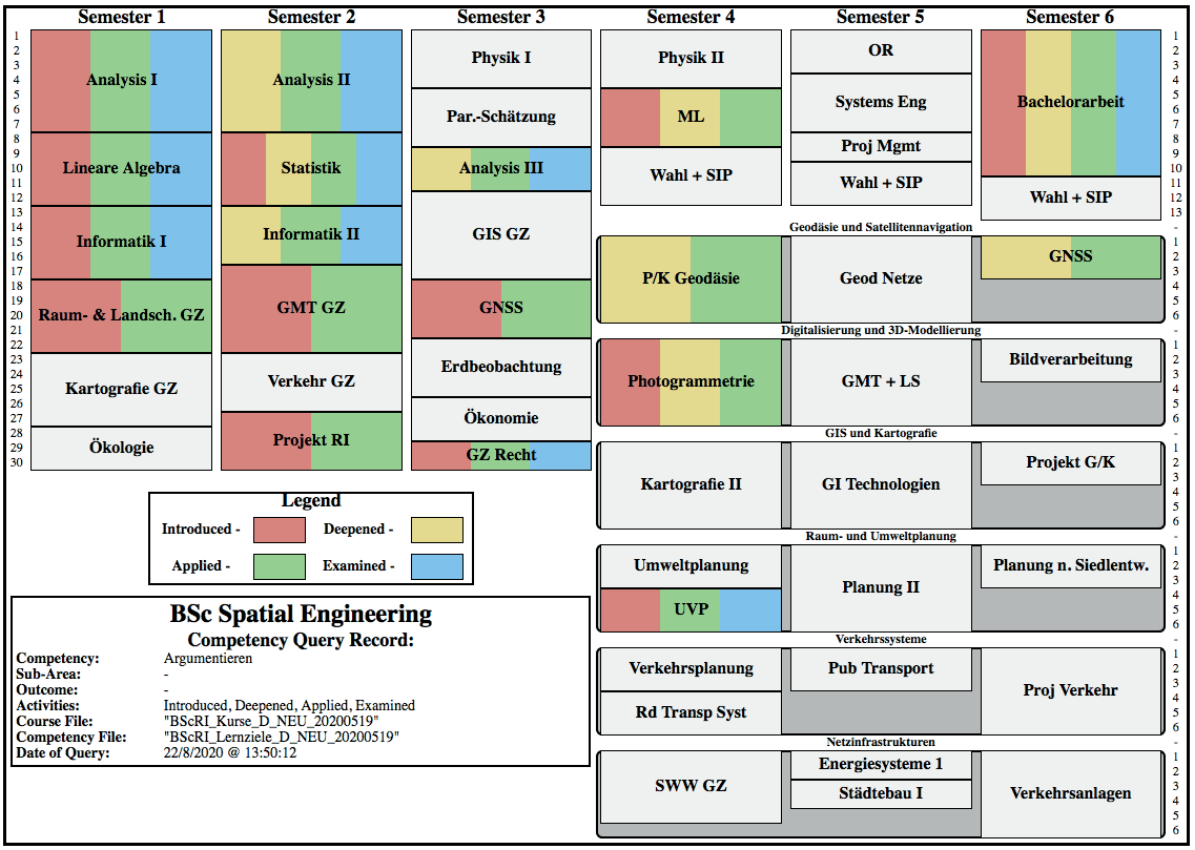

Figure 3: Visualisation of explicit acitivities related to the development of transferable skills throughout the curriculum (example display for entire competence area "Argumentation")

5 Conclusion

We have defined high-level objectives and detailed learning outcomes for transferable skills to be developed gradually during the entire Geospatial Engineering BSc programme at ETH Zurich. To facilitate development within the existing courses of the curriculum, a key challenge was to win enough lecturers to support the initiative and to transparently show which skills are developed in which courses and to which level.

Key success factors have been stakeholder participation throughout the project (see also Buff Keller et al., 2018), interviews and bilateral meetings with the lecturers, the provision of hierarchically organized documents for students and lecturers, and transparency through brown bag meetings and visualization. A survey is planned for the near future. Personal and anecdotal feedback indicate that the process has been successful and that the supporting documents are found useful by students and lecturers.

Acknowledgements

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Future-ready professional development

As the needs of students change, so do those of academics. How will professional development look in the future, and how should our practices as educational developers change? What is the role of the scholarship of teaching and learning in propagating a future-ready mindset?

ICED 2020 proceedings:

Collaborating to innovate high-level teaching engagement programs and cross-disciplinary teaching practitioner fellowships

Stefanie Baier[1], **Judith Stoddart**[2], **Henry (Rique) Campa III**[3]

Graduate School, Michigan State University
East Lansing, MI 48824, USA

Abstract

In recent years research universities have recognized the need for the preparation of future faculty in teaching undergraduates, especially in science technology, engineering and mathematics (STEM). The Graduate School and its partners at Michigan State University, in the United States, have offered teaching professional development programs and activities with multiple levels of engagement since 2005. Mid- (e.g., institute) and high-level engagement (teaching certification, cohort-based teaching fellowship programs) programs and activities provide diverse opportunities for graduate students and postdocs to be actively engaged in preparation for academic positions, and they have had an impact on teaching competence and job preparation.

1 Introduction

Many universities focus their pedagogy training on faculty, but evidence shows great benefits in teaching professional development for graduate students, such as the increase in teaching self-efficacy as a new faculty (Austin & McDaniels, 2006; Connolly, Lee, Savoy, 2017). Common models of teaching professional development for graduate students and postdoctoral scholars include centralized activities and programs (e.g. teaching and learning centers, graduate school workshops) and departmental pedagogy preparation. The Graduate School at Michigan State University (MSU) in the U.S. has created a multi-level engagement model that provides traditional low-, but also mid- and high-level engagement in cross-disciplinary teaching professional development programs for graduate students and postdoctoral scholars. A mid-level engagement program (several hours to less than a semester) allows participants to engage in enhancing their knowledge and application of evidence-based teaching and learning practices through a semester-long bi-weekly Lunch and Learn Series, a Graduate Teaching Assistant Program and a Certification in College Teaching Institute. Two high-level teaching and learning professional development programs (more than a semester) are a Certificate of College Teaching Program and competitive, cohort-based, academic-year long Teaching Fellowship programs.

2 Framework and levels of engagement

The framework used for teaching professional development is based on levels of engagement. These are associated with broad goals and more specific learning objectives which correspond to teaching preparation goals for increased instructional competency.

[1] stbaier@msu.edu
[2] stoddard@msu.edu
[3] campa@msu.edu

2.1 Rationale for the multi-level framework

The rationale for the multi-level framework is to provide professional development which (1) responds to the needs of people with various interests, amounts of time, and levels of support for increasing teaching competencies; (2) builds a foundation for other types of professional development around teaching; and 3) imparts transferrable skills through teaching relevant to leading workshops, conducting training sessions and executing evaluation processes.

2.2. Description of programs within the multi-level framework

A framework for teaching professional development has been created over the years which is classified by increasing levels of engagement or hours of engagement. Graduate students and postdocs often receive initial exposure to or preparation on teaching-related topics in relatively short workshops or at the beginning of their preparation as Graduate Teaching Assistants, usually provided by their academic units (low-level, low hours of engagement) and through graduate school offerings. When teaching in their disciplines becomes more demanding in content, targeted preparation for teaching in the discipline, including large lectures and seminars and credit-carrying courses, may be offered by the respective departments or through offerings from the CIRTL Network[4]. They may also attend a more extensive Graduate Assistant Orientation and Institute, a Certificate of College Teaching Institute (CCTI), or a Lunch and Learn Best Practices in Teaching Series (mid-level, 10-15 hours' engagement). At the high level of engagement (levels 3 and 4) of teaching professional development there are two programs. Through (1) the Certificate of College Teaching Program, graduate students and postdocs acquire essential competencies for teaching in a two-day training program (CCTI), credit-carrying courses in the discipline, additional workshops, and a mentored teaching project. All experiences documented culminate in an online portfolio (high-level engagement teaching professional development). In addition, students can (2) apply for competitive cohort-based teaching fellowship programs which span an academic year. Their selected participants plan, implement and evaluate a teaching-related project and participate in frequent meetings to discuss teaching-related literature and topics to help prepare them to complete their projects and apply for academic positions in a community of practice. Table 1 shows an overview of the multi-level framework and programs.

3 High-level engagement programs

The high-level engagement programs offered by the Graduate School have gained increasing popularity with graduate students of various disciplines. The programs have common and distinct elements.

3.1 Certificate of College Teaching Program

The Certificate of College Teaching Program involves participation in a two-day institute focusing on (1) Developing Discipline Related Teaching Strategies; (2) Creating Effective Learning Environments; (3) Incorporating Technology in your Teaching; (4) Understanding the University Context; (5) Assessing Student Learning; and (6) Teaching Philosophy. The students can attend scaffolding sessions that help them to complete teaching portfolios, in which they demonstrate the application of all these components in their own work.

3.2 Cohort-based teaching fellowship programs

The Graduate School also supports five distinct year-long teaching fellowship programs led by

[4] https://www.cirtl.net

cross-disciplinary teams of faculty, staff and administrators who integrate all four levels of engagement in this program and guide the cohorts in developing, implementing and evaluating the mentored teaching projects developed. Six to 14 fellows are selected annually among the doctoral students who apply to these programs. The first of the programs was the FAST (Future Academic Scholars in Teaching) Fellowship Program, which started in 2006 with funding from the Graduate School and the National Science Foundation (Vergara et al. 2013, Prevost et al. 2017). Other example programs are the RCAH Fellowship,[5] the IIT Fellowship Program[6] and the SUTL Fellowship[7].

Level of Engagement and Goals	**Learning Objectives**	**What will this prepare you to do? (teaching goals)**	**Program**
LEVEL 1 (low): Acquire Teaching Fundamentals	Design learning experiences to maximize student learning.	Engage students to successfully master content.	Occasional workshops and webinars (1-1.5 hours at a time)
LEVEL 2 (mid): Integrate Teaching Fundamentals with Disciplinary Content	Develop learning experiences for the acquisition and application of discipline-specific content and processes.	Teach students how to apply discipline-specific knowledge to solve problems.	Bi-weekly Lunch and Learn Sessions, a two-day Certificate of College Teaching Institute, and Graduate Assistant Orientation and Training
LEVEL 3 (high): Practice Classroom-Based Assessment	Identify a question about teaching or student learning, design a protocol to investigate that question, implement protocol or intervention, collect data, and use the data to inform teaching.	Assess what students are learning in your courses. Recognize how to match methods of assessment to specific learning goals in your classes.	Certificate of College Teaching Program with Scaffolding sessions to help with the completion of Teaching Portfolio
LEVEL 4 (high): Practice Classroom-Based Assessment Participate in a Community of Practice	Disseminate knowledge of teaching fundamentals and/or discipline-specific pedagogical knowledge by participating in communities of practice with other teacher-scholars	Connect your teaching preparation to scholarship in teaching and learning in your field. Demonstrate your leadership in the area of teaching.	Cohort-based teaching fellowship programs that last for a semester; participants meet frequently in a community of practice.

Table 1: Levels of engagement in teaching professional development at Michigan State University

3.3 Common and distinct elements of high-level engagement programs

The two high-level programs have a common element in the assessment-based project. They are also different in how individuals engage together.

3.3.1 Assessment-based projects

The most comprehensive component of both the Certificate of College Teaching Program and the Fellowship programs is the assessment-based project. The project's goal is to (1) introduce innovations in MSU undergraduate courses, and (2) prepare graduate students to be more reflective teacher-scholars who use evidence-based teaching and learning practices in their faculty careers.

[5] https://grad.msu.edu/rcah-fellows
[6] https://grad.msu.edu/iit
[7] https://grad.msu.edu/sutl

3.3.2 Communities of Practice

Fellowship programs differ from the Certificate of College Teaching Program in that they build Communities of Practice, where fellows support each other in their professional development and provide feedback on their assessment-based projects.

4 Impact of mid- and high-level engagement programs

High-level engagement fellowship program assessments indicate that these programs benefit students, faculty and the campus in ways that are different from traditional models (Triezenberg, H. A., Doberneck, D., Campa, H. III., 2020). This is also true of the college teaching preparation fellowship programs. Specifically, they (1) create an expanded cross-disciplinary teaching network that better prepares graduate students to engage in a broad university context; (2) connect central conversations about pedagogical design with real-time innovations in MSU undergraduate classrooms; (3) provide a space for iterative and sustained reflections that change disciplinary habits of mind and transform the ways that faculty and graduate students frame teaching and learning practices; and (4) make participants aware that teaching skills are transferrable to multiple contexts and professions. Attendees of these programs have attributed their success in career advancement to their high-level engagement teaching professional development experiences.

5 Conclusions

Whereas each program type focuses on various components imperative in teaching professional development, mid-level programs provide increasing continuity and support. High-level programs, however, work toward a culminating goal – the classroom-based assessment project – which demonstrates the application of teaching competencies. These projects, especially when combined with peer support, become transformative experiences and shape participants' habits of mind as they embark on their teaching careers.

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ICED 2020 proceedings:

Developing digital capabilities of future students through consensus curriculum development

Christine Brown Wilson[1]

School of Nursing and Midwifery, Queens University Belfast
97 Lisburn Road, Belfast BT9 7BL, Northern Ireland

Christine Slade

Institute for Teaching and Learning Innovation, University of Queensland
St. Lucia Brisbane 4072, Australia

Abstract

This paper details a workshop structure designed to stimulate discussion and debate with educational developers. We define and discuss how consensus can be used in the curriculum development process to develop future-ready graduates with enhanced digital capabilities. The workshop design uses a co-design structure, providing opportunity for social learning through sharing challenges and inhibitors while receiving constructive feedback from other educators concerned about the same topic. The workshop provides an opportunity to work immediately on ways forward with the potential to forge interprofessional digital capability strategies that will improve the holistic student experience and help prepare future-ready graduates.

1 Introduction

The unprecedented pace and scale of growth in the role of digital technology in the workplace is now a key driver of educational change in higher education. Not only do employers require graduates to be prepared to work in a digital environment; universities require students to have digital capabilities to be successful in their academic study. Although technology is now ubiquitous in everyday life, it cannot be assumed that students will automatically be able to use technology for learning or in future employment (Slade, 2015). Subsequently, educational developers who support academics in curriculum development face ongoing challenges in integrating the digital skills needed by students (Brown Wilson and Slade, 2019).

The key question posed in this paper is how to embed digital skills within a content-heavy programme. Using the professional degree of nursing as a case study, this paper presents a curriculum development process that embeds opportunities for students to develop digital capabilities across the programme. This was used across international contexts. This paper considers how digital capability is defined and then presents an example of a consensus curriculum development process that enables digital capabilities to be embedded across a programme to equip students for study and future work.

2 Defining digital capability

In the UK, the Joint Information Systems Committee (Jisc) (2017) developed six elements of digital capability for use in higher education to prepare individuals to learn, live and work within the ever dynamic digitalising world (Figure 1). This figure is useful because it visually explains the complexity of digital capabilities, with ICT proficiency as the central basic skills, and the digital identity and wellbeing of the user surrounding all the capabilities.

[1] c.brownwilson@qub.ac.uk

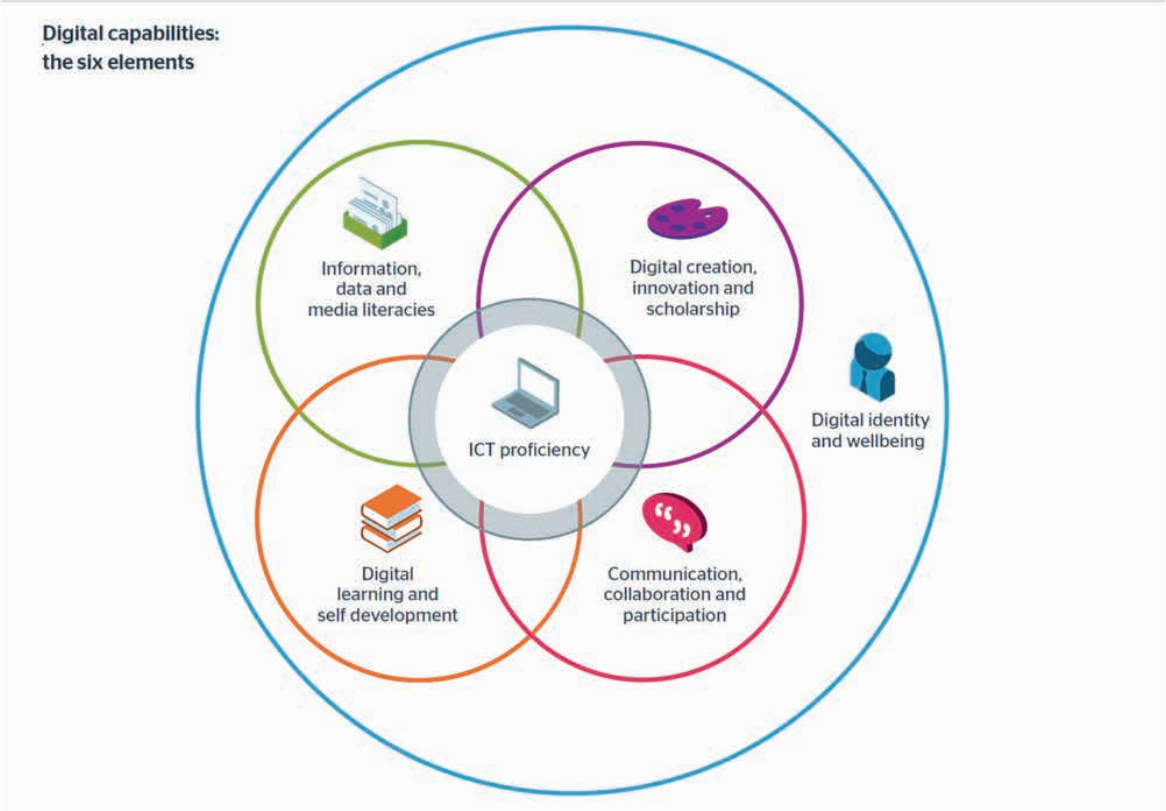

Figure 1: Digital capabilities: the six elements (Jisc, 2017)

Digital capability moves beyond digital literacies to include digital creation, problem solving, innovation and managing digital identity. Within these broad areas, the requirements for digital capability may differ according to the discipline, the area of expertise of faculty and the individual nature of the students entering the programme. Obtaining a proficient level of all these capabilities, whilst maintaining their own digital identities and wellbeing, requires a spine of scaffolded activities and experiences across a curriculum as a foundation for professionals across their careers. This raises key challenges for educational developers when working with faculty as they develop curricula which is already content-heavy. One solution developed by the presenters was the development of a consensus model of curriculum development (Brown Wilson and Slade, 2019), which brings multiple stakeholders to the decision making process, enabling academics to consider the digital skills graduates might need from different perspectives.

3 Using consensus to embed digital capability in the curriculum

Consensus decision-making is not new, but when group members engage in it they view the decision as representative of their own and other's views, perceiving the process to be fair (Sager and Gastil, 2006). According to Hartnett (2019), four key processes are involved in reaching a consensus: inclusivity, participation, collaboration, cooperation and agreement seeking.

The consensus model of curriculum development brings key stakeholders to the curriculum development process as equal partners, creating inclusivity (Brown Wilson and Slade, 2019). Stakeholders may include future employers, partners for work integrated learning, consumers, students, and academics. Facilitating conversations around shared topics enables participation of all stakeholders where everyone is able to offer a viewpoint, all views are accepted, and cooperation is established (Table 1, Activity 1). Identification of themes from initial exercises continues the conversation, enabling a process of collaboration to be

established (Table 1, Activity 2). Developing specific activities such as ranking exercises enables a synthesis of ideas (Table 1, Activity 3), with consensus being reached through the development of practical next steps by the end of the workshop (Table 1, Activity 4). This process is not without its challenges: it requires high levels of organisation, keeping people to deadlines and time for multiple meetings. Where differing perspectives exist, consensus workshops offer a key way for educational developers to support academics in bringing multiple stakeholders to the table, thus preparing future-ready graduates.

Activity	Facilitation prompts	Steps towards consensus
1: Each table of participants to identify the digital capabilities required by students, rank in order of importance and map to the Jisc framework.	Ask each table to write an idea individually and then group all ideas into themes per table. Use Jisc framework as prompt for themes.	Participation involving everyone on the table Co-operation – reaching agreement on themes
2: Participants use information from Activity 1 to identify examples of how these digital capabilities may be embedded into a programme	Ask individuals to identify which themes/activities are relevant for Years 1, 2 & 3.	Collaboration to develop a scaffolding process
3: Each table group develops a plan for embedding digital capabilities into a programme.	Using grouping from Activity 2, each table to rank which are the key skills for Years 1, 2 & 3.	Synthesis of activities and identification of key areas that can be scaffolded across the programme
4: Group agrees on practical steps to effectively embed digital capability in curriculum – for example using assessment to demonstrate digital capability.	Final decision on what skills sit in each module for Years 1, 2 & 3. Action plan for supporting staff Development	Consensus-action planning

Table 1: An example of a facilitation plan for a consensus workshop

4 Conclusions

Developing digital capability is becoming increasingly important as digital technologies evolve rapidly within the workplace. Therefore, future graduates need to be flexible, adaptable and confident in preparation for work in a dynamic technological environment. Considering digital capability as a scaffolding process that enables students to build their skills incrementally through learning activities and assessments across a programme integrates digital capability without additional content required. Using a consensus approach to curriculum development enables multiple perspectives to be included, with the potential for developing novel and innovative curricula.

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ICED 2020 proceedings:

AP innovations for postgraduate teaching assistants: A case to prepare early career colleagues for future-proof teaching scenarios

Silvia Colaiacomo

Arena Centre for Research-Based Education, UCL
10th Floor, 1-19 Torrington Place, London, WC1E 7HB

Abstract

Arena One at UCL (University College London) provides an initial teacher training programme for PGTAs (Postgraduate Teaching Assistants). The programme is divided in two parts: a compulsory 3-hour workshop for all PGTAs involved in teaching related activities and an optional 5-session course, TAP (Teaching Associate Programme). TAP runs for a total of 15 hours (5 sessions of 3 hours each) and it was traditionally offered in two face-to-face formats: either fortnightly or as an intensive one-week course. One of its major strengths is that it brings together PGTAs from different disciplines and backgrounds who can reflect on their experiences as both students and educators and develop a common, shared language of learning and teaching.

During the academic year 2019-20, TAP was reviewed with the aim of embedding online and distance learning activities and being delivered in blended mode (Kupetz and Ziegenmeyer, 2005). This review started in autumn 2019 and was accelerated due to the Covid crisis. The syllabus was revised to include a broader and deeper reflection on internationalisation of the curriculum (Leask, 2015) and inclusivity (Smith, 2006). The rationale behind these choices is to make TAP more flexible for early career colleagues who have to juggle tight schedules, but also to model practice in relation to pedagogical innovation. The revised version of TAP includes the use of numerous functionalities of our Moodle platform and integrated systems, combined with tools such as mobile response systems and interactive recordings (Paladino, 2008). The new TAP was delivered twice in spring 2020 and it received positive feedback and a high level of engagement from participants.

1 Introduction and context

The Arena Centre for Research-Based Education at UCL (University College London) provides support and training opportunities for academic staff at different stages of their professional development, by offering a number of programmes, resources and workshops to enhance teaching and learning in higher education (HE). Arena runs two main programmes (Arenas 1 and 2) that cater for the training needs of experienced teaching staff on probation and for postgraduate teaching assistants (PGTAs). Our provision draws from the experience and academic expertise of staff and is mostly reflective in nature. By that I mean that we encourage staff to reflect on and problematise the opportunities and challenges of research-led teaching (Fung, 2017), as per the UCL Connected Curriculum framework. We focus on how to meet the needs of an ever-changing professional landscape and student population; innovative teaching approaches; different delivery modes; embedding technology in the curriculum; accessibility and inclusivity; assessment and feedback; and evaluating one's practice (Gunn, 2008; Morss and Murray, 2015).

Both programmes are designed keeping in mind the requirements and context of the UK PSF (UK Professional Standard Framework), and to prepare participants to apply for the Higher Education Academy (HEA)/Advanced HE fellowship recognition scheme for teaching and learning in HE. The scheme is broadly recognised across the sector, and HEA fellowship accreditation is becoming a key requirement for mechanisms of promotions or selection criteria for new teaching positions in the UK. Experienced staff with at least 3 years' full-time equivalent teaching experience can apply for a Fellowship, whilst teaching staff with less extensive experience can apply for an Associate Fellowship.

In addition to Arenas 1 and 2, we offer stand-alone seminars and workshops on a number of topics on learning and teaching led by UCL colleagues and external guests; we organise two conferences yearly on learning and teaching; and we manage and constantly update a bank of student and staff-led case studies and "toolkits" available on our teaching portal. We also work in close collaboration with the 11 UCL faculties and offer support in relation to a number of pedagogical projects, such as assessment, personal tutoring etc. Finally, we work closely with the Digital Education team (Digi Ed) and promote and model good practice in relation to digital and distance learning. In November 2019 I led the organisation and delivery of a Digital and Distance Education summit involving colleagues across the institution, to capture current practices and trends and develop a better understanding of training needs. This event proved to be an excellent opportunity to analyse current resources and online provision, and to facilitate collaborations across different areas of the university.

2 Arena 1

Arena 1 encompasses the training provision of PGTAs. The provision is funded by the Doctoral School and it caters for up to 800 students yearly across the 11 faculties. Arena 1 comprises two parts: one compulsory face-to-face 3-hour workshop for all PGTAs with teaching/assessing responsibilities, and an additional 15-hour course, TAP (Teaching Associate Programme), which is optional and delves more broadly into the topics touched upon during Gateway. TAP is designed to support participants who are putting together applications as Associate Fellows (AF) with the HEA.

Gateway's syllabus covers some milestone topics of learning and teaching in HE and helps students reflect on the policy context of UK HE institutions; the peculiarity of different teaching settings; student interaction in multicultural learning environments (Leask, 2015); and the purposes of assessment and feedback (Gibbs, 2006). It encourages participants to engage with active learning approaches and embedding technology in the curriculum (Millis, 1997). TAP broadens and deepens reflection on the same themes, whilst fostering reflectivity on one's practice (Campbell and Norton, 2007). The course is underpinned by theory, but mostly hands-on. Each session provides plenty of opportunities for discussion and for participants to work on practical tasks that they will actually use in their teaching practice. For example, participants are asked to design session plans, review resources and activities, conduct micro-teaching sessions and write case studies that they can use for their AF applications. All activities also include elements of peer-support and feedback.

Gateway caters for over 700 students per year, and its sessions are offered throughout the academic year. After completing Gateway, students are offered the opportunity to enrol in TAP. On average, about 200 PGTAs yearly decide to continue with TAP. The feedback we receive is always very positive, as is the pass rate of AF applications. One key aspect and focus of both Arenas 1 and 2 is their interdisciplinary approach. We believe that both teaching staff and PGTAs can learn much from working with colleagues from different disciplines, as this can trigger new reflections and generate genuine learning opportunities and consequent case studies and peer support.
The ethos of TAP is to shape a new generation of educators with an interdisciplinary approach to pedagogical practice (Smith & McCann, 2001) and to engage them in debates and

development opportunities that identify learning and teaching as core to their academic career trajectory. UCL vision is routed in research-led teaching through the connected curriculum (Fung, 2017), and TAP offers a unique opportunity to reflect on the possibilities spurred by bridging together innovation in teaching and disciplinary research. Teaching is now at the heart of metrics of "quality" (Gunn, 2018) and student experience, and is gradually being embedded in mechanisms of promotion and professional accreditation (e.g. Advance-HE schemes). despite these discourses of accountability, TAP aims to expose early career colleagues to a shared approach and language of teaching (Morss and Murray, 2005), including fit-for-purpose use of technology (Kupetz and Ziegenmeyer, 2005) and an active awareness of the challenges and opportunities that our diverse student body presents (Leask, 2015).

I joined Arena in June 2019 and took over responsibilities for Arena 1 provision. Although the programme was already extremely well received and participants mostly engaged with enthusiasm, I felt that by enhancing its blended component we could provide more opportunities for participation (Jun and Zhou, 2011). The face-to-face TAP consists of 5 sessions of 3 hours each, and this can be challenging for students with work or care responsibilities outside the university, for those with tight schedules and heavy workloads, and for those approaching completion of their PhDs. I also felt that the digital experience we were offering to our TAP participants could be intensified to make them more aware of the possibilities of engaging students through different media.

3 Planned changes to the delivery mode

Since Autumn Term 2019 I have been planning changes to be introduced to TAP. The initial idea was to turn some of the class activities into asynchronous, interactive tasks in order to enhance flexibility and reduce face-to-face contact hours (Jun and Zhou, 2011). I opted for a blended approach, as it would allow not only continuity but also an opportunity to make the learning experience more personal and self-paced, particularly for students whose first language is not English and who tend to participate less during group discussions (Marlina, 2009). I noticed that these students tend to collaborate more when using distance response systems such as Mentimeter or when posting their ideas anonymously on interactive noticeboards such as Padlet (Paladino, 2008).

I also planned to integrate the syllabus with a new asynchronous course on core teaching skills designed by UCL together with other universities and recently released to the public. This online course was developed by Epigeum (part of Oxford University Press), and we embedded it on our Moodle platform via a dedicated page. The course includes videos, readings and self-paced assessment opportunities such as quizzes. Exactly like the TAP syllabus, the Arena: Core Teaching Skills course is mapped against the UKPSF.

The initial idea for the new TAP was to split each session into two parts, as per a flipped classroom approach (Vasiliki, 2016). Participants would be asked to complete asynchronous preparation activities and readings adding up to 90 minutes per session, and then come to class for a hands-on follow up of 90 minutes.

As mentioned above, our Virtual Learning Environment is hosted on a Moodle platform. This allows the creation of

- Interactive quizzes
- HP5 activities, such as interactive presentations and exercises
- Online workshops where students exchange feedback (this can also be done anonymously)
- Wikis, portfolios and blogs
- Embedded videos, online reading lists and external resources

The platform also allows activity completion monitoring and much more.

In addition to the Moodle functionalities, I was planning to make extensive use of Mentimeter and Padlet, both for asynchronous pre- and post-session tasks. The interplay of these platforms would ensure an interactive and flexible experience for students with different disciplinary and teaching experiences.

3.1 Response to the Covid-19 crisis

The Covid crisis forced us to re-think our provision more drastically for full online delivery. Both Gateway and TAP were moved completely online and offered to participants who would be teaching online themselves.

Because much of the planning had already been done, the transition was relatively smooth. Sessions were split into a series of asynchronous tasks (adding up to 2 hours of work) and 1-hour synchronous sessions delivered via Blackboard Collaborate. At the same time, I was involved in designing the Connected Learning Essentials (CLEs) course for experienced staff. This asynchronous, interactive Moodle course was designed by Arena and Digi Ed to provide UCL colleagues with a coherent pedagogical framework for online teaching in line with our Connected Curriculum (Fung, 2017).

A "light-touch" version of the Connected Learning Essentials was developed for PGTAs. We were therefore able to offer a learning "package" that can be accessed in a modular form. Students have access to technical training only (CLEs, separate Moodle page), or the TAP course, including the Core Teaching Skills page, and technical training.

4 Conclusions

The Arena 1 provision caters for more than 700 PGTAs every year across UCL faculties. It provides PhD students with tools, strategies and a pedagogical framework to start their teaching experience in HE. It also contributes to creating a community of practitioners that value teaching as central to their academic career. During the academic year 2019-20 a number of changes were implemented to make the provision more accessible to a wider audience; initially by re-planning the provision as blended and then as fully online. The cohorts that have completed the online TA so far (May and June 2020) gave positive feedback in relation to the structure, clarity and quality of resources. Future developments will concern improving expectation management and monitoring workload.

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ICED 2020 proceedings:

Investing in our future: Preparing incoming faculty for today and tomorrow using education developer / faculty mentoring teams

Kata Dósa[1], Katalin Tóth, Lilla Sebestyén

Centre for Teaching and Learning (CTL), Budapest Business School
Markó utca 29-31.
1055 Budapest, Hungary

Abstract

Enculturating incoming faculty members into the paradigm of student-centered education is of central importance in building a sustainable, robust base of excellent educators in higher education. Since university faculty typically begin teaching with little to no pedagogical background, and (in our system) there are no official requirements for them to acquire such skills during their tenure, we developed an evidence-based, personalized, comprehensive mentoring program that prepares junior faculty to use their strengths and to leverage the latest principles of good teaching. Here we introduce our program for incoming faculty, entitled Welcome Aboard, and highlight its cornerstones, such as pedagogical and disciplinary mentors, class observations, teaching consultations, the use of small-group instructional dialogue, and self-reflection.

Introduction

Even though most institutions pay careful attention to the step-by-step development of their students through first-year seminars, an advisory network and social engagements for freshmen, employing the same principles for incoming faculty can be considered rare. Here Hungary is no exception: historical reasons, the demanding requirements for top quality research for university faculty, and the lack of central legal and policy guidelines all contribute to the sporadic, uneven landscape of faculty development.

Investing in developing incoming faculty actively and early on provides a unique opportunity to transform teaching practices and and improve the quality of the learning culture at universities. Incoming faculty typically have yet to develop a firm professional identity (Katz 1972, Kálmán 2019) and as such, education developers can help them adopt high-impact teaching practices, a student-centered attitude and a sense of belonging from the beginning. The benefit to the future of universities is clear: instructors inoculated with high-impact practices and a student-oriented mindset progress along the EPIC model (Aragón et al. 2017) much faster, committing to effective teaching practices more readily and sustainably. Early socialization into the teaching community also makes it likely that these instructors will continue to engage in professional development, strengthening the group of committed, excellent university instructors who can then serve as beacons of good practice for their colleagues as well.

In the following, we first describe key theoretical background, and then we introduce our program for incoming faculty, entitled Welcome Aboard. We follow this by offering a few evidence-based tools for readers to support faculty in their journey.

[1] dosa.katalin@uni-bge.hu

Key models

We developed Welcome Aboard using three foundational theoretical models as our pillars.

1.1 The development model of faculty

Entering faculty are excellent in their fields – but they are hardly ever immediately excellent at *teaching* in their fields. Accordingly, the first few years of teaching typically pose considerable challenges to new faculty; they not only have to learn to navigate the educational system, deal with unfamiliar administrative and student issues, but must also learn the nuts and bolts of teaching as a craft. Most faculty stumble through this obstacle course experiencing doubt, anxiety, fear of failing to perform as expected, feeling pressed for time and not in control, and generally having a hard time. Katz (1972) aptly named this stage of faculty development *Survival*. This stage is a crucial target for education developers for two reasons: it is the period when faculty need the most support and thus are most likely to seek and accept help; and it is the stage when their professional identity is the most malleable, so they are likely to both listen to and internalize new ideas about teaching (Kálmán 2019). Partnering with them at the beginning can also ensure that they move on from *Survival* to the *Maturity* stage with positive experiences and solid teaching practices, thereby increasing the chances that they will stick with a teaching career and improve the quality of education at the institution in the long term.

1.2 The EPIC model

In addition to our faculty developing a solid, student-centered professional identity, it was also important to us that they adopt high-impact practices and routinely make them part of their course design. The EPIC model (Aragón et al. 2017) describes the adoption of a practice from *Exposure*, through *Persuasion* and *Integration*, to *Commitment*. All too often we see in our other programming how faculty get stuck at the first few stages, for they would need personal attention and feedback to fully integrate new pedagogical tools into their practice. In Welcome Aboard, we designed the program structure with this in mind.

1.3 The role of reflection

Clayton and Ash (2005) see the role of reflection in faculty development as crucial on two fronts: to strengthen the metacognition of faculty regarding their own roles as teachers, and to further their ability to later help their students develop metacognitive skills themselves. During the development process, reflection is appropriate and necessary at several stages, forms and constellations. We engage our faculty in self-reflection at the onset, during and at the conclusion of the program; they have opportunities to reflect both verbally and in writing; and there are built-in exercises with their peers, with their mentors, with students and by themselves.

Welcome Aboard

We created our comprehensive program for incoming faculty drawing on the scholarly literature outlined above, and the practice of other higher education institutions across the world (Georgia Institute of Technology, Copenhagen Business School). Welcome Aboard is an elective, semester-long engagement which is designed to support incoming faculty members as they are learning

- to navigate the university system;
- to develop a professional identity and philosophy;
- to build an inclusive, student-centered pedagogical toolkit;
- and ultimately to integrate into the community of the institution.

We present an overview of the program structure in Figure 1.

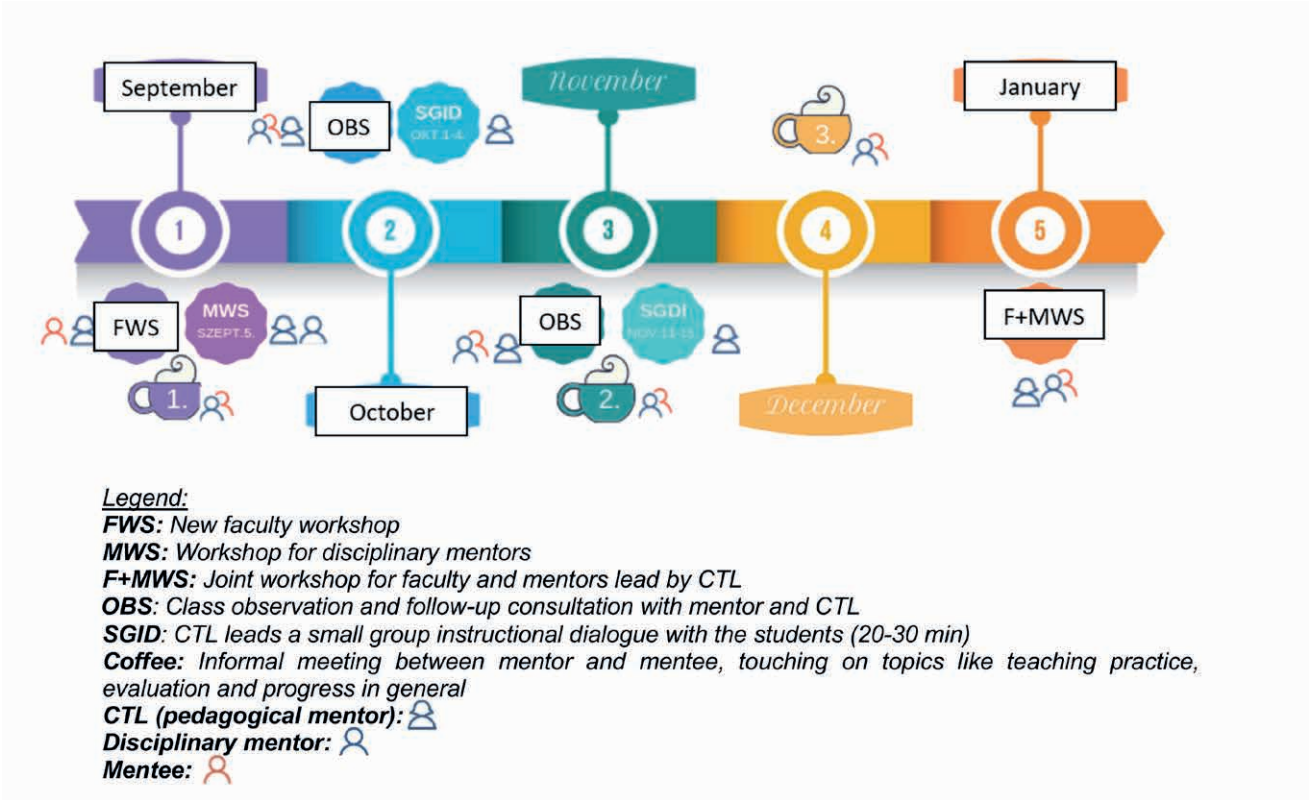

Figure 1: Overview of the Welcome Aboard program for incoming faculty

We invite all incoming faculty members (regardless of their academic track or appointment type) to a New Faculty Orientation before the semester starts. This is a full-day workshop that we use to welcome new faculty and to immediately create a sense of belonging, both to the institution, to other faculty, and to the Centre for Teaching and Learning. Since our institution does not have an organized new employee orientation program we devote some time to general information, from navigating the premises through university policies to the structure and units of the institution. In addition, each participant receives our booklet, entitled Campus Compass, which is a collection of useful resources, maps, contacts, a page with institute-specific jargon, in addition to tools and tips for a successful start in teaching. In the workshop we introduce faculty to course design principles, the complexities of their role as teachers, the elements of backward design (Wiggins and McTighe 1998) and alignment, the mechanics and levels of learning (Marzano and Kendall 2006, Bransford et al. 2000), and we begin to practice certain crucial competencies with them, such as empathetic listening and assertive communication with students. We designed the workshop such that we keep on using one active learning technique after the other with them, stopping and reflecting on what it was like for them as learners, and whether they could incorporate such methods into their own classrooms. We consider these workshops a success when we receive feedback from faculty that suggests that the confusion and anxiety associated with their *Survival* stage (Katz 1972) has been softened if not alleviated.

At the end of the workshop we invite all participants to sign up for the full program. Those who do are matched with a pedagogical mentor (a member of CTL) and a disciplinary mentor (an experienced colleague from the mentee's own department).

We identify suitable mentors via their department heads or deans, and based on our own experience. Potential mentors typically have at least 5 years of experience teaching at BBS, and an excellent track record in teaching, including student evaluations and curriculum development. Mentors are paid a nominal fee per mentee and are required to participate in the full program.

We next organize a preparatory workshop for the disciplinary mentors. In this paper we must omit the details of this workshop, but we are happy to share the content if contacted. “Mentoring the mentors” is crucial: most of them do not have experience mentoring a colleague (which differs markedly from mentoring a student) and they hardly ever have experience of being properly mentored themselves.

As the semester begins, incoming faculty are periodically engaged in two types of interaction: class observations sandwiched between by a preparatory and a follow-up meeting, and an informal coffee hour. We meet twice for the former and three times for the latter.

Both mentors participate in the class observations. In advance, the pedagogical mentor conducts the preparatory meeting with the mentee, gauging their questions, areas of interest and preparing them for what to expect. During the observation both mentors use a feedback form (**Appendix 1**) and during the last 20 minutes of the class the pedagogical mentor conducts a small group instructional dialogue (Black 1998) with the students (see **Appendix 2** for the worksheet). Within a week, both mentors prepare written feedback for the mentee that highlights both areas of strengths and specific suggestions for improvement, using both our observations and those of the students (for a sample see **Appendix 3**). These feedback sheets are emailed to the mentee and then we all meet to discuss the experience and avenues for further development.

Class observations are placed strategically: the first one is scheduled around the third week of the semester, while the second one is during the last two weeks. This arrangement allows two things: first, the tracking of improvement for all parties involved: CTL, the mentee and the students in the mentee’s class. We found it to be greatly motivating for faculty when they realize that students detected positive changes after the first round, and this supports our efforts to instil a growth mindset in them. Second, this is the element of the program that best supports the progress of the mentee along the EPIC stages (Aragón et al. 2017), for any teaching innovations they may have tried are refined during the semester and affirmed by both their mentors and the students.

The informal coffee hours serve more as an opportunity to connect, vent and trade ideas. We want the mentees to feel that someone is always there for them, that they have a safe place to go to with their concerns, and that they are welcome members of the community. We chose to leave these encounters to the disciplinary mentors entirely, with CTL staff absent, because in our experience, a more familial, more confidential atmosphere exists between disciplinary mentors and their mentees, for they work in the same department and often meet every day. Therefore, mentees feel more open to sharing uncomfortable experiences and asking questions that they might feel too ashamed to ask an education developer.

The program ends with a joint mentor-mentee workshop where we reflect on the achievements and learning outcomes of the semester. The inclusion of disciplinary mentors here is not merely for support: even though Welcome Aboard is officially designed and marketed as a developmental program for incoming faculty, we intentionally develop the disciplinary mentors along the way as well, both as mentors and educators.

Conclusions

Having identified a significant need and opportunity to sustainably improve the quality of higher education at our institution, we created an evidence-based, comprehensive mentoring program for incoming faculty. The introduction of Welcome Aboard has been met with overwhelming enthusiasm and gratitude by all parties involved – mentees, mentors and students. In future iterations we plan to strengthen the assessment component of the program, both to quantify improvements for developmental purposes (such as introducing a classroom observation tool like COPUS (Smith et al. 2013) to the protocol), and to demonstrate value added for management. The latter is warranted because currently the number of participants is limited by CTL staff availability, which we anticipate becoming a barrier as the program gains popularity. We look forward to sharing our materials with you – please contact us for details.

Acknowledgements

We thank all our mentors, mentees and students for their contribution to Welcome Aboard, and the leadership of Budapest Business School for generously providing funding for the program.

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Appendix 1: Classroom observation form

Name of instructor observed:
Name of observer:
Course characteristics (course name, type, year, class size) Date:

Observing effective teaching: you may or may not observe something relating to all the questions. Read the list in advance and reflect on the items that are relevant to the context and that you were able to observe.

Learning outcomes and assessment • Does the instructor tell the students the learning outcomes for the class? • Does the instructor make explicit connections to material covered in the past, future lessons, homework, or assessment? • Does the instructor use any forms of formative feedback to track student understanding either before, during or after class? • Do students have any structured opportunity to reflect on their understanding (metacognition)?	Notes:
Instructional strategies • What instructional strategies does the instructor use? Do these strategies adequately support the learning outcomes of the class and prepare students for the assessment? • Does the instructor utilize course materials and instructional technology with confidence and skill? • Does the instructor provide definitions for new terminology, explanations for difficult concepts, and appropriate examples when necessary? • Does the instructor make use of collaborative and active learning techniques? • Does the instructor ask questions of students in order to involve them and have them think for themselves?	Notes:
Class atmosphere • Do students participate in actively in their own learning? • Do students interact and/or collaborate with each other and/or with the instructor? • Does the class atmosphere feel inviting to and inclusive for all students? • What tools does the instructor use to motivate students to ask questions? Do students ask questions? • Does the instructor demonstrate respect, curiosity and enthusiasm when interacting with students?	Notes:
Presentation skills • How is the learning affected by the pace and structure of the class? • What tools does the instructor use for demonstrations? How? • What is the instructor's verbal and nonverbal communication like?	Notes:

Instructions for giving feedback: effective teaching involves some combination of the elements in the table above. When you summarize your feedback, collect your observations and think about how they connect to each other. Instead of a laundry list, prioritize the most important things.

1. What were the most effective elements of the instructor's teaching?

2. List some specific suggestions for improvement grounded in your observations.

Appendix 2: SGID student group worksheet

Course name: Course instructor: Date:

Number of students in group:

Please discuss what you think the instructor's strengths are in connection with this course, and what would help improve your learning. Write specific, detailed examples and suggestions in the appropriate boxes.If members within the group disagree about an item, please mark it with a *.

Strengths (What is helping you learn in this course?)	**Explanation/Example**
1.	
2.	
3.	
4.	
5.	
Suggestions (What would help you learn in this course better?)	**Explanation/Example**
1.	
2.	
3.	
4.	
5.	
We think the pace of the class is:	□ Too slow □ Just right □ Too fast

Please return this sheet to the education developer or to email@email.com.

Appendix 3: Sample feedback

Observer: Kata Dosa, Centre for Teaching and Learning
Course title: **Date, time:** 2019.10.11.
Instructor: Sally Sample
Mentor (optional): Mark Mentor

Dear Sally,
thank you for allowing me to observe your class. I will summarize my observations below and we can discuss them along with your experience at our follow-up meeting. I highlighted the **most effective elements of your teaching in bold** and underlined any suggestions I may have.

You started your class with a brief review where you **collected the most important points from the last class together with the students**. You **tied the material of the day to students' prior knowledge**, which clearly helped them understand the material and organize it in their heads. It was somewhat awkward that the correct answers were already present on the slide when you asked the questions of the students, so I suggest that you animate the slides such that the answers only appear once a student has given the correct answer. You may even throw in a cha-ching sound effect just for fun 😊.

The class continued with short **group presentations** on the progress of student projects. Having students listen to each other can be very beneficial, for they are all working on the same project and thus can learn from the other groups. After a while, however, some of the non-presenting groups got distracted and tuned out – it is worth giving a task to the non-presenting groups to keep them focused. You may want to consider giving them a scoring card, or asking them to pose a question to the presenting group at the end of their presentation. It is also worth structuring the group presentation such that all members of the group get to contribute, not just one spokesperson. If a student is dominating the presentation, you can always chime in saying: "Thank you, can I ask someone else to pick up where Chatty Cathy left off?"

It was visibly motivating for students when you **praised them for their effort** on the project and when you **referred back to examples they previously contributed** in their presentations. It took a while for the students to shift their full attention back to you from the exercise, though. If you would like to speed this up, you might want to use a small bell to signal to students that you now need them to quiet down.

You **chunked your class** into smaller units, with theoretical bits spaced apart by active exercises. This clearly helped students to maintain focus and remain engaged almost the entire time. You **handled transitions very well**, for example when moving from one task or topic to the next, you always foreshadowed it: Next we will do this and that… This enables students to follow along well.

The class atmosphere was friendly and cooperative. You used **open body language and kept eye contact** with students. You may not be aware that you have a habit of touching your left ear when students don't immediately answer your question – if this is something that bothers you, you may want to purposefully fold your hands before a questioning session.

Thank you again for the opportunity to observe your class. Please feel free to ask for clarification on any observation or suggestion of mine, I am more than happy to elaborate.

Best,
Kata

ICED 2020 proceedings:

Shifting our educational development practice: Responding to change

Patti Dyjur[1]

Taylor Institute for Teaching and Learning, University of Calgary
434 Collegiate Blvd NW
Calgary, AB, Canada

Kim A. Grant[2]

Taylor Institute for Teaching and Learning, University of Calgary
434 Collegiate Blvd NW
Calgary, AB, Canada

Abstract

Today's students face rapid technological advances, a changing workplace, and future challenges that are difficult to anticipate. Preparing future-ready graduates compels instructors to demonstrate flexibility, and by extension, educational developers are challenged to reconceptualise their philosophical approaches and practices as well. In this paper we highlight several changes to our educational development practice, including working on a broader scale, using the online environment, expanding our range of topics, micro-credentialing of professional learning opportunities, and moving toward capacity-building.

1 Introduction

Although the field of educational development is still relatively new and evolving, we tend to rely on a few established practices such as workshops and consultations. These methods will continue to have a place in educational development practice. Increasingly, however, we are using a broader range of practices, topics, and approaches designed to foster excellence and shift the culture of teaching and learning in our institutions. We are moving from providing expert advice to individuals toward working collaboratively within and across groups in ways that build capacity (Dawson et al., 2010; Taylor & Colet, 2010). Thus, groups of faculty are able to incorporate their disciplinary approaches to teaching and learning while we, as educational developers, also learn from them in a reciprocal relationship (Gibbs, 2013).

2 Shifts in practice

In this paper, we outline some current shifts in our educational development practice. (1) Rather than focusing exclusively on individual instructors, we are expanding our reach by working at the department, faculty and institutional levels. (2) We are using learning technologies to offer more blended and online workshops, sessions and consultations. (3) We are responding to evolving topics and emerging trends. (4) We are supporting micro-credentialing initiatives that document learning. Finally, (5) we are participating in a shared leadership approach that involves many members of the campus community.

[1] pdyjur@ucalgary.ca
[2] grantka@ucalgary.ca

2.1 Expanding our reach

While our previous educational development practice emphasised working with individuals (micro-level), we now work more with departments and faculties (meso-level) as well as across the whole institution (macro-level) (Williams et al., 2013; Roxa et al., 2011). While we still do one-on-one consultations on occasion, increasingly we are involved in committees, group consultations and project work.

For example, we are expanding our reach by consulting on curriculum review and development projects which typically occur at the faculty or department level and involve most faculty members. We also sit on teaching and learning committees, supporting faculty-initiated activities to advance teaching and learning. In addition, we are involved in various institutional-level committees, such as our student engagement committee, mental health and well-being committee, and our institutional program approval process.

Working at the department or faculty level can be incredibly challenging. We may be perceived as disciplinary outsiders or misunderstood to be representatives of senior administration. Because unfamiliar activities such as curriculum review can make people feel vulnerable and threatened, some groups are less than enthusiastic about engaging in the process. However, by working through the challenges, we are able to participate in transformational group conversations that can be hard to achieve when working with individuals. By expanding our reach, we are also expanding our impact on teaching and learning culture.

2.2 Increased blended and online offerings

Prior to COVID-19, we were increasing the number of blended and online workshops and consultations in our unit. This process was greatly accelerated by the pandemic, which highlighted the importance of being responsive to the needs of the academic community. Focusing with colleagues across our teaching and learning institute on the goal of supporting instructors as they abruptly put their courses online, we created a huge number of resources in a very short amount of time.

Currently all our courses, workshops, and consultations are conducted online through our institution's learning technologies, and we expect that to continue for the foreseeable future. In this time, we are creating web-based resources and continue to offer synchronous sessions, recording some of them, as well as asynchronous courses and learning modules (see https://taylorinstitute.ucalgary.ca/ for examples).

While the transition to online professional learning development offerings was much more rushed than we would have wanted, we have already noticed a few benefits from the shift. For example, we are no longer restricted by physical location. People who could not travel to campus can participate in online sessions, and those in different time zones can access recordings and electronic materials. By using the same learning technologies (i.e., D2L™, Zoom™, etc.) that our instructors use with students, these online sessions also help them to become more comfortable with the technology and its possibilities.

2.3 Evolving topics

As educational developers, we will probably always be involved in work relating to foundational topics such as student assessment, course design, and engaging students in the classroom. However, along with increased committee work, we also find ourselves at the fore of conversations around timely and emerging topics. For example, we are involved in supporting teaching and learning aspects of institutional priorities such as incorporating Indigenous ways of knowing; ensuring equity, diversity and inclusion; and enhancing mental health and well-being in higher education. Other evolving topics include working with teaching assistants and

incorporating Universal Design for Learning (UDL) into course design. Working on new topics allows us to grow and expand as educational developers: we are able to delve into as well as add to research literature on these topics (i.e., see Nelson et al., 2019). Learning new things is energizing, and keeps us motivated in our work while benefitting the campus community by addressing institutional priorities.

2.4 Micro-credentialing initiatives

Short workshops for professional learning on a specific topic relating to teaching and learning continue to be a central part of our practice. However, in the past five years we have launched a number of micro-credentialed programs that provide structure and recognition of participant learning. These micro-credentials, or digital badges, acknowledge learners' accomplishments as they create a personal learning pathway (Devedzic & Jovanovic, 2015; Gamrat et al., 2014) through a particular aspect of teaching and learning development.

For example, we offer several micro-credential options for graduate students and postdoctoral scholars. We have a Certificate in University Teaching and Learning comprised of a number of digital badges, so participants are able to identify their preferred topics and the pace that suits their schedule (Nowell et al., 2020). We have a similar certificate program for academic staff and offer stand-alone micro-credentials in topics such as course design, teaching online, and research skills.

These programs allow us to build capacity in teaching and learning in new ways as participants engage in a number of workshops, not just a single one. Because these programs draw participants from a wide range of disciplines and positions, we have opportunities to facilitate conversations that cross traditional academic boundaries. In the same way that we as educational developers learn by participating on faculty committees, the participants learn from each other as they share teaching and learning theories and practices from their disciplinary perspectives.

2.5 Shared leadership approach

A final example of how our practice is shifting is the move toward a shared leadership approach that builds capacity across campus to further teaching and learning excellence. Rather than seeing ourselves and our institute as the primary providers of teaching and learning development opportunities, we work with others to plan and offer initiatives for small and large groups who may not engage with centrally organized activities. For example, in the past we offered teaching observations in which an educational developer would observe an instructor's teaching, write up a report, and then have a debrief with the instructor. We no longer do individual teaching observations, but we help faculty and graduate students organize teaching squares that allow them to observe one another and reflect on their own practice. We also have guest speakers and panellists at workshops, and co-facilitate curriculum workshops with instructors.

One of the benefits we have seen in shifting to a shared leadership approach is that people start to view teaching and learning as something that everybody takes responsibility for rather than limiting it to a central unit. This approach also builds educational leadership more broadly across campus and allows educational developers and instructors to learn with and from one another.

3 Conclusions

The workplace is changing rapidly and higher education institutions must be ready to meet future challenges. If we are to prepare future-ready graduates, it is critical that educational

developers expand their practice to provide professional learning development that builds teaching and learning capacity and leadership across higher education. In this paper, we have outlined some of the ways in which we are shifting our practice to work with instructors and graduate students to meet this challenge.

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ICED 2020 proceedings:

Designing for blended learning to foster deeper learning: Exploring the use of ICAP theory of cognitive engagement as a professional development activity to support academic teachers' practices

Jeanette Lyn Fung Choy[1]

Centre for Development of Teaching & Learning (CDTL), National University of Singapore
15 Kent Ridge Road
Singapore 119225

Adrian Michael Lee[2]

Centre for Development of Teaching & Learning (CDTL), National University of Singapore
15 Kent Ridge Road
Singapore 119225

Abstract

This study was aimed at increasing our current knowledge on how professional development initiatives can be structured to develop and strengthen academics' pedagogical practices in implementing blended learning (BL) in university education. We investigated the mindsets and processes of 2 groups of academics in a research-intensive university in Singapore. The first group of academics had implemented BL at the early stages of the university's efforts to encourage the broader adoption of this innovative approach, while the second group comprised academics who had attended a professional development course on BL conducted by the faculty development unit within the institution. Initial analysis of interview data revealed positive results on the effectiveness of the professional development course and the use of the ICAP framework to enhance academic teachers' practices in implementing BL.

1 Introduction

Blended learning (BL) refers to a hybrid of classroom and online learning approaches to help students learn (Garrison & Kanuka, 2004). Teaching in a BL approach has been described by Bonk, Kim, and Zeng (2006, p. 654) as a "complicated and multifaceted" undertaking. Other than teacher conceptions about blended teaching, teachers new to BL face the added challenge of having to design learning processes and strategies that best integrate online and face-to-face (F2F) settings to achieve better learning outcomes (Gerbic, 2011); this raises concerns of being able to effectively engage students with these offerings (Holley & Oliver, 2010). Yet, there is a paucity of literature on how teachers practice BL and how teachers learn to engage students to learn in this pedagogy (Torrisi-Steele & Drew, 2013).

In this explorative study, we first identified how early-adopters in a research-intensive university approached the design of learning activities for BL and how they learnt to design for BL. This was followed by an exploration of the influence delivering of the ICAP framework in a professional development (PD) course for teachers who were relatively new to the pedagogy. The guiding research question therefore concerned the extent to which academic teachers' professional development activities relate to their conceptions of BL, and the learning strategies they design for BL.

[1] cdtclfj@nus.edu.sg, http://nus.edu.sg/cdtl/about-us/cdtl-team/jeanette-choy
[2] cdtaml@nus.edu.sg, http://nus.edu.sg/cdtl/about-us/cdtl-team/a-p-adrian-michael-lee

2 Methodology

The present study commenced with interviewing of academic teachers from two different periods of implementing BL at a university in Singapore. The first group of teachers (n = 8), termed as the early adopters (EAs), had implemented BL at the early stages of the university's efforts to encourage the broader adoption of this innovative approach, while the second group (n = 5), termed as course participants (CPs), comprised academics who had attended a structured BL course and subsequently implemented BL in their own modules. Variations in terms of experience in implementing BL, disciplines and number of students in the module were taken into consideration to better represent typical teaching related demographics in the university. Content analysis was used to interpret the qualitative data generated by the interview transcripts and categorized into themes (Neuendorf, 2002).

2.1 Teachers' professional development activities for BL

The teachers within the institution are given considerable freedom in setting the course of their own PD. To identify teachers' PD activities, meaningful fragments about PD activities associated with the activities designed for BL were selected. The categories of PD activity used to code selected fragments referring to learning from the interviews were adopted from the Kwakman (2003) and Bakkenes et al. (2010) studies.

Analysis of the data collected from the EAs revealed 70 instances of reported learning activities (Table 1). Although some of the EAs spoke about formal PD activities (e.g., attending a standalone workshop) and being provided with resources (e.g., guidelines on preparing video lectures), none of these led to conscious thinking about their own teaching practices. Thus, these were not reflected in the reported activities.

Categories	Description	*f*	%
Considering own practice	Conscious reflection on action processes either in a self-initiated manner or from external stimulus (e.g., feedback from colleagues)	27	39.7%
Getting ideas from others	Consciously take notice of views or practices of others (e.g., from books, observing others), or with others (e.g., developing materials together)	23	33.8%
Experimenting	Purposefully trying out something new in practice with some form of reflection on it	18	26.5%
Avoiding learning	Avoid activities to learn how the new approach works	2	2.9%

Table 1: Types of PD activity

2.2 Conceptions of blended learning

Following Prosser and Trigwell (1994), four categories ranging from descriptions that portrayed more cohesive conceptions of BL (Con1 and Con2) to categories that provided more fragmented conceptions of BL (Con3 and Con4) were observed (Table 2).

Conception of BL	Description
Con1	Fosters awareness and preparation for professional lives and future learning
Con2	Orientating towards notions of investigation and enquiry
Con3	Improve students' access to learning and their practical needs
Con4	A means to transfer information

Table 2: Conceptions of blended learning

2.3 Design of activities within BL environment to foster deeper learning for students

The ICAP framework (Chi, 2009) describes students' interaction with teacher-designed learning activities. It is differentiated into four modes of engagement, namely ***I**nteractive*; ***C**onstructive*; ***A**ctive*; and, ***P**assive*. They have a hierarchical relationship in which one mode

subsumes another mode, such that ***I**nteractive* > ***C**onstructive* > ***A**ctive* > ***P**assive*. Teachers' design of BL consists of both out-of-class and in-class learning modes consisting of learning sessions such as lectures, tutorials/seminars, and laboratories. To compare and assess the activities, we focused on the main instructional strategies adopted by the respondents, and how they would want students to engage during the activity. Adopting the coding scheme discussed in the Chi et al. (2018) study, each directive for an activity was segmented based more or less on a verb, such as "watch", or "solve", along with a noun phrase (Table 3).

Mode of engagement	Overt behaviour	Code	Sample activities and how students were required to engage in the activities
Interactive	Purposeful interaction with peers to generate new ideas	I	Teacher allocates pre-laboratory group assignments. Students, with assigned roles, *work in pairs/groups* to *plan* and *determine* the underlying principle behind the experiment.
Constructive	Generate new ideas beyond what was provided	C	Teacher reviews solutions of the selected exercises from the problem sets with the students. Students work in groups to *solve* and *present* their solutions.
Active	Manipulate in some form of overt action without providing any new ideas	A	Teacher reviews questions and solutions of the selected exercises from the problem sets with the students. Students to *solve* weekly problem sets individually.
Passive	Paying attention without overtly dong anything else	P	Teacher may be conducting demonstration to show cause-and-effect, deliver a lecture, or showing problem-solving process. In these activities, students are expected to *listen* and *observe* attentively.

Table 3: Mode of engagement and sample activities from interview data

3 Early adopters' professional development activities, conceptions of blended learning and design of engagement activities for students

Initial analysis revealed that EAs who engaged actively in conscious reflection on action processes, whether upon interactions with colleagues and/or students or from reading articles relating to the practice, had a more cohesive conception of BL. Respondents were also more willing to experiment with new strategies or lesson formats following such interactions in order to observe potential effects on students' learning experiences. In general, EAs with a more cohesive conception of BL were able to consider the different functions for classroom and online contexts when implementing BL in their own modules and designing appropriate engagement activities for their students (see Table 4).

4 Incorporating ICAP as a professional development activity

The BL course consists of six 2-hour sessions and culminates in a 1-hour showcase session conducted by the faculty development unit within the university (Soong, Choy & Lee, 2016). The use of the ICAP framework is incorporated in the session entitled "*Developing Blended Learning Environments that Engage Students*". The session attempts to show how the ICAP framework can be used to design lessons to elicit student engagement in a BL environment. It helps teachers to (a) understand what cognitive engagement is in terms of ICAP, and (b) how to design lesson plans that incorporate higher modes of engaging activities. The ICAP session was delivered via a flipped classroom model, where the theory which underpins the ICAP hypothesis was delivered via an online video prior to the F2F session (pre-session), and application-based activities on using ICAP for lesson design were conducted via the F2F session (in-session).

5 Results and discussion

Other than participating in the PD course, all five participants spoke about engaging extensively in reflecting on their own teaching practice as well as on students' learning and functioning. With more cohesive conceptions of BL, the participants were able to make informed decisions to design learning processes and strategies that best integrated online and F2F settings. Participants were also consciously thinking about how the design of the learning activities would engage students in a higher mode of engagement during learning. As one of the participants stated, "It was really useful overall. Like what type of activities, cognitive level … mostly experience from other people doing the BL is very useful, what works, what doesn't work" (CP2).

Case ID	Conception of BL	Out-of-class		In-class		
		Online (i.e. video, quiz, forum)	Homework assignments to be addressed during tutorial	Lecture	Tutorial/ Seminar	Laboratory
EA1	Con2	Passive		Interactive		
EA2	Con2	Active		Constructive	Interactive	
EA3	Con4	Passive			Active	
EA4	Con1	Active			Interactive	
EA5	Con3	Active	*Constructive	Active	Active	
EA6	Con1	Passive			Interactive	
EA7	Con2	Active	*Constructive		Constructive	
EA8	Con1	Active			Interactive	
CP1	Con1	Active			Interactive	
CP2	Con2	Active			Interactive	
CP3	Con2	Constructive				Interactive
CP4	Con2	Active			Interactive	
CP5	Con2	Active			Interactive	

**Whether this led to generative behaviours as predicted by ICAP will depend on how the tutorial session was being designed to review the homework assignments with students*

Table 4: Data Display Matrix for Critical Variables

6 Limitations and conclusion

It is recognised that even well-designed lessons cannot guarantee that students enact the activities in the ICAP mode that teachers intended (Chi et al., 2018). Actual observations of how students respond to the instruction and the artefacts generated by students are needed to form a complete understanding of how well the instructions are enacted by the teachers.

In summary, this study supports the notion that teachers do not learn solely through formal learning activities. Nevertheless, as compared to single instance PD workshops, longer-term workshops allow faculty to practice applications and think through design issues in relation to their own course design and delivery (Cagle & Hornik, 2001). Despite the small sample size, there was evidence that the PD course on BL supports academic teachers in designing and implementing BL in their respective modules. In particular, the initial analysis shows that it was meaningful for the participants to learn about the ICAP framework and use it to design learning activities to engage students not just for BL, but also for a more holistic change in teachers' pedagogical approach.

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ICED 2020 proceedings:

How we are cultivating future-ready graduates in Japan: Issues and expectations emerging from SoTL research at Teikyo University

Fumiko Inoue[1]

Center for Teaching and Learning, Teikyo University
359 Otsuka, Hachioji
Tokyo, Japan

Takashi Yasuoka[2]

Center for Teaching and Learning, Teikyo University
359 Otsuka, Hachioji
Tokyo, Japan

Susan C. Eliason[3]

Center for Teaching and Learning, Brigham Young University
3800 HBLL
Provo, Utah, U.S.A.

Abstract

Ever since faculty development became a required element of higher education in Japan, numerous initiatives have emerged to improve teaching at the organizational and individual levels (2020). However, little focus has been placed on supporting or accelerating regular classroom improvement undertaken independently by individual teachers. Further, we observe that the burden of publicizing the results of their undertakings and sharing them with instructors who face similar problems still remains with the teachers themselves.

Since 2017, the Center for Teaching and Learning at Teikyo University has implemented the SoTL Project, which supports educational research conducted by faculty members on their own classes. A post-project survey completed by participants revealed that many felt their SoTL efforts were very significant.

1 Introduction

The Center for Teaching and Learning (CTL) at Teikyo University was established in 2011 with the mission of promoting educational development across the entire university. Currently the Center employs 11 specialists working in four departments: educational research, institutional research, pedagogical research support, and teaching Japanese writing. In 2017, the Scholarship of Teaching and Learning (SoTL) Project was introduced to support educational research conducted by faculty members on their own classes.

[1] inoue@main.teikyo-u.ac.jp
[2] yasuoka@main.teikyo-u.ac.jp
[3] susan_eliason@byu.edu

The SoTL Project aims to implement the educational ideals of Teikyo University and support research activities related to individual teachers who contribute to the development of teaching activities designed around the student perspective. The driving forces behind SoTL are twofold: first, the need for interest and problem awareness among individual teachers with regard to their own classes (so that they can actively and independently work to improve them); and, second, the hope that individual knowledge about teaching and learning can be developed into organizational knowledge through the disclosure of research results via oral presentations and the submission of research papers. This is congruous with the concept of creating organizational knowledge (Nonaka,1996; Senge, 2011) related to teaching and learning (Inoue, 2014), which aligns with the purpose of the Center for Teaching and Learning (Figure 1).

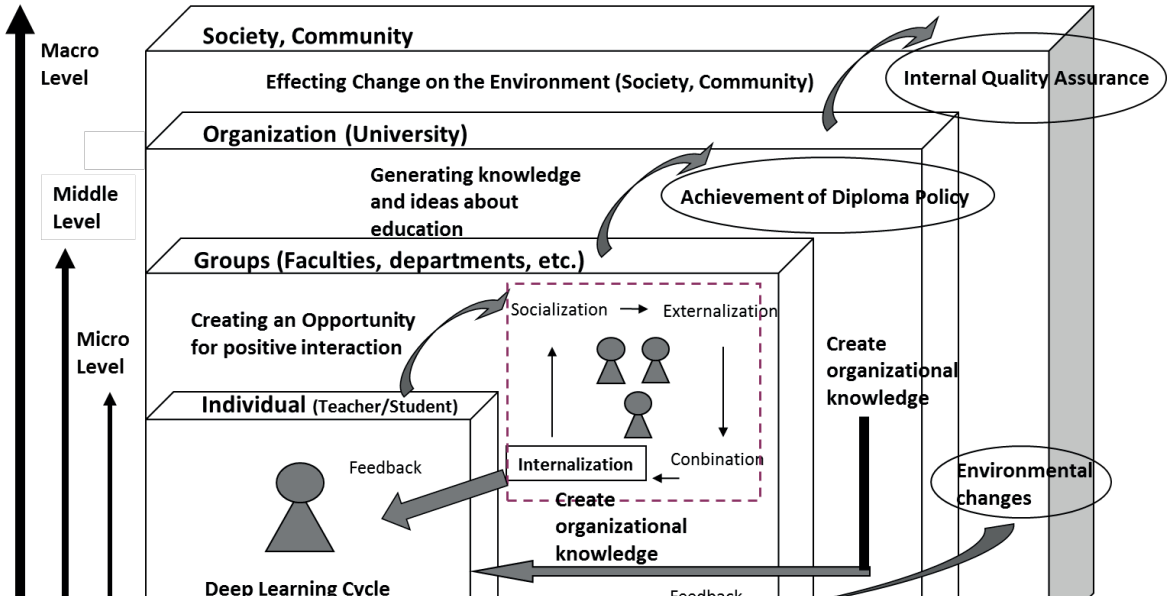

Figure 1: Concept of building organizational knowledge related to teaching and learning (Inoue, 2014)

2 Overview of the SoTL Project at Teikyo University

The SoTL Project is generally undertaken for a period of one year, during which participants ("delegates") are provided with a research grant. Research delegates are obligated to provide oral presentations at interim and final briefing sessions and to submit research papers for the Center for Teaching and Learning bulletin. Not surprisingly, the SoTL Project is designated as one of the criteria used to evaluate the teaching performance of selected participants at Teikyo University.

As of 2020, a total of 31 individuals (research delegates only) have participated in the project. Over four years, a majority of research themes were related to "designing, implementing, and evaluating active-learning classrooms" and "designing, implementing, and evaluating classrooms that utilize Information Communication Technology (ICT)." From the shift to student-centric education in recent years, we observed that instructors are highly interested in developing active-learning lessons and utilizing ICT in the classroom.

3 Post-project survey results

Let us look at the post-project survey results for 2018 and 2019, in which teachers who had taken part in SoTL activities were asked how they felt about their experiences. The surveys were conducted by both paper questionnaire and Web survey, and the valid response rate was 100 percent for both years (eight people in 2018 and eleven in 2019).

Respondents were asked to select multiple-choice answers and write reasons for their selections with regard to seven items: (Q1) significance of SoTL activities; (Q2) significance of participation in the SoTL community; (Q3) ways by which SoTL activities were shared with others; (Q4) usefulness of support provided by the CTL; (Q5) desire to continue with SoTL; (Q6) necessary training for SoTL activities; and (Q7) other. Due to space constraints, we will consider here only the responses to Questions 1, 3, and 6.

Regarding Question 1 about the significance of their SoTL activities, almost all participants responded that they were "Very Significant" (eight in 2018 and eight in 2019) or "Somewhat Significant" (three in 2019) (Figure 2). Reasons for those answers included "I thought it was significant that I was able to leave behind explicit knowledge in the form of my research results by treating my classroom activities as subjects of study"; "This job can be a solitary one in some ways, so I felt this was a great opportunity not only to learn and gain awareness about a variety of things, but also to rekindle my passion and motivation toward my work"; and "I was able to systematically organize the experience I've gained through actual classroom teaching."

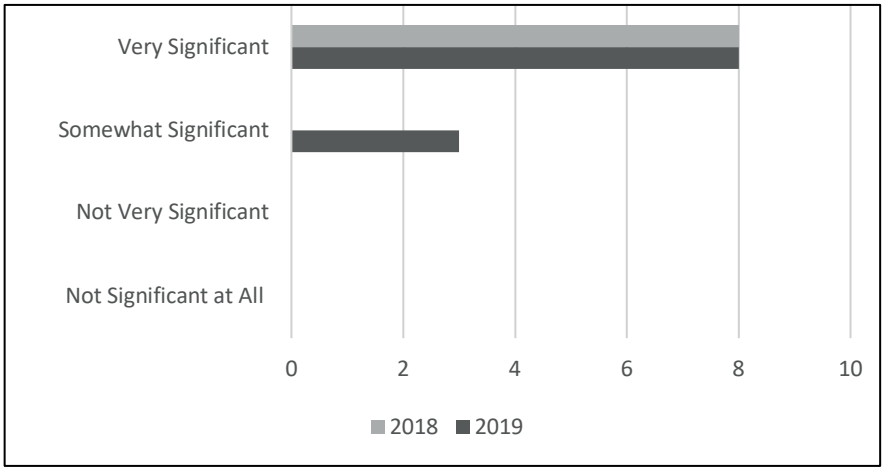

Figure 2: Significance of SoTL activities

Regarding Question 3 about how participants shared their SoTL activities with others, "chatting with colleagues" had the most responses (six people in 2018 and six in 2019), followed by "conversations with other SoTL Project participants" (four people in 2018 and four in 2019) and "conversations with colleagues at departmental meetings, etc." (five people in 2018 and three in 2019). We saw relatively few responses to "submissions to academic journals or bulletins (other than the Teikyo-CTL bulletin)" (one in 2018 and one in 2019) and "presentation at an external academic conference, etc." (four in 2018 and one in 2019), indicating that the disclosure and sharing of activities is limited to colleagues and other participants in the SoTL Project (Figure 3).

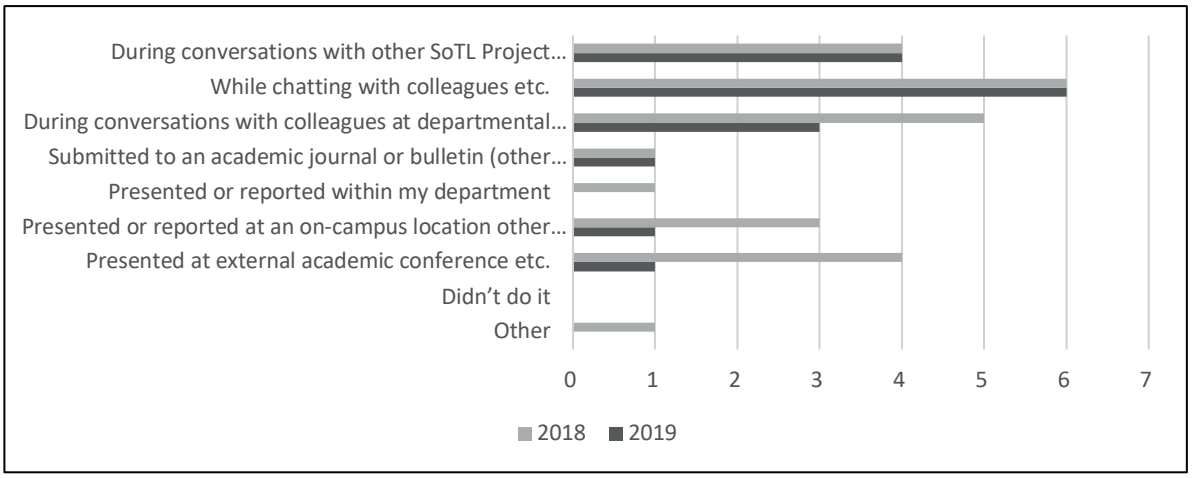

Figure 3: Methods of sharing SoTL activities with others

Regarding Question 6 about the training needed for SoTL activities, quite a few faculty responded to "survey design and analysis" (three in 2018 and five in 2019), "multidisciplinary techniques for educational research" (four in 2018 and four in 2019), and "evaluating research" (four in 2018 and three in 2019). These responses indicate that participants feel the need to know more about the techniques used in educational research and survey design and that they are interested in how to assess their own SoTL activities (Figure 4).

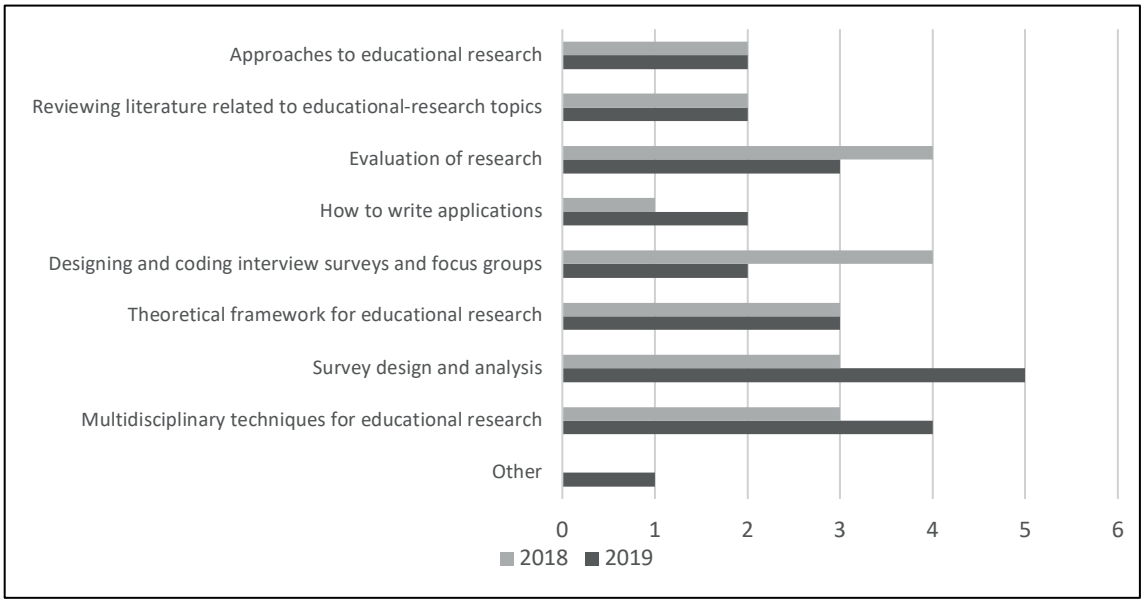

Figure 4: Training needed for SoTL activities

4 Conclusion and suggestions

From the post-project surveys completed by participants, we saw that virtually all teachers considered their SoTL efforts to be very significant. However, they tended to share the results of those activities through informal conversations with co-workers and other participants in the SoTL Project; very few shared by presenting their experiences orally at academic conferences or by submitting research papers. Presumably, this is due to the lack of a common awareness enabling university professors in Japan to see their own classrooms as potential subjects of

research and to accept the idea that the study of teaching is a natural thing for university faculty members to engage in.

In addition to continuing our efforts to promote SoTL within Japan, we intend to study which sorts of organizational and support systems can be constructed to effectively popularize SoTL among university professors.

Acknowledgments

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ICED 2020 proceedings:

Emotions as pedagogical tools: The role for educational developers in university learning and beyond

Kate Ippolito[1], Nikki Boyd, Richard Bale & Martyn Kingsbury

Centre for Higher Educational Research and Scholarship (CHERS), Imperial College London
Exhibition Road
London, SW7 2AZ, United Kingdom

Abstract

In light of concern about student mental well-being and pressure for universities to take action, we present an approach for increasing awareness and challenging assumptions around the importance of emotion in learning and teaching. We draw on Barrett's (2017) and Pekrun's (2006) theories and our experience to explore how, as educational developers, we can inform the ways academics and students make sense of and regulate emotions inherent in education. Key areas of focus include educational development activities to reconceptualise the role of positive and negative emotions in learning (Pekrun & Perry, 2014).

1 Introduction

Academics have a responsibility to inspire their learners to recognise the central role of emotions in their discipline's learning and teaching. Some do this through sharing their enthusiasm for topics and learners' progress (Cavanagh, 2016) and modelling how they handle pressure and disappointment. Others lack awareness of how crucial emotion in learning can be. Educational developers, with their cross-disciplinary and theoretical insight, are well-placed to lead in this collaborative endeavour, and have a valuable role to play in conceptualising emotions as pedagogical tools in curricula and for graduate futures. This paper outlines our concept based on a workshop we have developed.

2 Reframing student well-being

In recent years student well-being has become a source of growing concern for universities internationally (Neves and Hillman, 2019; Van der Heijde, Vonk & Meijman, 2015; Barra Stolzenberg, 2018). In the UK, the new University Mental Health Charter (Hughes & Spanner, 2019) sets out principles for making student mental well-being a strategic priority. This policy-level activity is accompanied by pedagogical recommendations such as embedding mental well-being in university curricula (Houghton & Anderson, 2017). However, there is disagreement over the academic's responsibility and role in so-called "therapeutic education" (Ecclestone & Hayes, 2019). Others warn against the risk of over-medicalising normal emotions of young adults responding to university life (Wessely, 2019). The challenge faced is acknowledged as being complex, including the need to better understand what is meant by student well-being (UUK, 2017). Whilst not dismissing mental health difficulties, our aim is to problematise the broader concept of well-being by asserting that even perceived negative emotions are valuable assets that should be worked with, and not avoided. Departing from the language of "support" and "management" of emotions, we seek to challenge teachers' and students' assumptions and reframe existing ideas about emotion in university learning and teaching. We aim to embed practical approaches to increase emotional awareness in institutional practice and culture. This more sustainability-focussed view of emotions for

[1] k.ippolito@imperial.ac.uk

learning recognises the need to prepare our graduates for uncertain futures (Barnett, 2004), and the variety of emotions that are likely to be evoked by this uncertainty.

Academic pressures, particularly assessment, are recognised as most challenging to well-being (El Ansari et al, 2011). Given that it would be impossible and unhelpful to remove all stressors from university study, a desirable alternative is to create environments where students explicitly learn to cope with normal stressors. This may involve recognising and re-categorising their emotions (Barrett, 2017), such that academic challenge arouses curiosity and satisfaction, not frustration or anxiety, and may become energising, not draining. The active learning environment where greater interaction between students and teachers gives rise to a range of emotions (Charalambous, Hodge & Ippolito, 2020) presents opportunities and challenges.

3 Conceptualising emotions in learning

Encouraging positive engagement with emotions requires better understanding of how students and teachers recognise, make sense of, attribute and regulate emotion in active learning settings. We are inspired by Lisa Feldman Barrett's theory of constructed emotion, as opposed to the classical view of emotions being limited and universally recognisable (Barrett, 2017). She defines emotion as a goal-based concept, which individuals construct depending on physiological sensations, context and what they want to achieve. "Emotions are not reactions *to* the world; they are your constructions *of* the world" (Barrett, 2017: 104). We complement this with Pekrun's control-value theory (2006), which emphasises the role of an individual's appraisals of a situation in emotion. For example, a student's appraisal and resulting emotional response may relate to how much perceived *control* they have of an assessment task and its outcomes, or how much they see *value* in the topic or activity. Pekrun and colleagues distinguish between achievement emotions, those "tied directly to achievement activities or achievement outcomes" (Pekrun, 2006: 316) and epistemic emotions, which relate to the acquisition and generation of knowledge (Pekrun et al, 2017).

4 Application to research

The emotions identified through exploratory, qualitative research (Pekrun & Perry, 2014) enabled development of the Achievement Emotion Questionnaire and the Epistemically-Related Emotion Scale. The emotions listed in these tools can be seen in Figure 1 (achievement emotions indicated in blue, epistemic emotions in red, emotions belonging to both categories in purple). These are largely used in quantitative studies; however, we are taking a more qualitative, dialogic and collaborative approach by allowing participants to construct their own meanings and attributions. This phase of research involves teaching teams of three participants taking part in 90-minute semi-structured group interviews, via MSTeams. This begins with a conversation around emotions they anticipate, desire, and observe in learners and experience themselves in active learning classrooms. Next is a digital card sort activity, based on Pekrun and colleagues' achieving and epistemic emotions. The first activity (Fig. 1) involves each participant selecting 2-3 emotions and elaborating which aspects of the active learning environment generates that emotion in learners and why this might be.

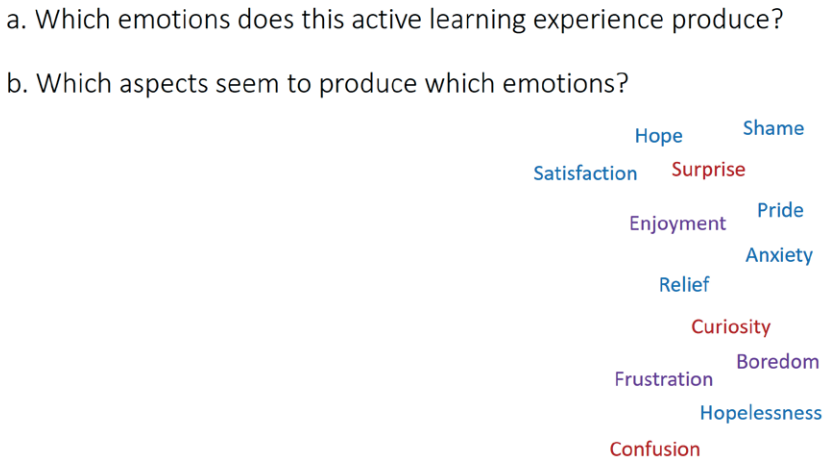

Figure 1: Activity 1 based on Pekrun (2006) and Pekrun et al. (2017)

The second activity (Fig. 2) involves participants categorising the valence (positive or negative) and activation potential of each emotion. This refers to the emotion's ability to motivate or to bring about learning, or to reduce a learner's desire to take action towards learning. This categorisation process gives rise to interesting conversations about what teachers are aiming to achieve in their classroom in terms of affective processes and outcomes. These card sort activities are followed by a conversation about the role of academics in working with emotion, their willingness to do so, and their perceived competency in this.

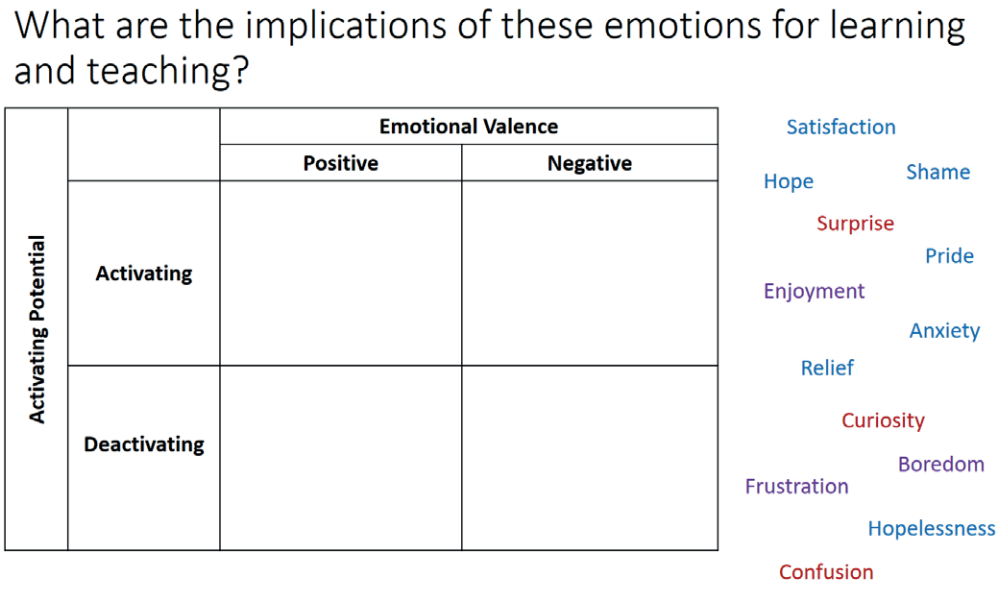

Figure 2: Activity 2 based on Pekrun (2006) and Pekrun et al (2017)

The next phase of this study will involve students in a similar process. In this way the study seeks to re-examine and conceptualise the role of positive and negative, activating and deactivating emotions in learning. In doing so we challenge teachers' and students' existing beliefs about emotion in learning, offer an alternative, more agentic perspective for supporting well-being in university curricula and suggest approaches for navigating this.

Interesting points raised in discussion include:

- The difference between epistemic emotions – confusion and frustration – and their relative potential for activating learning;

- Agreement over the desire to promote learner curiosity, through choice, more time and space, unassessed or pass/fail periods in the curriculum, integration of real-world, post-graduation examples and discovery-based activities. For example, building a sentence with words from an envelope that gradually simulates how genetic data is sequenced;
- How to increase learners' control without overwhelming them, and strategies for helping students appreciate and increase the value of what they are studying, for example the transferability of statistical and programming skills to STEM graduate job roles;
- Asking students to identify what they have enjoyed about their learning that week;
- Scaffolding and repeating novel, uncertain active learning experiences so students can apply lessons learnt and recover from setbacks.

5 Application to educational development

Currently this approach is being used as a research tool, although arguably the group interviews are educationally developmental for the participants and interviewer as they share perspectives on which emotions they and students experience and interpretations of why this might be. Furthermore, teacher participants have recommended that Pekrun's control-value-theory-based activity be used as a tool and process to support conversations amongst academics and with students about emotions involved in learning. This aims to increase emotional reflectiveness and potentially improve well-being. Valuable concepts for exploration through educational development include:

- Emotional disorientation: Sense of confusion involved in transformative learning (Quinlan, 2016);
- Emotional granularity: To exhibit high emotional granularity means individuals recognise many emotional concepts and are emotionally literate. This has a cultural dimension as different languages are able to express different emotion concepts (Barrett, 2017). For example, *Schadenfreude*, the German word meaning pleasure derived from another's misfortune, does not have an English equivalent;
- Emotional contagion: The tendency of people "to take on the emotions displayed by fellow in-group members with whom they interact" (Smith & Mackie, 2018: 418);
- Emotional acculturation: The process of one's emotions becoming attuned to a new cultural context as you are exposed to and acquire new, local emotion concepts (Barrett, 2017).

6 Conclusions

We hope to have offered educational developers and academic colleagues a way of conceptualising emotion in learning and teaching. We have presented a conceptual framework and process for facilitating conversations and identifying strategies to work with emotions as pedagogical tools. We hope this, in turn, has a positive impact on students', teachers' and graduates' well-being and enjoyment of the curriculum.

Acknowledgements

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ICED 2020 proceedings:

Developing a curriculum mapping framework to enhance discipline-specific academic professional development in South Africa

Ashwini Jadhav[1]

Faculty of Science, University of the Witwatersrand
1 Jan Smuts Ave
Johannesburg, 2000, South Africa

Sipho Hlabane[2]

Centre for Learning, Teaching and Development (CLTD), University of the Witwatersrand
1 Jan Smuts Ave
Johannesburg, 2000, South Africa

Abstract

Curriculum mapping is a concept that is reasonably well documented in mapping literature. However, many existing curriculum mapping processes do not address discipline-specific curriculum mapping that assists academics to develop their Pedagogical Content Knowledge (PCK) through the use of content representations (CoRe). This article, therefore, intends to address this gap and develop a mapping template that embeds PCK, through the use of a systematic review of the literature method to identify common curriculum mapping features. It is envisaged that the curriculum-mapping framework thus derived will enable academics to understand that there is a close relationship between what is taught and the choice of pedagogy in teaching a specific topic in a discipline.

1 Introduction

Curriculum mapping is increasingly being recognised as a common concept in the higher education sphere (Ervin, Carter and Robinson, 2013), not only because the academics in the higher education sphere are expected to identify and focus on curriculum learning goals to effectively teach and assess the content within their courses (Arafeh, 2016), but also for reasons such as the drive for global competitiveness (Wang, 2015), responsiveness (Moll, 2004) and quality assurance at the institutional level. However, the challenge with many curriculum mapping frameworks is the inclusion of discipline-specific curriculum mapping that will assist academics to develop their Pedagogical Content Knowledge (PCK). The purpose of this research is to develop a curriculum mapping framework that will investigate the possibilities of embedding elements of content representations (CoRe) in mapping science courses, with the end goal being the development of PCK in the academics.The research will address the following questions:

- What are the knowledge gaps inherent within the curriculum mapping processes?
- How can CoRe and PCK be embedded in the curriculum mapping process?

[1] Ashwini.Jadhav@wits.ac.za
[2] Sipho.Hlabane@wits.ac.za, +27 011 717 1485

2 Curriculum mapping and academic professional development

The concept of curriculum mapping originated in the 1980s in the work of Fenwick English (Udelhofen, 2005) who defined curriculum mapping as "a reality-based record of the content that is actually taught, how long it is being taught, and the match between what is taught and the assessment program." It was then embraced and enhanced by Jacobs (2004) by including a variety of teacher-driven curriculum maps, such as horizontal and vertical alignment. Hale (2008) later refined the definition of curriculum map as a process of indexing or diagramming a curriculum to identify and address academic gaps, redundancies and misalignments for purposes of improving the overall coherence of a course of study. However, most curriculum mapping processes do not address the issue of how the curriculum is taught and thus ignore pedagogical content knowledge (PCK) as the most important component.

Pedagogical content knowledge (PCK) was introduced by Shulman (1986), who described it as representing "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction." PCK can be enhanced through the use of content representations (CoRe). CoRe are tools which attempt to portray a holistic overview of an expert teacher's PCK in relation to the teaching of a particular science topic in a visually understandable, structured way (Nilsson and Karlsson (2019). It prompts the teacher to articulate what are called "Big Ideas" relating to queries that include what students should learn about each big idea; why it is important for students to know these ideas; students' possible difficulties with learning the ideas; and how these ideas fit in with the knowledge the teacher holds about that content. In this way, working with the CoRe as a mapping tool and/or as a reflective tool has the potential to help teachers conceptualize their professional knowledge and make explicit the different dimensions of, and links between, knowledge of content, teaching, and learning about a particular topic, thereby strengthening their PCK and enhancing their professional knowledge of practice (Nugraha, 2017).

Curriculum mapping can, therefore, serve as an academic professional development tool, as it will assist academics to think critically about the topics they teach and to question their decisions and choices about their pedagogies for a particular topic in their praxis.

3 Methodology

In developing the curriculum framework that addresses the research questions, research articles published in the years 2005 to 2019 were systematically reviewed for curriculum mapping processes to interrogate, analyse and identify central features within the curriculum maps. The key research term used while searching for scholarly/journal articles was "curriculum mapping", which was then refined to the term "higher education". The figure below outlines the process of selecting research articles from the initial search database.

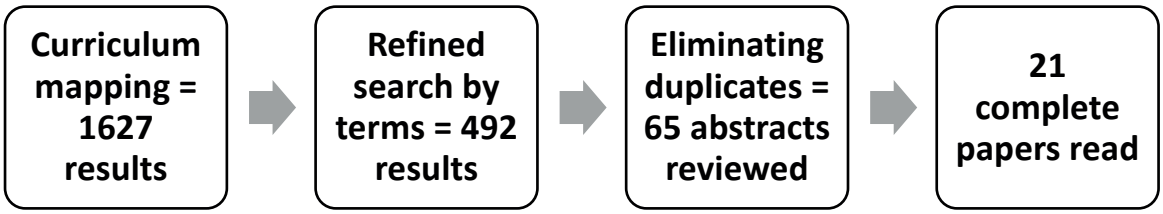

Figure 1: The process for selecting research articles

Reference lists of identified journal articles were examined to explore whether any other conventionally accessible materials such as reports, minutes, and other in-house publications existed. Abstracts of identified journal articles were then screened, which assisted in selecting relevant journal articles for further review. The selection of the articles/papers was more focused on articles that had explicitly stated and elaborated on curriculum mapping approaches which are related to constructive alignment. The content of the selected papers was then examined to determine the methods used in curriculum mapping. Twenty-one papers were selected, and similarities in their curriculum mapping approaches were identified.

4 Results and discussion

The final 21 papers that were reviewed identified the following features in their curriculum mapping:

- Learning outcomes
- Assessment
- Learner activities
- Concepts
- Declarative, procedural and schematic knowledge
- Critical graphical representation
- Materials
- Vocabulary
- Patterns

Whilst the papers reviewed addressed the typical and obvious tenets of constructive alignment and tried to locate gaps in student learning and places where instruction was being needlessly repeated, and endeavoured to embed requisite skillsets, none of them made any references to pedagogy, or specifically PCK; nor was the concept made explicit. However, one cannot conceptualise or talk about student learning without taking into account the pedagogy that the teacher would need to use for the students to learn effectively. To bridge this knowledge gap, we propose a discipline-specific curriculum mapping framework that incorporates PCK and CoRe adapted from Loughran et al. (2001) for future use while mapping science course outlines. The proposed framework is presented below.

As discussed above, the majority of curriculum maps have basic features such as learning outcomes, teaching and learning activities and assessment, a.k.a constructive alignment. However, the curriculum maps do not holistically interrogate the contents of the topic, through the inclusion of PCK. The PCK components that were not present in the curriculum mapping processes studies were core concepts, learners' prior knowledge, aspects that are difficult, use of representations and teaching strategies. These were addressed by the proposed curriculum mapping framework (Table 1). Although the generic features in curriculum mapping are no doubt important, the information provided in the typical curriculum maps does not give much information about the content of the topic and how the topic is taught. It is necessary that curriculum mapping should, therefore, delve more into the core concepts of any given topic by articulating the "Big Ideas" for that particular topic.

Criteria	Topic	Learning outcomes	Big ideas/Core concepts	Learner prior knowledge	Aspects that are difficult to learners	Use of representations	Teaching and Learning activities	Assessment	Resources
Guiding questions		-What do you intend learners to know/do in this topic?	-What would you consider as Big Ideas for this topic? - What do you intend the learners to know about this idea? - Why is it important for learners to know this big idea? - What concepts need to be taught before teaching this big idea? - What else do you know about this idea (that you do not intend learners to know yet)?	-What are the typical student misconceptions in this big idea? -How would you go about correcting them? -How would you establish what the students already know about this big idea? -How would you address the knowledge gap?	-What do you consider easy or difficult in teaching this big idea? Provide reasons.	-What representations would you use in your teaching strategies, and why? -How would you embed discipline-specific skill sets (either generic or practical or both)?	-What conceptual teaching strategies would you use in teaching this big idea? -How would you link the big idea to the practical skills/ classes?	-What kind of formal/ informal assessment (for learning) will be done, and a brief indication on how the concept(s) discussed may be assessed at another time in relation to others in the topic.	

Table 1: Proposed Curriculum Mapping Framework embedding PCK and CoRe

One of the important topic-specific components included in the mapping framework is students' prior knowledge. It is important for academics to be aware of what their students need to know before they commence the teaching and learning activities for a particular topic, as this will inform their choice of pedagogy and student learning trajectories. Knowledge about what aspects of a topic are difficult is also important, because the teacher will then know how to approach the topic in a manner that is easier for the students to learn; this also impacts the choice of assessments. The use of representations during teaching is also important, since they assist in embedding discipline-specific skills and prepare students to make the transition from "knowing" to "becoming".

5 Conclusions

The review of literature in this study highlighted the lack of clearly articulated mapping processes, particularly in the context of PCK. Further research into the processes of mapping would assist in developing a more robust system of mapping curricula with a specific focus on topic-specific PCK, which in turn would enhance the development of curricula that will respond to student needs and success issues and contribute towards preparing future-ready graduates.

Curriculum maps can also serve as an academic professional development tool that develops the PCK of academics in the higher education arena. Here the proposed curriculum mapping framework will enable academics to develop a deeper understanding of the "Big Ideas" behind disciplinary content and to articulate their implications for praxis, with the aim of producing future-ready graduates who have both the generic and discipline-specific transferable skills to function in an ever-evolving society.

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Future-ready faculty: Developing the characteristics of expertise in teaching in higher education

Helen King[1]

Academic Practice Directorate, University of the West of England
Cold Harbour Lane,
Bristol BS16 1QY
UK

Abstract

In higher education (HE), "ways of thinking and practising" (WTP) have been considered for many academic disciplines (e.g. McCune & Hounsell, 2005), but less so for the practice of HE teaching. In other professions, WTP is explored through the concept of expertise (e.g. Ericsson et al, 2006). A better understanding of expertise of HE teachers will help inform the enhancement of educational development (Kreber et al, 2005; Saroyan & Trigwell, 2015). This paper proposes a model of expertise in HE teaching based on the expertise literature, empirical research, and reflection on practice. The model is presented as three interacting aspects:

- Pedagogical Content Knowledge (Shulman, 1986)
- Artistry of Teaching: authentic, creative & improvisatory (Schön, 1982)
- Self-determined & purposeful approaches to learning and development (King, 2019)

1 Introduction

Over the last 15 years or so there has been considerable interest in the idea of "ways of thinking and practising" (WTP) in the academic disciplines. WTP goes beyond knowledge and skills to consider "particular understandings, forms of discourse, values or ways of acting which are regarded as central to graduate-level mastery of a discipline or subject area" (McCune & Hounsell, 2005, p. 257). Particular approaches to this have included Threshold Concepts (Meyer & Land, 2003), Decoding the Disciplines (Pace & Middendorf, 2004) and Signature Pedagogies (Gurung et al, 2008). These approaches have provided ideas and tools to support academics to unpack the more tacit aspects of their disciplines and to better articulate and facilitate their acquisition. However, little has been done to explore the WTP of academics as teachers in higher education.

A related approach to WTP less widely used in higher education is the concept of expertise. A significant body of research in a wide range of fields and professions has explored what it means to be an expert that builds on their strong foundation of content knowledge and skills: "…experts have acquired extensive knowledge that affects what they notice and how they organize, represent, and interpret information in their environment" (Bransford et al, 2000, p. 31). By understanding the differences between experts and novices, and between experts and experienced non-experts, it may be possible to identify their ways of thinking and practising. And exploring how experts themselves have learnt and developed may provide insights into approaches to supporting novices to develop expertise (Ericsson, 2017).

In addition, whilst the rhetoric of excellence is widely used in the HE sector and beyond, by definition/derivation it is not achievable by all: "excellence" is the state of being outstanding

[1] Helen5.king@uwe.ac.uk Twitter: @drhelenking Website: https://www.drhelenking.com

(from the Latin *excellere*: ex – "out, beyond"; celsus – "lofty"). We cannot all stand out from everyone else! For effective educational development, an aim is required that is potentially achievable by all. Here the concept of expertise, being related to notions of process rather than product, is much better suited by definition/derivation (from the Latin *expertus* the past participle of *experiri* – "to try" and also the etymological origin of "experience" and "experiment").

This paper draws on the extensive literature on expertise, together with a small-scale empirical research study and the author's 20+ years' experience in educational development in the UK, to propose a model of the characteristics of expertise in teaching in higher education. This model potentially provides an holistic framework for planning and facilitating educational development, and for motivating colleagues to develop themselves professionally as they continually progress their own expertise (rather than striving for an elusive "excellence").

2 Characteristics of expertise in teaching in higher education

Consistent achievement of positive outcomes is perhaps the most obvious measure for identifying an expert (Frensch & Sternberg,1989), but what are the ways of thinking and practising that lead to this? Generic characteristics of expertise that are relevant for all fields and professional comprise the following elements (Glaser & Chi, 1988, summarised in Skovholt et al, 2016):

- High performance in one domain based on subject knowledge and skills developed through study and experience;
- Perception of large meaningful patterns in their domain of expertise, which results in the ability to perform skills faster than novices;
- Automaticity of skills brought about through many hours of practice which can exhibit as an effortless grace or "flow" (Csikszentmihalyi, 1990);
- An approach to problem-solving that is qualitatively different to that of novices, including taking more time at the beginning of a problem to understand it from various viewpoints before attempting a solution;
- Strong metacognitive skills and self-determined / self-motivated development (Ericsson et al, 1993).

Based on observations of highly effective teachers in higher education, self-reflections on my own practice, discussions with participants at various educational development conferences and research with nine UK National Teaching Fellows (King, 2019), it is suggested that these generic characteristics of expertise are manifest in higher education teachers in the ways described below.

2.1 Pedagogical Content Knowledge

The subject knowledge and skills required to teach in higher education pertain to both *what* is being taught and *how* it is taught. To perform effectively as a teacher, one must be able to integrate these seamlessly in order to design and deliver the curriculum. Shulman (1986) described this as Pedagogical Content Knowledge (PCK). PCK, Shulman suggests, also includes the ability to offer students multiple representations of ideas and concepts, and "an understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of those most frequently taught topics and lessons" (p. 7). Thus PCK also includes an element of relational pedagogy that connects us with the second category of expertise in teaching in HE, that of "artistry".

2.2 Artistry of teaching

Schön (1987, page 4) notes that "the problems of a real-world practice do not present themselves to practitioners as well-formed structures." Hence, having well-established pedagogical content knowledge may not be sufficient to deal with uncertainty and uniqueness of day-to-day teaching and learning situations. Through experience, teachers become more fluent and confident in their skills in the classroom (automaticity of skills), they are able to recognise and anticipate common issues or behaviours (pattern recognition), and they can draw on a wide range of evidence and feedback in the design and delivery of curricula (problem-solving). But teaching also requires an element of improvisation: the ability to respond rapidly to unplanned situations. This in itself requires elements of intuition, as well as relational skills (Pearce & Down, 2011), to quickly build rapport and manage uncertainty within a new or established classroom environment. The characteristics of expertise in teaching, therefore, must go beyond PCK to include "an epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness and value conflict" (Schön, 1982, p. 49).

2.3 Self-determined & purposeful approaches to learning and development

Many hours of practice are important for the development and maintenance of expertise. Here practice can mean rehearsal and also the repetition of a professional activity (professional practitioners encounter similar situations again and again) (Schön, 1983, p. 60). However, simply clocking up hours of experience and practice is not enough to develop expertise. Expert practitioners engage in "deliberate practice" (Ericsson et al, 1993) or "progressive problem solving" (Bereiter & Scardamalia, 1993) to identify areas for improvement and to work on these drawing on feedback and other evidence to inform their practice. The learning and development of expert teachers in higher education was explored through semi-structured interviews with nine UK National Teaching Fellows (using achievement of this accolade as a proxy for expertise) (King, 2019)[2]. Professional development in higher education is sometimes perceived as simply a list of activities (training, workshops, conferences etc.) that have been endured. However, the National Teaching Fellows talked about their learning and development in a very different way, describing it through the lens of changes made to their learning and teaching practice. It is suggested, therefore, that professional development for teaching in higher education be reconceptualised as a story rather than a list, and as "a self-determined and purposeful process of evolution of teaching and learning approaches informed by evidence gathered from a range of activities" (King, 2019 p. 4).

3 Conclusions

This model of expertise provides an opportunity to consider approaches to educational development much more holistically, in ways that encompass the full range of knowledge, skills and behaviours required to teach and facilitate learning effectively in higher education. As well as supporting academics' understandings of pedagogy, the more intangible skills of performativity, improvisation, rapport, problem-solving and managing uncertainty must be recognised, acknowledged and nurtured. In addition, for some academics, a cultural/mindset change may be encouraged in order to engender the idea of continuing professional development that is undertaken proactively as an integral part of the design, delivery and enhancement of curricula, rather than being perceived as an inconvenient add-on.

[2] Summaries of the interview transcriptions and other resources are available on the author's website at https://www.drhelenking.com

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Educate the educators in teaching and learning for sustainable development

Maria Melén[1], Christel Persson[2], Daniel Einarson[3]

Department of Library and Higher Education Development | Department of Environmental Science and Bioscience | Department of Computer Science, Kristianstad University
Elmetorpsvägen 15
291 39 Kristianstad, Sweden

Abstract

This paper will discuss the future-ready university at the level of its future-ready teachers with regard to their teaching and learning practice for sustainable development. Academic institutions have both a role in promoting discussions of concern based on their specialized disciplines and a role in educating students to be future-ready to contribute to the society in a sustainable way. However, carrying out such roles with sufficient credibility may not be a matter of course for university teachers, who need sufficient insights into both sustainability per se and sustainable pedagogical teaching practice. This paper stresses the importance to the development of the future-ready university of cultivating sustainability, and provides an "educate the educators" project as an example.

1 Introduction

Higher education has an excessive role in society in educating students for innovative change agency and tackling the challenges around sustainable development (SD) (Levi & Rothstein, 2018). However, are university teachers ready to assist in this development? How can a university build capacity for this SD support role? Are universities future-ready in their teaching methods? Swedish universities must support SD by law. However, there have been few guiding principles from authorities concerning how to implement this law. This has resulted in significant quality variations in how universities approach the challenge of the teaching and learning mission. The student has to be future-ready to meet SD challenges, both in knowledge and in preparedness to take action. A recently published article (Finnveden et al., 2020) points out that only 38% of Swedish higher education institutions (HEI) specifically and systematically address SD and thus pedagogical approaches from a teacher competence perspective.

1.1 The future-ready university for sustainable development

According to the Swedish Higher Education Act, Chapter 1, § 5, (Swedish Council for Higher Education, 2019a) the following applies: "In its activities, the universities shall promote sustainable development which means that the present and future generations are assured of a healthy and good environment, economic and social welfare and justice." The Swedish Higher Education Authority (UKÄ) is the authority whose task it is to review the quality of Swedish higher education institutions in terms of education and research, and to follow the laws and regulations that apply to higher education institutions. In 2017 UKÄ, on the government's behalf, carried out a so-called thematic survey on how well the HEI followed the Higher Education Act on Sustainable Development (Finnveden et. al, 2020; UKÄ, 2017). The results showed a generally low degree of goal fulfillment regarding the criteria set for the

[1] maria.melen@hkr.se
[2] christel.persson@hkr.se
[3] daniel.einarson@hkr.se

evaluation. It is mentioned that “Three quarters of the higher education institutions do not meet the criteria set out. They are judged to need to develop their processes. Examples of such things that should be developed are to set higher education goals for SD, more systematic follow-up of these goals or a development of the work on skills development in terms of sustainable development for teachers.”

A counter-criticism can be found in the fact that the Higher Education Act itself is rather poorly formulated, and the supplementary Higher Education Ordinance (Swedish Council for Higher Education, 2019b) states virtually nothing about sustainable development. It is thus very unclear how universities should address it. Counter-criticism, as it emerged at a feedback conference co-organized by UKÄ (2018-03-07), contained arguments which pointed out not only poorly formulated university law, but also the ambiguity that this law should correspond to the set of criteria as used in the evaluation of the thematic study. This counter-criticism is interesting from the perspective of the main questions in this paper regarding the readiness of university teachers and, at a higher level, the universities striving for SD. Still, at the feedback conference it was argued that the United Nations’ Agenda 2030 and its 17 Sustainable Development Goals (SDGs) should constitute the framework from which the work on SD should be viewed (Agenda 2030, 2015). Kristianstad University (HKR) was one of the universities that received criticism for inadequate management regarding sustainability issues. It has since made several efforts to improve such deficiencies, with the SDGs as a main guide.

1.2 Organisational development interventions for sustainable devopment

HKR is now a member of Global Compact (United Nations Global Compact, 2020), “The world's largest corporate sustainability initiative”, an organization for companies, and non-profit organizations who base their sustainability approaches on the SDGs (actually, HKR joined as early as 2016). HKR also joined the PRME Champions network during the period 2018-2019 (Högskolan Kristianstad, 2019), and the Sustainable Development Solutions Network (SDSN) in 2017 (Kristianstad University, 2018), both also based on the SDGs. While PRME is used to map how sustainability aspects are included in a business programme at HKR, SDSN has been the main inspiration source for the initiation of a Master’s programme in Computer Science at HKR which especially emphasizes SD (Argento et al, 2020).

2 Intervention for future-ready academic teachers

In line with the work of Lozano-García et al (Lozano-García et al., 2008) this contribution will demonstrate a successful attempt to educate the educators and make them future-ready in their mission of teaching and learning for SD. The starting point is a course for university teachers aimed at supporting the implementation and integration of the United Nations’ 17 SDGs into the curricula. Implementation also implies the use of strategic pedagogical approaches and methods that support the development of students’ key competences in sustainability (Wiek, Withycombe & Redman, 2011). In line with research into how to build faculty learning communities (Natkin & Kolbe, 2016), we also illuminate the use of SD enthusiasts as teaching resources in the course, thus building both university capacity and local networks for SD.

Another development initiative for future-readiness for SD was to educate the educators. The teachers both had to learn more about SD within their own and other fields, and needed pedagogical active learning tools that supported student learning towards agency for SD. With the ambition to involve existing local competences and networks, a course design was created which involved inspirational lectures comprising good examples of how different teachers and researchers both introduce and pedagogically apply sustainability issues into different educational programmes (Persson, Melén & Einarson, 2020). This design allowed an interdisciplinary introduction of the UN’s sustainable goals, contributing to widened student awareness of how to understand SD from the perspective of their own subjects. They also got inspired by active student learning approaches.

Given the connection between pedagogical approaches and the development of students' key competences in SD (Lozano, Barreiro-Gen, Lozano, & Sammalisto, 2019), the aim of the course's written exam was to transform both curricula and pedagogical implementation. Working with the curricula implied that the teachers were able to introduce more of the SDGs. The exam also involved an oral presentation concerning this implementation of learning goals in line with SD into course curricula, and the use of learning activities supporting the development of students' key competences for SD. The sharing among teachers of several pedagogical approaches to working with SD issues in the classroom resulted in yet more inspiration on how to go about developing their teaching and learning practices. This shows the importance of creating teacher networks to share experiences. The written exam also involved interdisciplinary reflections concerning the implementation of the UN goals consistent with governmental intentions (UKÄ, 2017).

3 Reflections

Although (as pointed out above) HKR has shown ambition in its purpose of working towards SD through memberships and the previously mentioned course to educate the educators, more systematic efforts are needed to, for example, develop teaching capacity to respond to the Agenda 2030 ambition. Finnveden et al. (2020) stress the need for an overall goal for SD in HEI with systematic follow-ups. However, starting by ensuring teacher competence within an interdisciplinary context is a strategic starting point that might pave the way for further interdisciplinary collaboration and networks between HEI, students and the labour market.

The course portrayed above must also be followed up concerning the integration of SD and pedagogical approaches. Things may be learned from supporting the development of students' key competences in sustainability (Wiek, Withycombe & Redman, 2011) that can be transferred into key competences needed in an overall work-life setting. Preliminary initiatives have been taken here, e.g. in the course mentioned and in working groups with educators from different disciplines (Argento et al., 2020). One conclusion, however, is that further work is needed to reach a consensus on a common view of the pedagogical approach to sustainability, and to gain the support of university management.

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ICED 2020 proceedings:

The challenges and benefits of an online conference: Lessons learned by Celia Popovic (York University) and Erika Kustra (Windsor University)

Celia Popovic[1]

York University
4700 Keele St.
Toronto, Ontario, M3J 1P3, Canada

Erika Kustra[2]

University of Windsor
401 Sunset Ave
Windsor, Ontario, N9B 3P4, Canada

Abstract

In 2019 the Canadian Educational Developers Caucus ran their first online annual conference. Online events have multiple benefits, but they also present new challenges. The lessons learned from this experience are likely to be of interest and use to others running events online – particularly those which were held in person prior to the COVID-19 pandemic – and exploring the practical implications of what professional development will look in the near future.

1 Introduction

Conferences serve a critical function for exchange of knowledge, development of identity, establishment of values, defining new study areas, and legitimizing a field or an approach (Gross & Flemming, 2011). They also develop significant networks and communities (Budd et al., 2015; Kustra, et al., 2018).

We first experimented with an online conference before the outbreak of COVID-19 made online events a hot topic. Practical pressures such as decreasing budgets (Choudaha & Van Rest, 2018), and larger issues such as climate change, fueled by figures like Greta Thunberg (Alter et al., 2019), demanded action. Given these concerns, how can we meet the needs to share knowledge and maintain networks in an online setting?

In 2019 the Canadian Educational Developers Caucus (EDC) held their first online conference (EDC, 2019). The EDC is a constituency within the Society of Teaching and Learning in Higher Education, with a mission to facilitate the advancement of educational development as a field of practice and scholarship (EDC, n.d.). The EDC Conference is hosted by a volunteer institution in a different location each year to encourage engagement and spread the travel costs in a country that spans thousands of kilometers and several time zones. The first EDC online conference had approximately 255 participants representing 11 countries (Figure 1). Here we aim to share what we learned.

[1] cpopovic@yorku.ca
[2] kustraed@uwindsor.ca

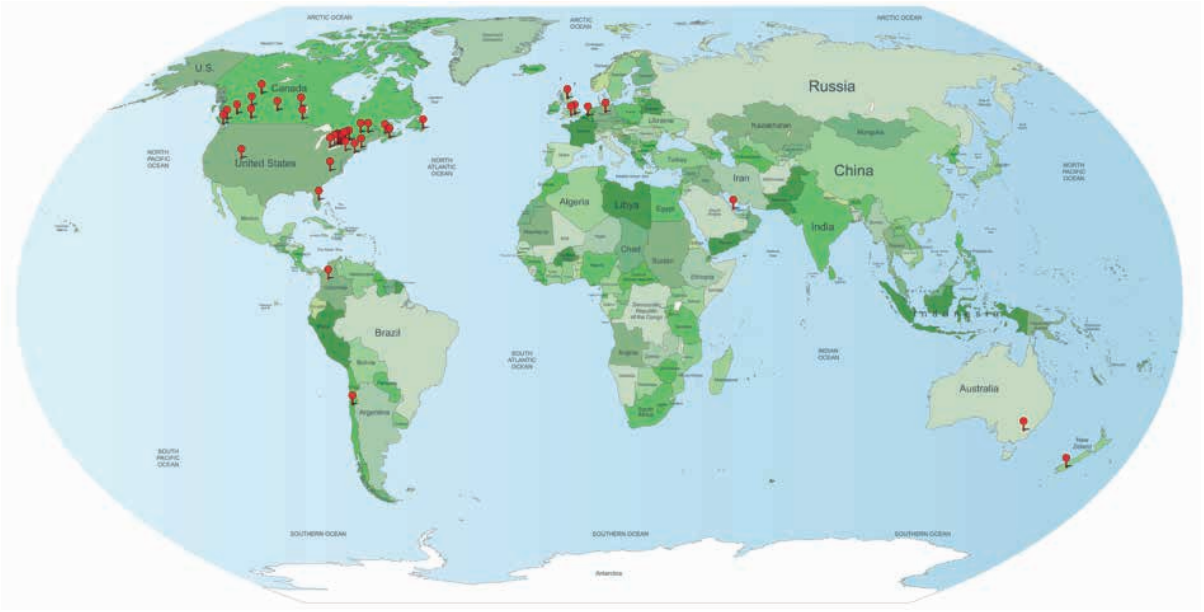

Figure 1: Participants represented 11 countries.

2 Challenges and benefits

The challenges for online conferences include those of any conference: deciding on a theme, location, keynote speakers, for example (Popovic, 2018). There are additional difficulties online including: *scheduling appropriate times* for numerous time zones in Canada, and for international participation; *enabling engagement*, as not everyone is attracted to online experiences; *technology* - choosing a platform that is stable, affordable, and easy for diverse audiences; and *online facilitation skills* to engage audiences and keep on time. Our largest challenge was to provide the *opportunities for networking* and informal professional conversations essential to the primary purpose of conferences (Kustra et al., 2018). To meet this, we encouraged participants to hold local events. Participants who joined local gatherings indicated that these provided valuable opportunities for networking and reflection.

Despite the challenges, we found that the benefits of holding an online conference were worth the effort. A major benefit was *decreased financial costs*. Large costs typically relate to the food and venue. Without these costs, the regular registration fee of $325CDN was reduced to $50 for individuals and $100 for a group. No one had to travel or pay for accommodation. The decreased financial costs had an added benefit of *increasing access* for people not traditionally able to participate. For example, one person indicated this was the first time they were able to participate in seven years, due their geographical location and the costs. The *impact on the environment* was minimal as a result of decreased travel. We did not have conference bags, badges, handbooks or disposable dishes, which all have both environmental and cost implications. Additionally, there was a decrease in some *logistical preparations*: booking spaces, hotel accommodations, catering or travel between venues.

The need for online options grew in 2020 as the COVID-19 pandemic spread, along with interest in practical suggestions based in the principles of good conference practice. For example, in April 2020 The Times Higher Education published key lessons (Popovic & Kustra, 2020).

3 Lessons learned

3.1 Reconsider timing

Holding a conference over two to three days allows momentum and focus, but its main reason is to accommodate travelers with limited time and funds. An online conference can be redefined. We wanted to ensure that all Canadian institutions could take part during office hours. Additionally, we anticipated international participants and advertised through ICED and national lists. Consequently, we changed the format from the usual two-day schedule to four half-days, decreasing time spent online daily. For some, this meant the conference took place in the morning, for others the afternoon. Sessions can also be extended over weeks or months. We discovered that it is impossible to repeat the time zone information too frequently if participants come from multiple time zones.

3.2 Keep it simple and familiar

For institutional conferences, use the established virtual learning environment. As we involved multiple institutions, we had to select a platform. The criteria included: availability of required features (video, audio, chat); no cost to participants; low cost to the conference organizers; history of reliability and stability; easy to learn; no requirement to download; availability of technical support for training; and troubleshooting.

3.3 Enable networking and serendipitous conversations

We encouraged institutions to hold small in-person gatherings, establish a support guide, and advertise opportunities. Several institutions welcomed colleagues from their neighborhoods, with many lively discussions held as a result. In a time of pandemic where physical meetings are less feasible, consider creating online groups who meet before, during or after sessions, to allow reflection. Encourage the use of discussion features, or the creation of informal virtual rooms, to enable conversations and share resources.

3.4 Consider alternatives to poster sessions

Our solution to the typical poster was the “Showcase”. Participants shared resources in a variety of formats including documents, websites, videos, and podcasts. These were made available for asynchronous review and comment, followed by scheduled discussions with the authors in a virtual room, similar to viewing posters. This leverages online capabilities and items remain available after the conference.

3.5 Plan sessions

Parallel sessions enabled us to accommodate a larger number of presenters, but this does force a choice. If time is no longer a constraint, sessions can be in series. Each of our sessions had two people co-presenting, and one room host who provided a welcome and technical support. With two people as co-presenters, one can focus on the comments in the chat, and interact with the technical person if there are problems. Additionally, there is someone to continue the session if one of the presenters loses connection. Alternatively, consider “unconference” sessions that are created more informally according to the interests of those attending (Budd et al., 2015).

3.6 Plan training and support

Guides were available, and presenters and virtual room hosts took part in training sessions offered at multiple times. A virtual room host was a volunteer in each session to help with

troubleshooting. While most of the sessions ran smoothly there were some glitches; it is not possible to guarantee a problem-free experience.

3.7 Provide advanced access to the platform

We provided practice rooms so organizers, presenters, volunteers and participants could try out the platform beforehand. This helped to identify and resolve technical and pedagogical issues in advance.

3.8 Communicate regularly

Connection with participants was essential. We created a conference website including welcome videos from the executive and an online land acknowledgement that people could contribute to. We contacted participants every morning with a welcome, update, and easy links to join. It was also easy to provide access to resources after the event.

3.9 Modify budgeting

Online conference costs are significantly reduced, but not necessarily eliminated; consider the potential costs of the platform, website or keynote speakers.

3.10 Gather a good organizing team

It is helpful to have a small, but highly committed, organizing committee – with some comfort with technology and a willingness to jump in with both feet. We had one year to plan, though this could be decreased with an experienced team, or dedicated time. It is important to have a team that is action-oriented, reliable, and willing to learn together.

4 Conclusions

Overall, the online conference went smoothly, with many participants recommending online conferences in the future, or the inclusion of online elements within a traditional conference. Feedback from the conference was mixed, though, with some disliking the online format, identifying technical issues or feeling isolated, consistent with the challenges identified. Continuing to build networking and personal connections is essential to the primary purpose of conferences (Kustra et al., 2018). If we are to future-proof as individuals, institutions and educational developers, we need to rethink our habits and consider ways to address our needs without damaging the future.

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ICED 2020 proceedings: Beyond teaching: Enabling holistic academic practice

Jackie Potter[1], Jane Pritchard[2]

Oxford Centre for Staff and Educational Development, Oxford Brookes University
Wheatley Campus, Oxford, OX33 1HX, UK

Abstract

Competition for academic staff time to allocate to professional development occurs across an increasingly wide range of aspects of their roles. From learning to addressing areas of compliance with organisational activity, contextual knowledge and new skills and behaviours to enact their varied roles, academic staff are pulled in a range of directions. What if those with an interest in the development of staff in universities all worked together and put the individual academic at the heart of their own development trajectory? At Oxford Brookes University we have developed an holistic model of academic development for all career stages that considers the development needs of individuals as educators, researchers and leaders – the Brookes Academic Development Framework. This model is informed by research on aspects of academic development, particularly the work of Åkerlind (see Åkerlind 2004, 2008). Each of the three aspects are benchmarked to institutional and/or national frameworks for the development of academic staff. In this paper we introduce the framework, its purposes and underpinning philosophy; we show how we have gone from a "good idea" based on effective collaboration and a willingness to put the academic at the heart of their experience to the reality of delivering a coherent, flexible, fit for purpose professional development programme. With participants, we explore the competing expectations on academic staff in their institutions on entry, at different career points and on different career pathways. We map these and then support participants in building personal holistic frameworks that could meet those needs.

1 Introduction

In 2015-16, colleagues in the staff and educational development unit the Oxford Centre for Staff and Learning Development (OCSLD) worked with colleagues from the Researcher Development Team to create a model to underpin holistic, integrated academic support. It brought together values or principles of practice to underpin the delivery of academic staff development that would build individual academic staff knowledge, behaviours and attributes in the spheres of university teaching, research and being a leader. The result of the collaboration, the Brookes Academic Development Framework (available at https://www.brookes.ac.uk/ocsld/your-development/career-development/academic-development-framework/, accessed 16/08/2020; and also in Sharpe, 2017), was adopted by both teams as a breakthrough in how they could approach and develop staff holistically across their different areas. Some steps were taken to enhance the ways each of the areas presented their work to academic staff (such as considerations made to ensure each area did not schedule activiites at the same time). However, it would be fair to say that the anticipated benefits of the model – as a developmental framework focused on individual academics' needs across their career and diverse roles – were not realized.

[1] jpotter@brookes.ac.uk
[2] jpritchard@brookes.ac.uk

In 2019, with new staff in the OCSLD, new leadership in the University's senior team and discussions commencing to establish a new university vision and strategy for 2020 onwards, there was invigorated conversation to explore how the model could be brought to life in new ways that would capture the univerisity's aspiration to actively show how teaching, research and leadership were equally valued spheres of academic endeavor. A vision team comprising the Pro Vice Chancellors for Research and Education, the Director of Human Resources, the Director of Researcher Development and the authors (the Head of the OCSLD and our lead for educational development) met regularly and worked at speed to determine what a new delivery model to operationalize the framework could look like, what features it would need to be successful and what co-dependencies there were with other areas of academic infrastructure that would need addressing. In November 2019, the senior leadership team of the university approved the further planning and development of our ideas for a new integrated continuing professional development framework called EXPLORE@Brookes, based closely on the model of the Brookes Academic Development Framework. This short paper describes key features of EXPLORE@Brookes and the work that has been completed to enable us to launch in October 2020.

2 A clear vision

The early discussions among the vision team showed clearly that there was genuine desire to help academic colleagues navigate the competing, high pressure demands on their time and be successful in their varied roles. Fundamental to this desire was the acknowledgement that the new framework could not be focused on support only for those new in their roles (as had largely been the case with the previous practice in place). Instead, the vision team believed that the new framework needed to be accessible and accessed by academic staff to provide "career wide and career long" development. We were looking to change the culture surrounding continuing professional development (CPD), to move thinking on in some parts of the university from a belief that CPD was there to remedy a deficit in knowledge to a consideration that CPD was lifelong learning and is a fundamental and valued necessity if academics are to be able to innovate and thrive in any sphere of their work. For this reason, EXPLORE@Brookes comprises three distinctive elements:

1. An induction for new academic and research staff focused on developing their abilities as digital professionals (using the Virtual Learning Environment and other systems, tools and products that enable them to teach and work at Oxford Brookes)

2. An accredited, integrated academic development programme for academic staff joining Oxford Brookes – EXPLORE@Brookes programme. The structured programme lasts for two plus one year (or the duration of the staff member's fixed term contract if that is shorter). It supports the acquisition of competencies and knowledge to enable the staff member to fulfil the performance objectives established in their annual performance review with their line manager for any of the following: teaching delivery, teaching scholarship, leadership and/or research, knowledge exchange and innovation. There is an exit award after each year of engagement.

3. An open offer of academic role-related continuing professional development available to any member of academic staff

Reflecting on the current pandemic, the authors have certainly noted that the rapid requirement to learn new approaches to teaching practices that can work online has helped move thinking forward in line with our vision that we are all lifelong learners as we develop our academic practice.

3 Enabling infrastructure

Early on in the work to develop EXPLORE@Brookes, we became aware that not only were we going to need to build something new and distinctive through collaboration with new partners; we were also going to need to unpick and dismantle some existing "ways of doing things", protocols and policies that had supported the approaches that came before. One of the early wins (but by no means a quick or easy one) was to work with the Trades Unions, HR, senior staff and others to determine the appropriate recognition for the continuing professional development of academic staff within their workload allocations. We also worked closely with HR colleagues to map the academic lifecycle and adapt and adjust protocols and procedures to ensure coherence with our vision and new offer and the work HR or line managers were involved with in supporting staff during their careers.

4 "Participant-first" focus

From vision to implementation of EXPLORE@Brookes, we have sought to put participants – our academic colleagues – and their wellbeing and success at the heart of the work we have completed. There is a frequently cited view that academics (and indeed universities) are resistant to change. However, as Devecchi and Potter (2020: 190) propose, "It is not the change per se which might be source of the problem, but rather the rationale, the process by which it is introduced." We have certainly experienced nothing but support and encouragement for the vision and the more detailed approach and structures for holistic academic practice. Taking a participant-first focus has meant that we have ensured there is national accreditation through Advance HE aligned to the UK Professional Standards Framework (Higher Education Academy, 2011); fair allocation of time to develop in role; transparent expectations on those joining the university; and an open offer of development, structured and presented throughout the year to maximize accessibility and choice.

5 Conclusions

Academic staff need to continuously learn and adapt to change throughout their careers and in their varied roles. Understanding teaching and research development (see for example Åkerlind 2004, 2008) teaches us much about staff needs and their individual trajectories to develop expertise and identity; however, it does not necessarily lead us to offer a fragmented approach to academic staff development. At Oxford Brookes a whole-university, holistic academic practice model has been developed and launched to ensure that continuing professional development stays at the heart of both individual and institutional thinking about academic roles and careers.

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ICED 2020 proceedings:

Mindset and motivational predictors of effective teaching practice: Research informs the future of professional development

Deborah South Richardson[1]

Department of Psychological Sciences, Augusta University
1120 15th Street,
Augusta, GA 30912 USA

Robert Bledsoe[2]

Department of English and World Languages, Augusta University
1120 15th Street,
Augusta, GA 30912 USA

Abstract

Attempts to inform and engage faculty members about effective teaching may benefit from a consideration of how instructor attitudes impact teaching practices. This study employed Dweck's concept of growth mindset to examine the relationship of mindset and mastery motivation to evidence-based teaching practices. Faculty members at a research comprehensive university in the United States completed a survey that included measures of mindset, motivation, and teaching practice. Regression analysis revealed that good teaching practice was predicted by growth mindset, mastery goals for students, and instructors' confidence in their teaching ability. Addressing implicit theories of intelligence and beliefs about mastery might increase the impact and effectiveness of professional development offerings that aim to improve teaching ability.

1 Introduction

Educational developers frequently report that extensive efforts at engaging and informing faculty members about effective teaching practices rarely lead to significant changes. A consideration of the underlying factors that distinguish faculty members who adopt effective teaching practices may provide guidance for future faculty development. This study examined instructor attitudes as predictors of effective teaching practice.

Dweck's (2000) social-cognitive approach to motivation and personality explains why some individuals may perform poorly in the face of challenge, while others adopt a mastery-oriented pattern that involves exerting effort in the face of sought-after challenges. Those individuals who have a fixed mindset (i.e., believe that intelligence is set and unchangeable) are likely to fear failure and adopt strategies that lead them to avoid challenge. Those who have a growth mindset (i.e., believe that intelligence is malleable) are likely to adopt mastery-oriented goals that lead them to exert effort in the face of challenge. Using Dweck's model, we considered how instructor beliefs about student intelligence relate to their mastery orientation and, ultimately, their teaching behaviors. We hypothesized that instructors with a more growth-oriented mindset would be likely to adopt mastery-oriented goals and evidence-based, effective teaching practices.

[1] derichardson@augusta.edu
[2] rbledsoe@augusta.edu

2 Method

Faculty members (n = 132) from a comprehensive research university in the southern United States completed surveys during department meetings. We selected departments that focused primarily on undergraduate education, and we asked respondents to think about teaching a challenging undergraduate course as they answered the questions. These faculty members first completed a measure of growth mindset (Cook, Gas, & Artino, 2018; e.g., "You can change even your basic intelligence/ability level considerably") and a measure of mastery orientation that included items about academic efficacy for students (e.g., "I am confident that students can master the material taught in my classes"), mastery goals for students (e.g., "I make an effort to recognize students for effort and improvement"), and personal teaching efficacy (e.g., "If I try hard, I can get through to most of the students in my class"). The mastery orientation items were adapted from the Pattern of Adaptive Learning Scales (PALS; Midgley et al., 2000). Teaching behaviors were assessed with items adapted from the Teaching Practices Inventory (Weiman & Gilbert, 2014). These items assessed the extent to which faculty members report using six types of evidence-based effective teaching practices, including active learning (e.g., "Most class periods include some small group work or problem solving activities"), transparent assignments (e.g., "Assignments describe clear criteria for successful completion"), opportunities for practice and feedback (e.g., "I assure that students receive feedback on homework assignments and quizzes"), reflective activities (e.g., "I ask students to evaluate and reflect on their own learning and study habits"), motivating activities (e.g., "I employ distinct activities that encourage students to make connections between the course material and their own lives"), and reflective teaching (e.g., "I compare student performance across sections and/or semesters to improve course delivery").

3 Results

Correlational analyses revealed that more effective teaching practices were endorsed by instructors who reported a stronger growth mindset (r = .35), more mastery goals for their students (r = .55), more confidence in student ability to learn (r = .34), and more confidence in their ability to contribute to student success (r = .34).

Stepwise multiple regression produced a model in which Mastery Goals, Personal Teaching Efficacy, and Mindset accounted for 42% of the variance in Teaching Behaviors. Mastery Goals entered the model first and accounted for 30% of the variance in Teaching Behaviors. Personal Teaching Efficacy entered next, produced a significant increase, F (1, 126) = 16.80, p = .000, in variance accounted for; this two-predictor model accounted for 38% of the variance in Teaching Behaviors. Mindset was the last predictor to enter the model; it produced a significant increase in variance as well, F (1, 125) = 8.32, p = .005, to the total of 42%. Academic Efficacy did not enter the stepwise model at any point.

4 Conclusions, limitations, and future research

These findings suggest that faculty members who report more evidence-based, effective teaching practices believe (1) that students can meet learning expectations if they exert appropriate effort (mastery goals for students); (2) that their own efforts can contribute to student learning (personal teaching efficacy); and (3) that intelligence/ability are malleable (growth mindset). With these three sets of beliefs taken into consideration, the instructors' beliefs about the effect of their encouragement of students to exert effort (academic efficacy) did not add to the ability to predict teaching behaviors.

An understanding of the beliefs that underlie an individual's approach to teaching and learning may provide guidance for future faculty development. A number of programs have been designed to develop stronger growth mindset in students (e.g., Blackwell, Trzesniewski, & Dweck, 2007). These findings suggest that it may also be worthwhile to create programs that develop stronger growth mindset as well as mastery orientation among faculty members. Many

efforts to support and encourage good teaching practice focus on offering practice with and information about evidence-based practices. The findings of this study suggest that professional development offerings may do well to address implicit theories of intelligence and beliefs about mastery, and to actively cultivate instructor self-efficacy.

Although suggestive of directions for faculty development, this study is limited in its reach. Data were collected at one institution, focused on undergraduate education, and did not consider possible differences among disciplines in teaching culture or teaching practices. Future research addressing these limitations and attempting replication of these findings is called for.

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ICED 2020 proceedings:

Fostering transnational virtual mentoring relationships: Possibilities and pitfalls

Zeenar Salim[1]

School of Education, Syracuse University
259 Huntington Hall
Syracuse 13244, USA

Jane Rarieya[2]

Network of Teaching and Learning, The Aga Khan University
3rd Floor, Park Place Building, 2nd Parklands Avenue, off Limuru Road,
P.O. Box 30270 - 00100, GPO, Nairobi, Kenya

Abstract

Faculty members play a central role in designing meaningful learning experiences for students, and therefore require pedagogical expertise to do so in higher education settings. The Aga Khan University initiated a two-year virtual mentorship program to support faculty in enhancing their teaching, learning and its scholarship. The study engaged 22 AKU faculty and eight academics drawn from North America under the auspices of Academic without Borders (AWB). At the end of the study, six mentor-mentee pairs continued their mentorship, while others dropped out. A study was conducted to determine the factors that hindered and/or facilitated the success of the program, namely achievement of outcomes that participants set at the onset of the program. Qualitative methods such as interviews and document analysis were employed. The findings reveal that commitment, alignment between the mentoring goals and the professional roles of mentees, clarity about mentorship goals and high levels of commitment by both mentors and mentees contributed to the achievement of goals. However, mentees' unwillingness to work with a mentor from a different discipline; cross-cultural differences on how mentors and mentees viewed mentorship; misalignment of mentoring goals with mentees' professional roles; and lack of face-to-face interactions hindered faculty from achieving their outcomes. The study presents important lessons for future faculty development programming, particularly in settings similar to the study context.

1 Introduction

Faculty are the lynchpin in the design of learning experiences in higher education settings. In order to support faculty design of teaching and learning experiences that meet the demands of learners and the industries that subsequently absorb them, various professional development programs have been put in place by institutions. Among such programmes is workplace mentoring, which is increasingly considered to be an effective model for faculty development in higher education (Weimer, 2015). A review of mentoring initiatives in higher education shows that effective mentoring relationships focus on development of individuals, facilitate professional and career development, and are personal, reciprocal and beneficial to both mentors and mentees in tangible ways (Colvin & Ashman, 2010; Crisp & Cruz, 2009). Osula & Irwin (2009) further suggest that both the mentor and the mentee need to adopt a certain cultural awareness and perspective, which they refer to as a "third-culture perspective" (p. 37) in order to enhance the relationship between them. This is likely to improve their

[1] zsalim@syr.edu
[2] jane.rarieya@aku.edu

mentoring outcomes. They argue that when working in global teams, the ability to think outside one's culture and see an issue through the eyes of another is critical to mentoring success.

The Network of Quality, Teaching and Learning (QTL_net) of Aga Khan University (AKU), in partnership with Academics without Borders (AWB), designed and implemented a two-year virtual mentorship program aimed at developing faculty capacity in teaching, learning and its scholarship so as to provide students with improved learning experiences and thereby enable them to thrive in their professional careers. The program involved faculty members from Pakistan and East Africa (mentees) and North America (mentors). The mentors were drawn from the disciplines of Nursing, Medicine and Education. The mentors, on the other hand, were either drawn from the aforementioned disciplines or were engaged in faculty development.

2 Methodology

The study was conducted alongside the mentorship program's implementation, and aimed to examine the factors that affected the success or failure of the mentoring relationships. The study used qualitative methods, and data were collected primarily through interviews and document analysis. The study was approved by the Ethical Review Board at AKU and followed the guidelines for the protection of participant confidentiality.

Data from mentors and mentees were collected through interviews. In total, seven mentees (out of total of 22) and six mentors (out of eight) participated in the interviews. Amongst these participants were two mentees who dropped out of the program. There was also a mentor whose mentees all dropped out. The data from interviews were audio recorded and manually transcribed by listening to the interviews. Transcriptions were manually assigned codes to chunk the data. Similarly, data from the documentary sources were also assigned manual codes. These codes were clustered and condensed into broader categories, from which broad themes were derived, further analysed and conclusions drawn.

3 Findings and discussion

The participants (mentor-mentee pairs) set their goals at the onset of the program. An analysis of their work-plan agreements revealed that the mentees intended to provide quality learning experiences to students through the design of inter-disciplinary courses, enhance their use of active teaching strategies, enhance their assessment and feedback strategies, engage in curriculum development and adopt a scholarly approach to teaching and learning.

In total, 22 AKU faculty (11 males and 19 females) and eight AWB mentors (two males and six females) totalling 22 mentoring pairs were part of the program. By the end of the first year of the programme, six mentor-mentee pairs had dropped out of the program. By the end of the second year, another ten mentor-mentee pairs ceased to continue their relationships and did not achieve all their pre-set outcomes. However, six relationships flourished above and beyond the duration of the program. Of the 16 pairs that dropped out, six mentees left the institution and hence were not part of the radar of the study, while the rest made "quiet exits" without alerting their mentors or program coordinators. This was perhaps because the program was associated with QTL_net, which is situated in the Office of the Provost. Faculty may have been apprehensive about their lack of outcomes becoming public knowledge, perhaps leading to a dent in their reputations or some form of censure from the university authorities, including their performance appraisals. Nevertheless, their silence made it difficult to diagnose the issues that they were facing and make the necessary support structures available.

All six mentors and seven mentees who were interviewed, irrespective of the outcomes of their mentoring relationships, viewed the programme as useful. For example, one mentee stated that "it was a good learning platform for me" [AJ, 01-03-2017]. Another shared that "I think it's a good programme. I think that we should not abandon it … we should refine it… it can be a great success" [SS, 20-02-2017]. Mentors also found the programme beneficial, as explained

by one who talked of the "potential", "opportunity" and "a way" to contribute to the improvement of teaching and learning:

> *The potential. The opportunity. The willingness, and Aga Khan University's commitment to continuously improve teaching and learning and to support the faculty, their colleagues, and their folks to work together. It is putting their money where the need is and supporting the faculty to engage in new ways of teaching and learning at work. So, I think the potential is the best for me. [SC, 02-02-2017]*

The findings show that the successful mentor-mentee relationships through which faculty enhanced their teaching and research skills were a result of positive alignment between the mentoring goals and the professional roles of mentees, clarity about mentorship goals, and high levels of commitment by both mentors and mentees.

The study established that high levels of commitment to the relationship were required of both mentor and mentee. This commitment was facilitated by several factors. First was the development of an understanding of each other: an understanding of the career aspirations and intentions which led each to engage in the mentorship relationship, and an understanding of each other's working style and preferences. Sometimes this understanding was underpinned by a deep sense of "curiosity" to know each other's professional roles, responsibilities, aspirations and the context in which they each worked. Alignment, on the other hand, was built by commonalities such as common research interests and the teaching of similar courses, albeit in different parts of the world. Furthermore, where the goals of individual mentees were clearly laid down and were aligned with their current mentoring responsibilities, the relationships flourished.

It was observed that the program experienced high mentee attrition rates. Five key reasons behind the attrition were the mentees' unwillingness to work with a mentor from a different discipline; cross-cultural differences as to how the mentors and mentees viewed mentorship; misalignment of mentoring goals with mentees' professional roles; lack of face-to-face interactions; and unmet expectations about support for mentorship activities.

It is evident from the study that perceived similarity in disciplines and professional roles was central to the success of the mentoring relationships. Simply being teachers in higher education settings was not sufficient to cement relationships. Those pairs who had similar disciplinary backgrounds and professional roles were able to achieve their set outcomes. In addition, differing cultural perceptions about the role of the mentor and mentee led to confusion about who would steer the relationship towards achieving the set goals. While mentors considered that "hand holding" mentees would be "directive" and therefore waited for their mentees to take the lead, the mentees sought and acclaimed "directions" and "hand holding" when provided to them by their mentors. Be that as it may, the mentors and mentees who had prior cross cultural experiences were more understanding of each other's cultures and hence were able to nurture their relationships. This contrasted with those who had no prior cross-cultural exposure whatsoever. Hence, it was no surprise that some mentees suggested that cultural understanding between themselves and their mentors could have been mediated through face-to-face meetings and exposure to each other's institutional workplaces.

4 Recommendations

The recommendations in the following sections can be of help in designing mentoring programs in higher education that can enhance faculty capabilities in providing students with meaningful learning experiences.

4.1 SMART goals

Support from Teaching and Learning centres is necessary to ensure that mentees and mentors develop specific, measurable and time-bound goals before they are "left" to work on their own.

4.2 Raising cultural awareness

Inter-cultural mentorship programs need deliberation about the roles of mentors and mentees at the beginning of the program to foster clarity about mentor-mentee roles. In addition, face-to-face meetings or inter-institutional visits might be considered to foster a better understanding of contexts and build relationships.

4.3 Safe exit procedures

Faculty found it difficult to admit that their relationships were not working. This is perhaps because program coordinators did not discuss the exit procedures at the outset of the program. Since mentoring may or may not work, there is a need to provide safe exit procedures to faculty so that participants do not feel obliged to be part of the mentorship if the relationship is not yielding set outcomes.

4.4 Frequent communication

Increasing the frequency of communication with participants from "once a year" to "once a semester" at the onset of the program would help mentors and mentees (who are also faculty with busy schedules) to determine when to report their progress to the programme co-ordinators.

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ICED 2020 proceedings:

Preparing for the future: Building SoTL bridges at a research university

Kelly Schrum[1]

Higher Education Program

Laura Lukes[2]

Stearns Center for Teaching and Learning

E. Shelley Reid[3]

Stearns Center for Teaching and Learning

Holly Mitchell Osborn[4]

History and Art History

George Mason University
4400 University Drive
Fairfax, VA 22030 USA

Abstract

The Stearns Center for Teaching and Learning at George Mason University, a large public research institution in the United States, has designed a series of interventions and collaborations to nurture an emerging scholarship of teaching and learning (SoTL) community, building bridges to connect colleges and disciplines across a geographically dispersed campus. This paper (originally a poster) presents an overview of these efforts, which may support other institutions in their work to improve student learning now and in the future.

1 Introduction

Even before the current pandemic, the global higher educational landscape was changing rapidly. Institutions of higher education are increasingly challenged to meet the demand for graduates with 21st-century skills while integrating active learning classrooms, digital literacy, and online and hybrid learning environments (Alexander et al., 2019; Spante et al., 2018; Payton, 2012; Ventimiglia & Pullman, 2016).

The scholarship of teaching and learning (SoTL) is the systematic study of student learning with the goal of improving teaching and learning in higher education (Center for Engaged Learning, n.d.; STLHE, n.d.). SoTL has played a significant role in helping faculty at higher education institutions shift their focus from presenting information to documenting and improving student learning through evidence-based practices (Barr & Tagg, 1995; Felton, 2013; Shulman & Hutchings, 1999). Engaging in SoTL offers opportunities to adapt to the changing demands on higher education within the classroom and across campus through research and publication (Felton, 2013).

[1] kschrum@gmu.edu, http://highered.gmu.edu/people/kschrum
[2] llukes@gmu.edu, http://stearnscenter.gmu.edu/about-us/our-team/
[3] ereid1@gmu.edu, http://stearnscenter.gmu.edu/about-us/our-team/
[4] hmitche@gmu.edu

Many faculty who are interested in improving teaching and learning through SoTL, however, face challenges. These include lack of familiarity with the interdisciplinary practices of SoTL, inexperience investigating one's own teaching, time, and concern over lack of recognition via review and promotion processes (Bortolin, 2018; Miller-Young et al., 2018).

Educational developers who value scholarship on student learning and faculty active in SoTL research can encourage colleagues across the university to engage in SoTL in order to better support students' preparation for future learning and careers (Alexander et al., 2016; Cox, 2004; Engin & Atkinson, 2015). In order to cultivate a SoTL community, especially within a large, research-intensive university, educational developers and engaged faculty need to take a leadership role in building bridges – in providing structures and opportunities for SoTL-related activities and for collaboration across disciplines.

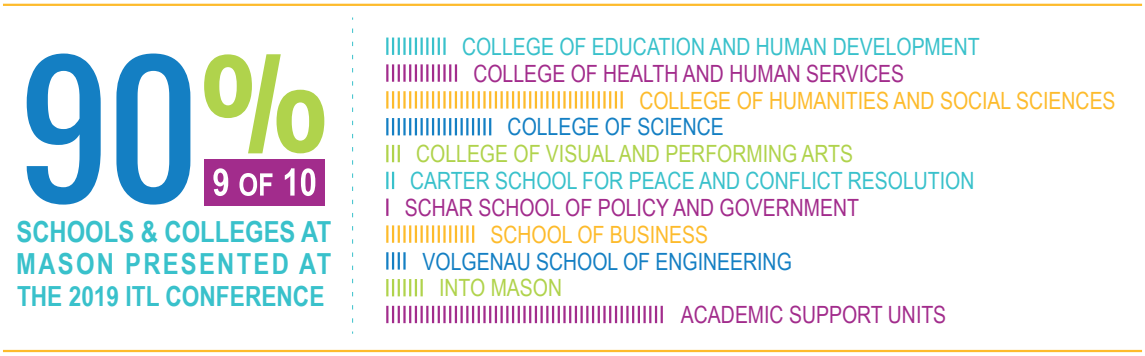
2 *SoTL initiatives*

The Stearns Center for Teaching and Learning at George Mason University has taken advantage of its central position within the university to nurture an emerging faculty community, building SoTL bridges across campus for now and for the future through a multi-year, coordinated approach.

Initiatives include:

- *Innovations in Teaching & Learning* conference

  The largest and most far-reaching initiative has been the *Innovations in Teaching & Learning* conference, an annual event involving a variety of session types and publication of a conference proceedings. The conference has grown from 37 presentations with 100 attendees in 2007 to more than 100 presentations and 500 attendees in 2019.

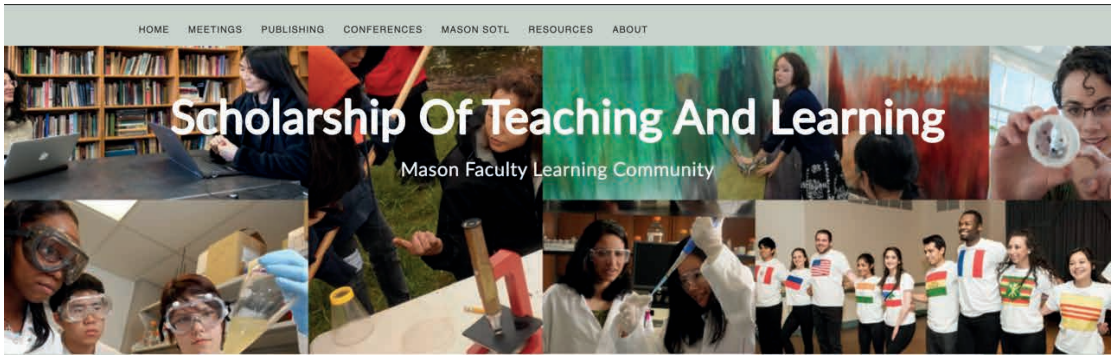


  While the keynote features an internationally recognized speaker, session presenters represent disciplines and units across George Mason University. The primary aim is to support community-building around teaching and learning within the institution by creating both formal and informal opportunities for faculty, graduate students, and staff

to exchange ideas, experiences, and SoTL research. Many sessions focus on the changing educational landscape by presenting SoTL research on teaching and learning with digital tools and resources, in active learning classrooms, and in online and hybrid settings.

- Faculty Learning Community

The SoTL faculty learning community (FLC) is an interdisciplinary, diverse group of instructors co-facilitated by faculty fellows from the colleges of engineering, science, and humanities and social sciences. Its 20 members include tenured and tenure track faculty, administrative and research faculty, term faculty and adjunct faculty. The group represents six colleges, 15 disciplines, and an international partner program (INTO Mason), a unique achievement at a large research institution. Participants share responsibility for leading monthly meetings on a rotational basis. Topics include research methods, SoTL across disciplines, grant writing, publishing, teaching strategies, digital resources, and traditional and digital assessments. The group coordinates workshops at the annual teaching and learning conference to highlight research findings and engage faculty across the university in conceptualizing new SoTL projects.



- Online resources

The Stearns Center website <https://stearnscenter.gmu.edu/knowledge-center general-teaching-resources> offers teaching and learning resources on a range of topics, including designing a syllabus, active learning, online learning and a general SoTL introduction.

The SoTL faculty learning community website <https://sotl.gmu.edu> provides information for current and prospective FLC participants, such as meeting logistics and topics, as well as resources for the broader Mason community, including national and international SoTL journals, conferences, and funding opportunities. The goal is to support all faculty seeking to conduct, publish, and fund SoTL research at Mason.

- Collaboration with units and individuals

  The Stearns Center regularly receives requests for collaboration on SoTL projects. These include individual faculty members seeking to design SoTL projects, departmental units requesting assistance with program assessment, and partnerships for formal project evaluations. The volume of requests led to development of a standard memorandum of understanding to clarify goals and guide ongoing and future collaborations.

- Campus-wide teaching initiatives

  SoTL collaborations have also emerged from ongoing teaching initiatives. As the university designed active learning classrooms, for example, faculty asked to conduct SoTL research in the new spaces. This led to development of resources on teaching in active learning classrooms and recommendations for a cross-unit selection process for requesting specific classrooms to support ongoing data collection.

3 Conclusions

This paper presents examples from one large research university in the United States, but its underlying principles can be applied across institutional settings. The central position of the Stearns Center for Teaching and Learning within the university allows conversations and partnerships that are challenging to cultivate across colleges and units. The collaborations and initiatives described here demonstrate the importance of bridging traditional institutional divisions to support teaching and learning for the whole institution to prepare for the future of higher education.

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ICED 2020 proceedings:
Learning through conversations: How can we research informal professional development?

Kate Thomson[1]

The University of Sydney
Sydney, Australia

Gabriela Pleschová[2]

Comenius University
Bratislava, Slovakia

Torgny Roxå[3]

Lund University
Lund, Sweden

Peter Felten[4]

Elon University
Elon, United States

Abstract

There is growing recognition that informal professional development is important for improving the quality of teaching within higher education (Pataraia, Falconer, Margaryan, Littlejohn, & Fincher, 2014; Roxå & Mårtensson, 2009; Thomson & Trigwell, 2018; Van Waes, Van den Bossche, Moolenaar, De Maeyer, & Van Petegem, 2015). Informal professional development, such as engaging in conversations with colleagues, is distinct from more formal models of educational development as the emphasis is on autonomous, relational, and emergent learning, enabling it to serve academics' future needs. Developers have long advocated for the facilitation of informal learning opportunities(Boud & Brew, 2013; Knight, Tait, & Yorke, 2006) and we would argue that these opportunities serve a role that complements the plethora of available activities for developing individuals, groups, and institutions (Gibbs, 2013, pp. 6-7). Despite historical support, informal conversations as a form of professional development has only recently emerged as an area of research. Conversations about teaching occur within small networks of trusted colleagues (Roxå & Mårtensson, 2009) and they can serve different roles in developing university teaching (Thomson & Trigwell, 2018). We are mindful that the relationship between informal and formal professional development can be complex (Thomson, 2015), and departmental cultures may influence the capacity of academics to learn about teaching and learning (Trowler & Cooper, 2002).

[1] kate.thomson@sydney.edu.au
[2] gabriela.pleschova@uniba.sk
[3] torgny.roxa@lth.lu.se
[4] pfelten@elon.edu

1 Introduction

As developers and researchers establishing a new field, we are puzzling over how to design informal professional development without either replicating traditional models or losing its inherent serendipity. We seek to collectively further our understanding of the future of informal professional development and professional development more broadly. We reflect on the suggestion of Roxå and Mårtensson (2015, p. 195) – that we should unpack the potential of conversations for professional learning or the microcultures that influence learning. With a focus on microcultures, they created a heuristic based on levels of trust, responsibility, and a development agenda (Roxå & Mårtensson, 2015). In this discussion piece, we raise questions that are intended to advance our understanding of informal conversations and their potential contribution to professional learning. The authors are so committed to exploring the role of pedagogical conversations in changing conceptions and practice that they are guest editors of an upcoming Special Issue of the *International Journal for Academic Development* on that topic.

Academics typically have conversations with a relatively small number of people from their departments or disciplines (Pataraia et al., 2014; Roxå & Mårtensson, 2009). Through conversations with colleagues, academics expose professional values and behaviours, and interrogate their practice (Pilkington, 2013). Conversations lead academics to change their teaching practice – they are ranked third after student feedback and student evaluations in terms of impact (Lauer and Wilkesmann 2019). Informal conversations have the greatest influence on practice when they are purposeful, grounded, about student learning, and reflective (Benbow & Lee 2019). Conversations take place in liminal and communal spaces, for example cafés, canteens, corridors, and during travel to and from work. Conversations may be prompted by conferences and workshops, where academics with shared interests are physically located in the same space, while other conversations take place online, via email, Skype, Zoom and other communication technologies.

2 The role of conversations, formal development, and networks for learning

Formal development might offer inspiration and new ways to think about teaching and learning, but it is during conversations with significant others about specific teaching and learning experiences that reinterpretation of the pedagogical reality may occur. At Lund University, teaching and student learning is discussed locally with groups from the same disciplinary community. These conversations are frequent, spontaneous, and intensive. In this case, the formal course has influenced the nature of pedagogical conversations by introducing a language for thinking and talking about teaching and learning. Over time, this means that academics know who has participated in the course and who has not, by the nature of their conversations, and their number of conversation partners has increased (Roxa et al 2019).

Formal professional development programs appear to influence the relationship of program participants with the person who has an influence on their teaching. The program enables participants to talk about teaching and, in turn, builds their confidence with regard to teaching-related matters. This way they can demonstrate their increased knowledge and skills and appear to be more trustworthy. At the same time, the level of trust in relationships also influences the extent to which participants' newly acquired knowledge and skills may spread across their institutions (Simon & Pleschová, 2019).

The networks of novices, experts and experienced non-expert university teachers differ in strength, diversity, and the frequency and duration of their conversations about teaching. Experienced experts have larger, stronger, and more diverse networks than experienced non-experts. Novices also have larger networks, but with lower tie strength and less diversity. Experts have conversations about teaching once a month, novices every 2 weeks, and experienced non-experts every month or every 2 months. Experienced non-experts tend to talk with colleagues who have similar teaching experience, whereas novices and experienced

experts talk with colleagues who vary considerably in their teaching experience (Van Waes et al, 2015).

3 Reimagining informal and formal professional development

Informal development differs from formal development in that it is not mandated by university leaders or designed with set, intended learning outcomes. It is often self-directed and focused on what is most important for academics at the time. One way forward would be to adopt a more holistic approach to development – where informal and formal opportunities each have a unique purpose. This approach would require that academics be provided with the scaffolding required to participate in and learn from informal conversations and build their network of significant colleagues. Future research could add to the evidence base for informal learning, especially at the meso (department level). Lecat, Spaltman, Beausaert, Raemdonck, and Kyndt (2020) recommend measuring informal learning using methods that include the social, such as social network analysis. Further, we could borrow from research on organisational and workplace studies to explore the links between informal learning and the development of professional identity.

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ICED 2020 proceedings:

Transformative approaches to radical wellbeing in higher education

Judit Török[1]

Center for Teaching and Learning, Director
Pratt Institute
200 Willoughby Avenue
Brooklyn, New York 11205

Maura Conley[2]

Center for Teaching and Learning, Learning Designer
Pratt Institute
200 Willoughby Avenue
Brooklyn, New York 11205

Abstract

Our global community collectively faces important ecological, social, public health and economic challenges. One of the major setbacks for learning and creativity that we face at our institution is high levels of stress and anxiety not only amongst our students, but our faculty as well. We believe that faculty and student wellness and success are interdependent. In order for faculty to apply caring pedagogy, to recognize the impact of stress on learning, and to help their students be well, they must be given the opportunity to examine and cultivate their own wellness. This paper outlines our institution's incorporation of wellbeing research and our shift during the COVID-19 pandemic to a series of resilience-based programming approaches for faculty.

1 Introduction

Our global community collectively faces important ecological, social, public health, and economic challenges. College students seem to be bearing the burden of these changes at a disproportionately higher rate.

> *Today's college students are the most overburdened and undersupported in American history. More than one in four have a child, almost three in four are employed, and more than half receive Pell Grants but are left far short of the funds required to pay for college.* (Stommel & Goldrick-Rab, 2018)

The UN Sustainable Development Goals (Sustainable Development Goals, n.d.) lay out an ambitious agenda and set the foci of work for future generations, while higher educational institutions rely on the strength of their communities to shift curriculum and pedagogical practices accordingly. The current health and mental health crises in higher education (Penn State's Center for Collegiate Mental Health, 2019) must be addressed in order to achieve higher learning, creative problem solving, innovations for infrastructure, and other noble collective aims.

[1] jtorok@pratt.edu
[2] mconley9@pratt.edu

One of the major setbacks for learning and creativity that we face at our institution is high levels of stress and anxiety, not only amongst our students but also our faculty. Research shows that stress causes lack of attention, reduces levels of learning and can ultimately lead to more serious mental health issues, depression, physical illnesses and suicide (Barsky et al., 2020).

In his book on positive psychology (2006), Peterson suggests exercises in positive experiences and mindfulness to increase wellness. These individual practices, along with strengthening belonging and community (Boroski, 2019), translate into wellbeing pedagogies in the classroom, helping students learn course content and means of coping, resilience, emotional intelligence, and stress reduction to lead happier and healthier lives.

2 The Compose *curriculum*

Our original project included an onsite campus program, *Compose*, which was a facilitated faculty discussion series for infusing wellbeing practices throughout the curriculum and preparing students to set meaningful goals and persevere through adversity. After an extreme pivot because of the global pandemic of COVID-19, we left campus in March 2020, so our programs had the change to grow and double-down on the incentive of prioritizing wellbeing and resilience in a fully online learning environment. Through the *Compose* project, informal *Virtual Coffee Chats*, and our new program, *Resilient Teaching Online*, we work to approach faculty development programming through the lens of radical wellbeing for a future-oriented higher education.

We believe that faculty and student wellness and success are interdependent. In order for faculty to apply caring pedagogy, recognize the impact of stress on learning, and help their students be well, they must be given the opportunity to examine and cultivate their own wellness. *Compose* was a small faculty wellbeing project at Pratt Institute with a focus on promoting contemplative practices and exercises from positive psychology. The goal for *Compose* was to establish a personal practice framed around the concepts of learned optimism, resilience, and meaning-making while generating well-being pedagogies for classroom and studio teaching, contributing to a radical improvement in student flourishing.

The *Compose* curriculum was primarily adapted from the MOOC Foundations of Positive Psychology specialization series (Seligman, n.d.) for a small face-to-face community and infused with contemplative practices. Our weekly 2.5-hour meetings began with a group meditation practice, followed by discussions and exercises around the selected topic, and concluded with deeper reflective practice. Between sessions, participants were given homework assignments and recorded meditations. The 8-week project addressed the following topics and themes: flourishing, emotional intelligence, character strengths, resilience, and the role of relationships (*Compose*, n.d.).

3 Results

The preliminary results for improving participant wellbeing in the *Compose* project were promising. We collected both qualitative and quantitative survey data throughout the program and although it was a small group (n=9), we found that faculty in this project collectively improved on all positive affect indicators. Using the PERMA Profiler (Butler & Kern, 2015) pre and post tests (Table 1), the group increased their overall positive emotions, engagement, meaning-making, and relationships and decreased the negative effect. The group also concluded with a collective score of 51.2 on the Diener Flourishing Scale (Diener et al. 2010), (Table 1), compared to the 41.4 Pratt Institute student average score from the previous year. The daily meditation practice was also well received and, based on the survey, reduced the participants' levels of stress, anxiety and loneliness and increased their self-compassion and self-regulation (Table 3).

n=9	PRE (baseline) average per group	POST average per group	Change
Positive emotion	7.82	8.15	0.33
Engagement	7.89	8.33	0.44
Relationships	8.04	8.59	0.55
Meaning	8.19	8.81	0.62
Accomplishment	7.63	8.18	0.55
Negative effect	4.0	3.26	0.74
Health	6.81	7.44	0.63
Loneliness	2.22	0.78	1.44
Happiness	8.22	8.44	0.22

Table 1: Compose *Fall 2019 – PERMA PRE and POST results*[3]

> *Having a practice and study centered around mood and mental well-being has provided a base for contemplating and directing stresses and positive feelings alike. It has been both intellectually activating and allowed me to find a bit more self-compassion, which I have found to be very regulating.* (*Compose* participant)

These individual practices within a community of supportive colleagues translate into wellbeing pedagogies in the classroom, helping students learn course content, as well as ways of coping, resilience, emotional intelligence, and stress reduction to lead happier and healthier lives in the future. The *Compose* community spent a lot of time discussing teaching methodologies by infusing wellbeing practices throughout the curriculum and preparing students to set meaningful goals and persevere through adversity.

4 Moving online

In March 2020, our institution pivoted quickly from fully in-person to fully online teaching. As a Center for Teaching and Learning, we felt it necessary to facilitate faculty adjusting to online teaching while also holding space for the traumas that were largely becoming a part of everyday life. Unable to continue with the face-to-face *Compose* model, a more flexible and informal model would serve our faculty best in these in-between spaces. We responded by holding regular online *Virtual Coffee Chats*.

[3] Possible total range score is 0-10, where a high score (in P, E, R, M, A, H and Ha) represents a person who is very high in this dimension, and a low score (in N and L) is a person who is very low in this dimension.

n=9	Average for group
I lead a purposeful and meaningful life.	6.33
My social relationships are supportive and rewarding.	6.44
I am engaged and interested in my daily activities.	6.56
I actively contribute to the happiness and well-being of others.	6.56
I am competent and capable in the activities that are important to me.	6.44
I am a good person and live a good life.	6.56
I am optimistic about my future.	6.44
People respect me.	6.11
TOTAL	**51.44**

Table 2: Compose *Fall 2019 – Diener Flourishing Scale*[4]

Our aim for these meetings was to be responsive and supportive–something we found ourselves hard-pressed to pin down. We scheduled the *Chats* as regular, hour-long sessions three times weekly to hold a space for addressing our faculty's needs. With no agenda, these open meetings created opportunities for faculty to freely share their traumas, stresses, and fears as well as discussing failing systemic structures in higher education, as all of our realities and futures were (and still are) in flux. The *Chats* further stayed true to the initial goals of the wellbeing project to combat faculty burnout and help faculty become caring teachers. While the aim of the *Virtual Coffee Chats* was primarily to support colleagues in an informal way, we noticed the impact of our efforts by reviewing the data. *Chat* attendance accounted for almost a third (27.4%) of our entire Spring programming, with a majority of participants (67%) being part time (our most vulnerable faculty population).

[4] Possible total range score is 8-56, where a high score represents a person with many psychological resources and strengths.

n=9	**Average per group**	**Comments**
As a result of practicing meditation, I am happier.	4.11	78% strongly agree or agree
As a result of practicing meditation, I have better focus and awareness.	4.67	100% strongly agree or agree
As a result of practicing meditation, I feel more in control of my life.	4	67% strongly agree or agree
Practicing meditation makes me feel less stressed.	4.67	89% strongly agree or agree

Table 3: Compose *Fall 2019 – Mindfulness results*[5]

These informal meetings over the Spring semester clarified our next action. We began building a more intentionally designed and formalized series that joined learner-centered course design, active online learning practices, and trauma-informed pedagogies. The *Resilient Teaching Online (RTO)* series was a natural transition to faculty development and support, heavily informed by the *Virtual Coffee Chats*.

The *RTO* is a faculty cohort/community that moves through 5 online modules together. Participants come away with an understanding of best practices for online course design and facilitation, a plan for access and equity, a design for online classroom communities, and meaningful feedback models that respond to complicated scenarios (due to COVID-19) with resilience. To model an interactive mix of synchronous and asynchronous elements, Zoom conversations around *RTO* topics support our faculty, inviting them to discuss the series' materials with colleagues across disciplines.

RTO is a transformative learning experience for most of our colleagues, as it frames all online teaching from the lens of radical wellbeing. Resilience, coping, caring, and kindness are themes woven through all the topics. The design of *RTO* follows a resilience-based approach, starting each module with a self-reflective exercise on our virtual community board (ex. "Post a gif that represents your mood today" or "What made you laugh this week?"). These lighthearted exercises are punctuated with more serious discussion and reflection on access, equity, and trauma in a virtual world (ex. "What are some of the impacts of trauma on learning?" or "How are you planning to promote a 'Growth Mindset' equitably in your online course?").

[5] Possible total score is 5 for each question.

5 Conclusion

The COVID-19 outbreak forced higher educational institutions to rely on the strength of their communities to rapidly shift curriculum and pedagogical practices in response to events that changed our surroundings. The world health crisis, paired with mental health crises in higher education, demands the attention of faculty and administrators to creatively address the balance of higher learning and equitable support. While at times difficult, we have found these conversations invigorating and fruitful. The collaborative nature of our Pratt community has taken these conversations as action items, many dispatching to their own departments or creating cross-departmental collaboration of their own. What started as positive results from the *Compose* project grew to *Virtual Coffee Chats*, and shifted once again to the *RTO* community. And while anything is hard to anticipate, what we do know is that remaining ready to place wellbeing and resilience as a priority will better bring into focus the contextual challenges and needs of our students as they prepare to be future-ready graduates.

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ICED 2020 proceedings:

Supporting educational developers' change practices: Examining educator and student beliefs of and relationships in teaching practice

Nancy Turner[1]

Teaching and Learning Enhancement, University of Saskatchewan
Murray Library, 3 Campus Drive Room 50
Saskatoon, SK S7N 5A4, Canada

Donna Ellis[2]

Centre for Teaching Excellence, University of Waterloo
200 University Ave W
Waterloo, ON, N2L 3G1, Canada

Abstract

This paper brings together findings from two investigations that respectively examined educator and student beliefs and relationships within the learning environment, and goes on to examine how consideration of both might enable enhancement of teaching and learning practices. These results help to inform educational developers' practices, including facilitating change in the practices of educators and students in situ.

1 Introduction

The knowledge, skills and attributes needed by graduates to thrive in an environment marked by disruption require us to re-examine and change teaching practices to support student knowing in new contexts. As teaching practices are enacted through the interplay of educators and students, examining teaching practice from both perspectives can add richness to our understanding of how practices might change in different contexts.

In this paper, teaching is examined using social practice theory. This theory posits that human activity is not wholly rational and directed by thought, nor is it entirely dictated by the social structures in which individuals live and work. Social practice theory instead contends that individuals shape and are shaped by the contexts in which they live. In this way our collective behaviours and beliefs exist, not in the minds of individuals or the structures of our society, but instead in the intersection of the two as we interact with each other in the basic carrying out of daily life (Reckwitz, 2002).

In this theory, summarized in Figure 1, practice is defined as the **patterns** that come together to fulfil collective, though not always explicit, **intents**. At each site of practice (e.g., an academic department) exist **architectures of practice**; the things at a site that enable and limit practice (Kemmis et al., 2014). Through practice, these architectures are shaped and changed so neither practice nor its architectures are static, but instead, mutually constitute each other in a recurrent process. Practice at a site forms **traditions**, like well-worn paths created by repeated "travel" over the same ground. **Routines** of developing practice also exist (e.g., conversations with colleagues, committee meetings). Trowler's (2008) elements of teaching and learning

[1] nancy.turner@usask.ca, +1 306 966 1804, https://teaching.usask.ca/about/staff/nancy-turner.php
[2] donnae@uwaterloo.ca, +1 519 888 4567 ext.35713, https://uwaterloo.ca/centre-for-teaching-excellence/people-profiles/donna-ellis

regimes, shown in italics in Figure 1, align to provide **architectures specific to teaching and learning practice**. This figure is used to frame results from the two studies in this paper.

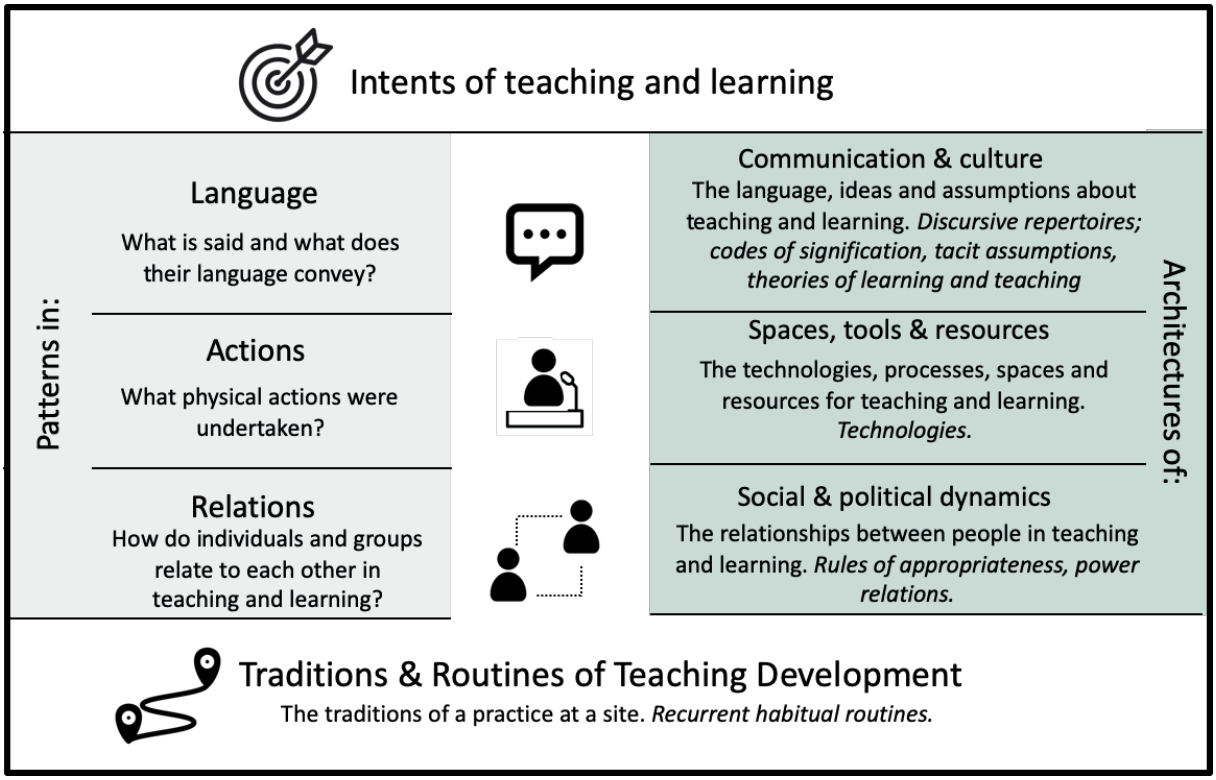

Figure 1: Teaching and learning practice and architectures of practice (adapted from Turner, 2018)

2 Study 1: Educator teaching practices and teaching practice architectures

An ethnographic investigation using social practice theory was undertaken to explore teaching and learning practices and the ways in which these practices developed in three departments at a research-intensive institution in Canada (Turner, 2018). While one step removed from directly assessing student learning practices, a key finding of the investigation was the central influence of faculty **assumptions about and relationships with students** on teaching practice and its development. For the purposes of this paper, the key findings in only this aspect of the investigation will be described.

Turner (2018) found that faculty assumptions about student motivations had a significant influence on departmental teaching practices and practice architectures. Findings saw these assumptions varying along a continuum of deriving motivation from grades, to gaining knowledge and/or skills, to growth as a member of a discipline/profession. Likewise, faculty relationships with students varied from faculty perceiving students as customers, to learners following expert faculty guides, to students being partners in learning with faculty.

Variance in these assumptions regarding student motivations and relationships with students influenced departmental language, ideas and beliefs about students and affected teaching practices. For example, in a department that believed students were customers who were motivated by grades, change in teaching practices sought to achieve student satisfaction. Conversely, a department that believed students were partners motivated by learning changed practices in ways that facilitated growth and identity development, with faculty and students learning from and with each other. In a simplified sense, the first department would see change driven by students and the second, change driven with students.

The practices and approaches to change noted here were fluid, not static characteristics of these departments. As such, assumptions about and relationships with students were key influencers of practice and practice architectures through ongoing teaching and learning encounters.

3 Study 2: Students' resistance to learning-centred teaching practices

Study 2 focused on students' perceptions when a faculty member in one course used teaching practices that the students did not expect to experience. In this case study research, Lewin's force field analysis model served as the theoretical change model, which posits that in a change situation, it is more effective to decrease opposing forces to a change than to increase the driving forces (1999). But to do so, the opposing forces – or barriers – must first be identified.

Ellis (2013, 2015) identified eight different barriers. Of interest in this paper is the one on instructional conceptions. In follow-up interviews, these conceptions were further investigated in relation to courses in the students' home department, tapping into the students' perceptions of departmental architectures and traditions, as explored in Study 1.

Trowler's (2008) teaching and learning regimes were applied as an explanatory framework for the results of the interview prompt: How well would the teaching practices used in this one course work in courses in your home department? Like the faculty, students had tacit assumptions (small class sizes are needed for interaction), implicit theories (nature of disciplinary knowledge), and beliefs about the conventions of appropriateness (students have to work independently) regarding teaching and learning that appeared to stem from their experiences with the recurrent teaching practices used in their home department and their beliefs about instructors (they are unwilling to learn new methods). The vast majority interviewed (n=14/17) believed that at least one of the methods used in the case study course would not work in their home departments.

In general, the experiences of students appeared to be critical in their conceptions of departmental teaching and learning regimes. Students' courses are not discrete experiences but rather a system of experiences, with each course adding to the students' collective set of perceptions about how teaching happens in a department. The more that students experience particular teaching practices at a site, the more they expect to experience those same practices. They are influenced by the teaching architectures and traditions within their home departments, but are not necessarily aware of their power to influence them.

4 Implications for educational developers

So why have we brought these studies together in considering educational developers' roles in enabling change? In general, when faculty want to adopt new instructional methods, it is helpful for them to do so with awareness that their practices and student responses to them are shaped by their workgroup. However, these practices and responses are challenging for faculty to see, which can provide an opening for educational developers to provide much-needed support and guidance.

Educational developers are outside of the architectures of academic departments, so can engage faculty with oblique questions or other activities that expose the tacit and often unconscious aspects of practices and practice architectures at a site (Trowler, 2014). For example, an educational developer might engage faculty in a card sorting technique (e.g., categorizing different assessment approaches), using projective techniques like imagining teaching in another scenario, or responding to a drawing of how things should/could work in teaching. Oblique questions might include asking faculty to compare the best student they could imagine, or the most effective teacher they have ever seen, to their current experiences.

These approaches, with follow-up questioning, can help make practices explicit, particularly when done with multiple members of a workgroup.

Similarly, educational developers can help departments create reflective activities to elicit and examine students' perceptions about teaching and learning regimes that may be opposing forces to engaging with new or unexpected teaching practices, and help them work with their students to develop broader, more expansive perceptions or transform them. Frameworks like those used in transformative learning may assist. For example, students could be asked how they think teaching should happen in courses in their home departments, how they decided that, and why they should question that thinking (Cranton, 1994; Mezirow, 2000). The ensuing discussions can identify barriers as well as enablers, and uncover students' assumptions for examination.

As seen in the descriptions above, these approaches are different from typical educational development practices, as the means of engaging to unearth and collaborate to change practice requires a different type of understanding of and engagement with the workgroup in which this change is occurring.

5 Conclusions

Practices are grounded in collective ideas, resources, and relationships at a site. While a faculty workgroup and a student's peer group are the primary sites of practice development for teaching and learning, the interaction of the two groups in the context of the department has a profound influence on them. If these two groups are considered independently, we miss the significant influence on teaching and learning practice that comes from the interaction. Educational developers are therefore encouraged to work at the level of the department and include students when making explicit – and changing – practices.

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ICED 2020 proceedings: How to support faculty in educational innovation

Riemke van der Meer, Marjolein van der Moolen

NHL Stenden UAS
Leeuwarden, The Netherlands

Abstract

NHL Stenden has developed and is now implementing a new educational concept, called Design Based Education (DBE). DBE requires faculty to adopt and apply a new vision on education, which implies new roles, and therefore new competences and a new mindset. The question is how to support faculty in developing this new mindset and these new competences. Here it is important to focus on personal beliefs and behaviors to really achieve the desired educational innovation. A specific way of learning aimed at designing and implementing the new educational concept as a team in which faculty learn inquisitively in communities, like students in education, could be an answer to this. Management must facilitate this in terms of time and coaching.

1 Introduction

NHL Stenden University of Applied Sciences has seized its recent merger (NHL with Stenden) as an excellent opportunity to reconsider its educational concept. Together with staff, industry, students and external experts, the concept of Design Based Education (DBE) was developed (see below). Study program teams are responsible for the educational design of their own programs, so the concept of DBE needs to be adjusted to their specific contexts. Therefore, it is necessary to develop both a personal and a shared vision regarding DBE and its implications. Faculty are challenged to reconsider beliefs and behaviors concerning learning and teaching. This should trigger a learning and development process. However, support and guidance in this process is needed. In a complex changing environment, it is important to recognize the need for support (Rafferty & Griffin, 2006). In the elaboration and implementation of DBE, it then becomes clear that the concept not only means a new way of learning for students, but also that faculty must take on different roles and acquire a different mindset concerning their teaching. For faculty, this can mean a fundamentally new professional identity, which may be a logical step for one person but an unbridgeable gap for another. When it comes to educational renewal, it is essential to involve lecturers; educational renewal has no chance without support (Bergen & Van Veen, 2004). For the educational staff and professionalization department of the university of applied sciences, this calls for reflection on how lecturers can best be supported in this process of changing beliefs and behaviors.

2 Educational innovation at NHL Stenden University

2.1 The meaning of Design Based Education (DBE)

With the educational concept of DBE, NHL Stenden University of Applied Sciences wants to help students develop future-proof competences in order to solve, reduce or prevent the problems of present and future society. DBE is based on social-constructive learning. The learning environment is focused on the development of a solid knowledge base and the ability to transfer knowledge to different and currently unknown situations. The learning process

therefore focuses on the adaptability of the student and the development of the student's own professional identity and thus has a lasting, sustainable impact. Of great importance is the interaction between faculty, students and industry. The quality of their relationships can be influenced by proper coordination within learning environments.

Design Based Education is characterized by iterative processes based on the principles of Design Thinking, in which steps are repeated to achieve change and improvement, in other words development and learning (Geitz & de Geus, 2019).

2.2 The role of faculty in DBE

The role of faculty in education is crucial, and in DBE faculty perform in a specific, versatile and rather complex way. Faculty help students to learn by creating learning environments in which they can experience guidance and facilitation in several ways. However, many faculty find it difficult to navigate in this new professional identity, which requires new competences in order to support the student learning process such as asking the right questions, providing sustainable feedback, and organizing authentic practical assignments (Woudt-Mittendorff & Visscher-Voerman, 2019). That is why they should be guided and facilitated in their learning and development, so that they can facilitate the learning of their students in the DBE way we desire.

Faculty who succeed in continually redesigning their teaching environments as a self-managing team also train students who manage their own learning processes and continually rethink them. Faculty who learn as a team also help students to learn more as a team. Team learning can also be called collective learning. One form of collective learning by lecturers is that of the investigative dialogue (Assen, 2018). Teams learn by working on an innovation, with a supervisor as facilitator instead of an expert (Walsweer, 2015). By focusing on participation, learning can be viewed in a clear way, leading to a changing way of supporting learning (Coenders, 2008). By using these forms of learning, the entire system, and the entire organization, learns (Fullan, 2009) and participants (lecturers) feel emotionally supported (Lankveld & Volman, 2009).

Collective learning by faculty could support them in reducing the gap between their beliefs and their behaviors. As faculty are used to solving their teaching problems individually, it is important to stimulate and encourage collective learning, integrating the four factors shared vision, dialogue and research, collective action and evaluation/reflection (Assen, 2018). These four factors encourage faculty to reflect on their beliefs about teaching and learning, and to become aware of whether these beliefs are consistent with the learner-centered approach to teaching that most of them advocate. Reflective capacities are of great importance for the development of the professional identity of faculty.

An integral and transparent vision of education should be developed by school leaders and their study program teams, because this will influence the way in which the approach to education is embedded in the curriculum. Curriculum standards, i.e. learning outcomes, curriculum design, workplaces, active learning methods, lecturer competences and program evaluation should therefore be developed, using an integrated approach (Assen, 2018). This can be achieved by facilitating Communities of Practice, with a supervisor as facilitator. As stated before, this supervisor is a person who facilitates team learning. The HR department of NHL Stenden can provide teams with these specifically trained coaches.

2.3 Organisation and leadership in educational innovation

Collective learning assumes that there is a learning culture, which involves transformative learning (Ruijters, 2015). This requires a focus on joint knowledge building, resulting in the innovation itself. Faculty are key to developing a clear vision of the student-centered approach

to education. Involvement and motivation must be supported through broad participation, stimulating experimental behavior, learning from mistakes and giving and receiving feedback (Oreg, 2006; Miedema & Stam, 2008; Coppoolse, 2018). Creating support is mainly about emotional aspects. In the event of change, faculty give meaning to the information in their own way, so that everyone constructs their own reality (Oreg, Vakola & Armenakis, 2011). Emotions about culture, identity and core values give meaning to it. People go along with a change when they understand it with their heads (cortex) and feel it with their hearts (limbic system). The emotions (limbic system) give change energy (Bartunet, Rudolph & Depalma, 2006; Thieke & Leeuwen, van, 2013).

Transformative leadership can stimulate a learning culture in which faculty can innovate, commit to a shared vision and experiment with student-centered interventions. The implementation of the new educational concept requires a great deal of effort from educational experts and faculty. This must be strongly facilitated by management. It takes time to go through several iterations to make things really work and achieve the quality desired. John Dewey already described communication as the process of sharing experience until this experience becomes common property (Geitz & de Geus, 2019). Lecturers and their teams need to be coached in this process to help them conduct the right dialogues, make the best decisions and use and develop their competences (Woudt-Mittendorff & Visscher-Voerman, 2019).

3 Conclusions

The transition to Design Based Education requires lecturers to make changes in terms of competences and behavior, but this also involves shifts in feelings, culture and identity: educational innovations only have a chance of succeeding if faculty really understand and support the change. Faculty will have to become much more than “knowledge carriers”, as is already commonly agreed upon. They must also become more than coaches of learning processes: they must become designers of learning environments which they optimize in continuous iterations. By doing this together, by giving space to emotions and by reflecting, they can also be said to practice Collective Learning. This requires a lot of commitment and intrinsic motivation on the part of faculty. Through involvement in every aspect of education, though, this can be achieved. Support and coaching will help faculty in this major change. Enough time and consideration must be invested to make it a success and in turn help to develop graduates of great importance for the future world.

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ICED 2020 proceedings:

Getting it right: A review of the new UFV faculty development program

Maureen Wideman[1]

Associate Vice President, Teaching and Learning
University of the Fraser Valley,
Abbotsford, British Columbia, Canada

Abstract

In 2018, after three years of development and obtaining approvals, the Teaching and Learning Centre (TLC) at the University of the Fraser Valley (UFV) officially began its new professional development program for newly hired full-time faculty. It comprised two nine-week multi-modal courses delivered over the fall and winter semesters. Faculty participating would receive one course release from teaching each semester to ensure they had time to fully engage with the program. This paper provides a brief summary of the research conducted on the first year of the program and the modifications that were implemented as the program moved to its second year.

1 *Introduction*

The University of the Fraser Valley is a regionally-focused and teaching-intensive degree granting postsecondary institution with five campuses in the scenic Fraser Valley area of British Columbia, Canada. It has 15,000 students, mostly domestic, including 6 percent Indigenous students and approximately 13 percent international students.

In 2018, 14 faculty members volunteered to participate in the pilot of the new faculty professional development program. It should be noted that although most of these faculty members were newly hired to UFV, the majority had five years of full or part-time teaching experience at other institutions. They were not new to teaching but new to UFV. The participants were from a variety of different departments, including Communications, Health Science, Adult Education, Criminology, Science, Business, Social Science, and Mathematics and Statistics. As the program was new and we were confident of its success, we also accepted into the program two full-time faculty members who had taught at UFV for two years and were struggling in their teaching practice. At the request of their dean, they were placed in the program. This decision would turn out to have implications for the program and its members.

The new faculty professional development program was loosely modelled on one in which the researcher had previously participated when she worked at another institution (Rodgers, Christie & Wideman, 2014). The UFV program focused on topics specific to teaching at UFV and was developed around three pillars: Relationships, Resilience and Reflection. While the content varied each week, the program purposefully provided opportunities for these new faculty members to engage with each other (build relationships); share and learn from one another's own teaching experiences (gain resilience); and write weekly journal entries about what they have learned in the program, from each other or from their own teaching that week (practice reflection). In addition,

[1] maureen.wideman@ufv.ca

knowledge was gained through weekly topics that included Indigenization and ways of knowing, adult learners, active and learner-centred teaching, experiential learning, culturally responsive and inclusive teaching, assessment, rubrics and ethical grading practices, academic integrity, the pedagogy of hope, resistance to learning, outcome and concept-based curriculum, and building community. The program modelled good teaching practice in a variety of modes, including in-class, blended, and synchronous and asynchronous online learning experiences. Faculty were provided with required readings and/or other activities to complete before coming to class. The total time required was approximately 5-6 hours per week.

2 *Research methods*

Research was conducted on the impact of the pilot program using a variety of methods including a pre- and post- self-efficacy survey (Schwarzer, Schmitz & Daytner, 1999), a pre- and post-Philosophies of Adult Education inventory (Labr.net, 2018), participant evaluations and observations by program leaders.

The self-efficacy survey asked participants to respond on their confidence level in 10 areas, such as being able to teach all subjects required, maintain positive relationships with students, reach difficult students, address students' needs, maintain composure and teach well, exert a positive influence, creatively cope with system restraints, motivate students, and carry out innovative projects even when opposed by skeptical colleagues. In comparing the pre- and post- survey results, there were gains in the Exactly True response in every area ranging from nine to 40 percent. The lowest increase was for the question, "I am convinced that, as time goes by, I will continue to become more and more capable of helping to address my students' needs." The highest increase occurred for the question, "I know that I can motivate my students to participate in innovative projects."

The Philosophies of Adult Education inventory, originally developed by L.M. Zinn (1983), aligns teaching and learning perspectives with adult education philosophies. There are 15 items in the inventory and respondents are required to complete a sentence choosing one of five options provided. Respondents can be aligned with philosophies that include Liberal (intellectual development), Behaviorist (behaviour change), Progressive (problem solving), Humanist (self-actualization), or Radical (social change) philosophies. Faculty can also be strong in more than one philosophy.

Participants were asked to complete the inventory before the program and after its completion. Six of our participants indicated changes in their adult education philosophies. Three moved from Behaviorist to Progressive/Radical or reduced their level of Behaviorist. One participant who was originally Strong Radical moved to Strong Radical / Behaviorist. Two other participants saw their scores for Behaviorist increase.

In addition, participants were asked to complete an evaluation of the program and the instructors at the end of the two courses. On a Likert scale from 1 to 5, with 5 being high, most respondents indicated either a 4 or 5 in most of the categories regarding the program. These included challenging existing thoughts, engaging their learning, gaining multiple perspectives, deepening their understanding of teaching and learning issues, and becoming aware of their own strengths and weaknesses.

The evaluation of the instructors averaged 4.5 out of 5, with questions ranging from ensuring an inclusive learning environment, organization of materials, clear objectives, relevant topics, use of a variety of teaching methods, stimulation of critical thinking, provision of feedback, and use of technology.

Participants were also asked to rate their own participation in the course. Most rated themselves a 4 out of 5 in areas of attendance, level of interest, and effort.

Selected participant comments included:

- Loved this course. Loved meeting other new faculty. Instructive to engage in discussion and hear other points of view.
- Very valuable program for new faculty.
- Too much reading.
- Strength was in creating an environment for us to share our experiences.
- Overall, a great use of my time.
- Really enjoyed the past year.
- It felt top down and agenda-driven.

3 *Challenges*

There were challenges during the first year of the program. Originally, it was intended that an overall assessment for participants include the development of a basic teaching portfolio, one where participants could begin collecting artifacts which they could use for probation and tenure purposes. The participants were not interested in any evaluation of their progress as they were not sure who else would access the materials. Although it had been stated numerous times that this program was for their benefit and did not, in any way, overlap with any administrative evaluation process, participants were unsure. The researcher attributes this to the participants who were struggling in their teaching practice and were in the program at the request of their dean. These participants were fearful because their positions were potentially at risk, and that fear leached into the program participants. However, when analyzing the feedback from the participants, overall it was extremely positive. While fear seemed to underline some of the discussions in class, it was not apparent in the feedback from participants.

4 *Modifications*

It was apparent that the program was an overall success. Faculty felt supported; they built a network with each other that has led to collaborative research projects, friendly connections and a broader use of teaching techniques, modalities and technologies. After analyzing the data, several modifications to the pilot were made. The name was changed to UFV Launch, as it was easier to remember. More faculty partners were included as co-instructors in the program. One class per semester was left open so that participants could choose a topic they wanted to explore. The requirement for a formal evaluation was dropped but participants were required to do the readings /activities each week and post to an insight journal and wiki. The number of participants doubled the second year, resulting in having two classes per week, one morning and one in the evening to accommodate schedules. The final change, and probably the most important, was the decision to only include new faculty members. Those faculty struggling with their teaching practice would be provided support through different means.

5 *Conclusion*

While this program cannot be equivocally aligned to faculty improving their self-efficacy or changing their teaching philosophy, it was reported that it was a contributor to many of the participants feeling supported and improving their teaching readiness in their first year. The classmates closely bonded with each other, shared stories and successes, and further expanded

their learning in the field of postsecondary teaching. The interdisciplinary nature of the program enabled participants to engage in topics from multiple perspectives – there are a variety of options to address most questions. It laid the groundwork for a long teaching career at the university. The program continues to be delivered at UFV.

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ICED 2020 proceedings:

Critical reflection as an essential part of developing higher education teachers to be future-ready – *Why* and *how*?

Sidsel Winther[1]

Unit of Academic Development, Roskilde University
Universitetsvej 1, Postboks 260
4000 Roskilde, Denmark

Abstract

Awareness about the benefits of critical reflection to support the development of university teachers is growing in the higher education field. This paper explains how critical reflection is enacted within the academic development program in one Danish university. This is done through a structured process of observations, focused dialogue among colleagues, and narrative reflections. In order to gauge the success of the program, narrative reflections were assessed using a rubric to evaluate the teachers' reflective processes. This aimed to give some indications of whether the program enhanced teachers' ability to critically reflect on their practice. Evaluations of the teachers' narrative reflections show that while some aspects of critical reflection were evident, teachers' approaches to testing the accuracy and validity of their assumptions could be expanded and enhanced.

1 Introduction

This paper focuses on *why* critical reflection is essential to developing future-ready higher education teachers, and *how* this is enacted through an academic development program at Roskilde University in Denmark. The aim of critical reflection is for teachers to see new perspectives on their practice based on the hypothesis that this will lead to a more profound understanding of how their teaching practices affect student learning. The question I will address in this paper is how and if we are enhancing ability and developing capability in terms of doing critical reflection *consciously* and explicitly for the purpose of improving teaching practice and fostering learning.

The academic development program, known as *Collegial Intervision* (CI), is an "in situ" teacher development process. Through Peer observation of Teaching (PoT) and critically reflective sessions, the teachers learn to identify and challenge the ideas and perspectives they have on their own teaching practice. In particular, they are encouraged to be curious about whether their espoused action is aligned with their enacted action. In this way, the critically reflective session allows teachers to get alternative perspectives on their teaching practice.

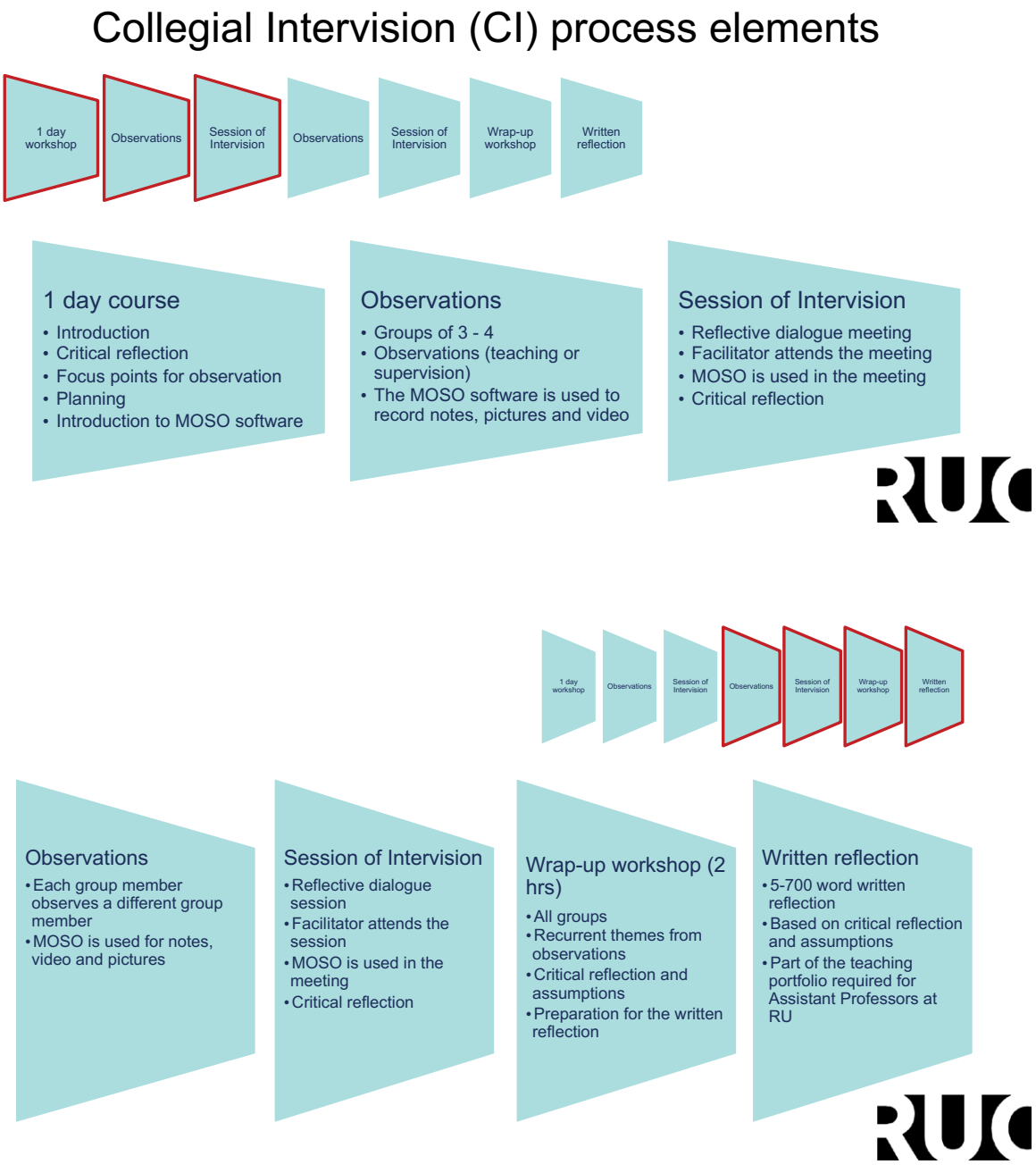
2 The CI program

2.1 Presentation of the program

In the CI program equal peers conduct a shared exploration of practice based on observation**.** The method is based on observation of teaching and reflective dialogue among peers with the purpose of developing and improving their teaching and/or supervision through interaction and collective introspection. The intervision dialogue is anchored in the

[1] sidwin@ruc.dk, +45 31462006, www.ruc.dk

specific observations on the observed teacher's pre-chosen focal points. In the dialogue, the teachers activate and challenge their knowledge base and meta-reflect on their own teaching practices. This method develops both the individual teacher's practice as well as the community of practice. The method is inspired by several educational philosophers and learning theorists, including Schön's (1983, 1987) concepts of *reflection-in-action* and *reflection-on-action*. At Roskilde University (RU) this approach to teaching staff development is enacted through the following elements:



2.2 Critical reflection

One of the fundamental parts of the program is the process of critical reflection as a way for the teachers to get new perspectives on their practice. Reflection has been defined as thinking about one's practice and beginning to see it in new ways (McAlpine, 1999:106). In

the 1980s Schön (1983, 1987) suggested its important role for professionals in coming to understand and improve professional practice. Reflection can be imagined as an ongoing conversation between present action, past experience, and intentions for the future (McAlpine, 1999:106). In the program we work with Brookfield's (2017) definition of critical reflection as "the sustained and intentional process of identifying and checking the accuracy and validity of our teaching assumptions" (Brookfield, 2017:3). Brookfield emphasises identifying underlying teaching assumptions, which are hidden beliefs about how best to help students learn. When teachers are critically reflective, they check if their practice, which derives from their assumptions, achieves their intended learning goals. This means teachers first need to identify their assumptions and secondly reflect on student learning. This allows them to identify whether their assumptions are valid in their daily practice as teachers.

While theories about critical reflection aim to support astute professional transformation, enacting it in practice is more difficult than imagined. Our approach to this challenge has been to (i) introduce software to support the observations (MOSO) and (ii) initiate a process of written narrative reflections for staff. This was complemented with the development of a rubric to assess teachers' narrative reflections and give them feedback (see Appendix 1). In order to evaluate the level of criticality demonstrated in the teachers' written reflections, the rubric is based on Mezirow's (1991) three levels of reflection: content, process, and premise, and Brookfield's (2017) understanding of hunting assumptions.

2.3 Teacher's narrative reflections

Based on the observation and the reflective dialogue sessions the teachers write narrative reflections (700–1000 words). In the narrative reflections the teachers articulate what they have learned in the CI, both from being observed and from being the observer. The instructions for the narrative reflections are guided by Brookfield's work with assumptions, with the questions in Box 1.

Box 1: **Guiding questions for the narrative reflections**

- Decide on some examples from your teaching or supervision that led you to reflecting on your practice and describe them
- What hidden assumptions, beliefs or values have you identified about your practice, for example from the examples you described?
- What are the advantages and disadvantages of your assumptions, beliefs and values for your students? (ask questions about the assumptions, look at as many angles as possible, analyse them for their effect on us and on others).
- Have you come to see your practice from new angles, new understanding of teaching, the teacher's role and/or students over the time of the CI seminar?
- Look at your teaching through a student lens and/ or reflect on evaluations from students (if you have them). What do you see?
- What areas for improvement have you identified that you will like to develop going forward?

3 Analysis and discussion

In this analysis of 11 teachers' narrative reflections from the program in spring 2019, I focus on whether or not the teachers critically reflect on the impact of their assumptions on student learning. This aim is to assess both the usefulness of narrative reflections to support teachers' critical thinking on practice and how the CI program supports the teachers' critical reflection. All narrative reflections were evaluated using the reflection rubric. Two aspects are discussed here:

> 2) Explain why (providing reasoning behind beliefs and actions, justifying choices) = identify assumptions, thoughts and values and discuss if these are "good" for your teaching
> 6) Reflections on the learning for the students. Looking at your teaching through a student lens and/or reflect on evaluations from students (if you have them) and WHY.

In relation to the criteria on identifying assumptions, all 11 teachers demonstrated the identification of assumptions in their narrative reflections. For example, Teacher 11 noted:

> *How can I support student participation and learning? I myself have an assumption that the "good" supervisor can explain everything, which I also experience as an expectation from students. As a relatively new supervisor … [when things become uncertain I can see that] I fall back on trying to "please" students by stepping into an expert position. In those situations, I can take a learning opportunity from them by giving an answer before they get the chance to think for themselves. In the future, I can pose questions that will be a reflection point for students and eventually I will tell them that I will not answer their questions in the first place because I would like them to practice thinking.* (Teacher 11, translated from Danish)

This teacher identifies a current assumption, reflects on its impacts in her current practice, and imagines a possible new practice. Here, the teacher practices testing the validity of her assumptions. In this way, she demonstrates critical reflection on practice.

Narrative reflections showed that nine of the 11 teachers demonstrated the criteria of reflecting on student learning from their own perspective. For example:

> *The same lecture also made me start thinking more systematically about how to check during a lecture to what extent students follow the arguments. The classic "do you have any questions?" is often inadequate. For instance students may be so "lost" that they do not even know what to ask about.* (Teacher 8)

> *But the most interesting part of the process has been being asked questions that I didn't expect … one of these "hard questions" – which I am still thinking about and probably will continue to think about … was "what is it we have to accomplish? What end goal is it we are trying to achieve with a lecture?"* (Teacher 7)

Although teachers thought about student learning, not one of the participants asked *students* specifically for feedback related to the identified assumptions in order to further check the validity of their interpretations. However, in one CI discussion group, they were able to identify and reflect on this, considering possibilities for future practice:

> *Finally, someone [in the group] came up with the idea of ending a lecture with an exercise asking [student] participants about what they had learned and what was not so clear for them. This is something I will try out in the coming semester.* (Teacher 8)

The reflections imply that the value of student feedback on teaching is an area that needs more attention in the CI program.

4 Conclusion

We asked how and whether we are enhancing ability and developing capability in terms of doing critical reflection *consciously* and explicitly for the purpose of improving teaching practice and fostering learning. Analysing the narrative reflections from the spring 2019 cohort shows that while all the teachers have shown the ability to critically reflect by identifying their assumptions, not all demonstrated checks for the accuracy and validity of their teaching assumptions. This needs to be further addressed and developed in future iterations of the program.

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Appendix 1: Rubric for assessing critical reflection in narrative reflections (June 2020)

Criteria for critical reflection / **Reflection level**	**1.** Description of situations (who, what, where, how)	**2.** Identify assumptions, for example, ideas, thoughts and values and discuss if these are "good" for your teaching practice. Explain the why (provide reasoning behind beliefs and actions, justify choices). Are your beliefs and practices aligned?	**3.** Challenge beliefs (ask questions about the assumptions, look at as many angles as possible, analyze them for their effect on us and on others). Open up to new perspectives (Brookfield, 2017:75).	**4.** Possible changes (if any) in beliefs, ideas, assumptions or values – transformation, new action, reflection of new beliefs	**5.** Ideas for specific future changes in action ("nuts and bolts")	**6.** Reflections on learning for the students. Look at your teaching through a student lens and reflect on feedback from students.
Content reflection: Reflection that principally draws on existing knowledge – ''What is the ('content' of the) problem and what do I presently know about how to solve it?'' Content reflection shares similarities with McAlpine et al.'s (2004) "drawing on existing knowledge".						
Process reflection: Reflection that questions knowledge. Process reflection is focused on the effectiveness of the strategy chosen to solve the problem. Here we ask ''How effective am I with solving the problem?'' The goal is to find out whether what we do works by seeking some form of "evidence".						
Premise reflection: Reflection which leads to a construction of new knowledge. Question the core beliefs on which the definition of our problem was based and ask ''Why is it that I choose to attend to this problem – is there an alternative?'' Researching one's own ideas, thoughts, assumptions and values. "Like nailing jelly to a tree"						

Derived from Brookfield (2017), Mezirow (1991) and McAlpine (2004)

Future-ready educational developers

How will educational development evolve? What mindset is required to be future-ready, and how do we develop it? What tools will help us to remain innovative and effective?

ICED 2020 proceedings:

Sharing the burdens of responsibility for a better future in transnational academia: Reflections of displaced Syrian academics on an atypical academic development event

Shaher Abdullateef[1]

Academic Centre for Development and Peace Studies, Gaziantep, Turkey

Nidal Ajaj[2]

Independent scholar, Gaziantep, Turkey

Rida Anis[3]

Hasan Kalyoncu University, Gaziantep, Turkey

Fateh Shaban[4]

Academic Centre for Development and Peace Studies, Gaziantep, Turkey

Dina Zoe Belluigi[5]

Queen's University Belfast
69-71 University Street, Belfast, Northern Ireland
Nelson Mandela University
Port Elizabeth, South Africa
Orcid: orcid.org/0000-0003-4005-0160

Tom Parkinson[6]

Centre for the Study of Higher Education, University of Kent
CT2 7NZ, UK

Abstract

Academics in conflict and refugee contexts often work in settings that are at stark odds to those typically portrayed in academic development research, and can encounter different challenges. Normative academic development resources can therefore be inadequate, inappropriate or inaccessible to academics marginalised by conflict or displacement. This paper reflects on a round table event held in June 2019, where Syrian academics gathered together with counterparts from post/conflict contexts including Belarus, Bosnia Herzegovina, Kenya, Northern Ireland, Palestine, Serbia and South Africa to share experiences and formulate strategies. This short paper foregrounds the perspectives of Syrian academics who

[1] shaher.abdullateef@gmail.com
[2] nidal.ajaj4e@gmail.com
[3] rida.anis@hku.edu.tr
[4] dr.f.shaban@gmail.com
[5] d.belluigi@qub.ac.uk
[6] t.parkinson@kent.ac.uk

participated, and their insights into the value and challenges associated with international fora concerning academic development in conflict contexts.

1 Introduction

The World Bank (2017) and UNESCO (2019) acknowledge the critical role HE plays in (re)building sustainable societies. Absent from the earlier Millennium Development Goals, HE is explicitly addressed in the Sustainable Development Goals (SDG4) under the aim of equitable access to tertiary education for all men and women by 2030 (UNESCO, 2019). The UN's Education Framework for Action 2030 calls for international collaboration to "strengthen well-informed HE systems" (UNESCO, 2019). We argue that if the international academic development community is to contribute meaningfully to these aims, it needs to broaden its contextual scope and seek to understand the specific challenges faced by academic communities living and working under duress, and work with those communities to address them.

The scale of destruction and displacement caused by the Syrian crisis has been unprecedented in recent decades, as have the challenges faced by HE communities inside northern Syria and in exile. In 2019, Syrian academics participating in the Council for At-Risk Academics' Syria Programme (Cara SP[7]) expressed their desire to learn from academics whose countries' HE systems had survived years of conflict. At a two-day workshop in June 2019, Syrian academics gathered together with counterparts from Belarus, Bosnia Herzegovina, Kenya, Northern Ireland, Palestine, Serbia and South Africa to share experiences and formulate strategies for the future.

2 Methodological notes

To accommodate consideration of the many problems where Syrian academics need help to find creative solutions, the round table began with a loose agenda that allowed themes to arise responsively from discussion. First, Syrian contributors recounted the needs and experiences of students and academics (both in exile and inside northern Syria) to the international contributors, who had experienced and/or conducted research on HE in contexts of conflict, oppression or exile. International contributors in turn asked questions and made comparative observations, towards a shared contextual understanding. This led gradually into a transnational sharing of knowledge, support, and solidarity, including both a pragmatic focus on accessible resources for academic development in resource-poor, non-institutional settings and wider-ranging discussions about academic culture, heritage, freedom and purpose in periods of post/conflict and crisis, and future hopes for reconstruction, development and commemoration.

We had intended to extend these conversations, and present a vision for an holistic academic development for conflict contexts, in our planned symposium session at ICED 2020. In lieu of this, we foreground here the reflections of the Syrian authors who were present at the 2019 workshop (for a paper from the perspective of the UK-based authors see Belluigi and Parkinson (in press). Below is a condensed summary of our reflective accounts.

3 Reflective insights

We benefited from the lessons our international colleagues had learned through their experiences. We were also inspired by their resilience. Encountering people who have gone through difficult circumstances similar to those you have faced, who refused to surrender or

[7] Established in 2016 to provide academic development support to Syrian academics in exile in the ME region: https://www.cara.ngo/what-we-do/supporting-higher-education-in-crisis/

give up, makes you think, “if they can overcome their challenges, I CAN too.” We felt that we, Syrian academics, were not alone.

Through our discussions it became clear that to address the complex challenges arising from unprecedented deterioration in the social, cultural, economic, and academic status of the HE sector in Syria and its displaced communities, a broader understanding of academic development is needed that moves beyond a focus on teaching and learning and encompasses community building. International contributors from other post-conflict and exile contexts emphasised the need for us to present ourselves as a union or a group, since working individually will not achieve results. Indeed, reflecting on our experiences on the Cara SP, while the formal academic development activities support us in developing our competencies as educators and scholars, the Cara SP also facilitates our coming together as Syrian academics to work through psychological trauma, and discuss feelings of frustration and uncertainty about the future. This has been equally important, offering an invaluable opportunity to retain an academic identity, particularly for those of us without institutional affiliation.

Advice and encouragement from these international counterparts reminded us of our need to connect more and more with colleagues in our own Syrian academic community, including those in diasporic universities across the world, and those who graduated from international universities. Due to the collapse of the Syrian HE sector, displacement and various divisions, the Syrian academic community is fragmented and individuals are seeking individual solutions, but we can harness the shared hope of Syria’s future to motivate us. Building our community is our first step towards academic development, and can be achieved simply and at low cost. Knowing that there is solidarity and support from international counterparts motivates us and inspires us further. Getting academics from the global North and the global South together who genuinely try to help each other will enhance everyone’s understanding and, as a result, facilitate finding better solutions. Indeed, we hope one day to be able to participate in transnational academic development, where all countries – normative or abnormative, colonial or post-colonial, hegemonic or non-hegemonic – contribute together to promoting just societies through accessible higher education.

Since the round table, and in collaboration with various Syrian and international stakeholders, much work towards building a collective academic identity has begun, including a Facebook page[8], a website[9] and the establishment of the Academic Centre for Peace Studies in Gaziantep[10]. We are also broadening our international engagement by participating in international fora for academic developers such as the Erasmus+ funded IntREF project[11]; collaborating with international colleagues to establish a teaching standards framework for universities in northern Syria; and pursuing international funding and partnerships for the enablement of our research practice.

4 Conclusion

We propose a vision for academic development that attends to the needs of academic communities working under conditions of conflict and displacement, and draws on strong international networks to reckon with uncertain higher education futures.

[8] Amal-Syria (“Hope-Syria”): https://www.facebook.com/Amal4Syria
[9] Syrian Academic Expertise: https://sae-afs.org
[10] Academic Centre for Development and Peace studies: https://acdps.org/en/
[11] https://sites.durham.ac.uk/intref/

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ICED 2020 proceedings:

Challenges for higher education and staff development towards sustainability: Empowerment of people and shaping of organizations

Thorsten Braun[1]

University of Stuttgart
Center for Education and Qualifications
Azenbergstraße 16
70193 Stuttgart, Germany

Jochen Spielmann[2]

Technische Universität Braunschweig
Kompetenzzentrum Hochschuldidaktik für Niedersachsen
Universitätsplatz 2
38106 Braunschweig, Germany

Abstract

This article combines governance strategies and fields of activity to promote and facilitate sustainable change in higher education institutions. The role of individuals and small units as change agents receives special attention. We recommend the support of strategic thinking on all levels and the navigation of change with the help of easily accessible tools.

1 The challenge

Higher education institutions are increasingly held responsible by a global educational agenda for things which go far beyond their traditional tasks of fundamental research, employability promotion, knowledge transfer, application and humanistic acquirements. Ever since the proclamation of the Sustainable Development Goals (SDGs) (SDG, UN A/Res 70/1, 2015), the UNESCO Roadmap for Education for Sustainable Development (UNESCO 2014), as well as numerous national action plans (e.g. BMBF 2017), higher education has been urged to respond to global challenges across disciplines, border, and cultures. “Transforming our societies towards a better future” is the new maxim. Research in many fields is already responding to this call with significant collaborations, initiatives and results.

However, the demand for a far-reaching transformation of educational institutions and their re-adjustment, in order to tackle wicked global problems (Wals), also prompts a change in teaching and learning environments. How can and will educational development respond?

The outlines of what is required have already been drawn (UNESCO 2014). The new role of education for sustainable development includes an orientation towards the seventeen SDGs; access to education across all parts of society; education for holistic human development; the future-ready education of teachers; and the sustainability of educational institutions themselves. From this framework, key competencies have been derived to improve sustainability and world citizen education (Adomßent/Hoffman 2013; UNESCO 2017). They focus on the ability to shape the future, to think ahead, and to engage in self-motivated, critical

[1] thorsten.braun@zlw.uni-stuttgart.de
[2] jochen.spielmann@tu-bs.de

learning (among other aspects). Dealing with unknown and unknowable problems, complexity, and changing dynamics are also major aspects of the future-ready graduate (Wals).

The hardest part of the whole endeavor seems to be to translate these noble but abstract goals into something that relates to our everyday learning, working and living world. We have to tackle the future here and now.

2 Fields of activity

In our experience, this is the major challenge for educational developers who are working on the operational levels within their institutions. The focus lies on how to tackle the practical problems we face in order to realize the ambitious agenda of shaping our learning to come. From our experience, we identify the following four major fields of activity and challenges (for similar conclusions on organizational development cf. March 2016, pp. 46, 71, 104; Senge 2006, pp. 449-453):

A. **Empowerment of people**: How can students and teachers be successfully empowered in order to understand, promote, educate on and live towards sustainability goals?

B. **Shaping of organizations**: How can formal structures, organizations or networks be nudged towards flexibility and acknowledgement of necessary change?

C. **Shaping of narratives**: How can the education of tomorrow and the need for change to achieve sustainability be framed by understandable and acceptable narratives?

D. **Dealing with crisis and failure**: How can we tackle and overcome obstacles and setbacks on our way for an education to come? What are good practices for solving problems and crisis?

3 Government strategies in higher education

If we want to facilitate and coordinate activities within the four fields outlined above, our possibilities are usually limited by our positions within or in relation to higher education institutions. This corresponds to a value-based concept of governance by Lothar Zechlin (2017). Strategies to develop and facilitate change are based on institutional settings and the position of change agents within them, as well as on their potential to facilitate change. **Four major governance strategies** are of interest to us (cf. also Figure 1):

(1) Governance by **direct control**
(2) Governance by **institutional goals**
(3) Governance by **organizational units** and more or less formal committees
(4) Governance by **individual initiatives** and single actors

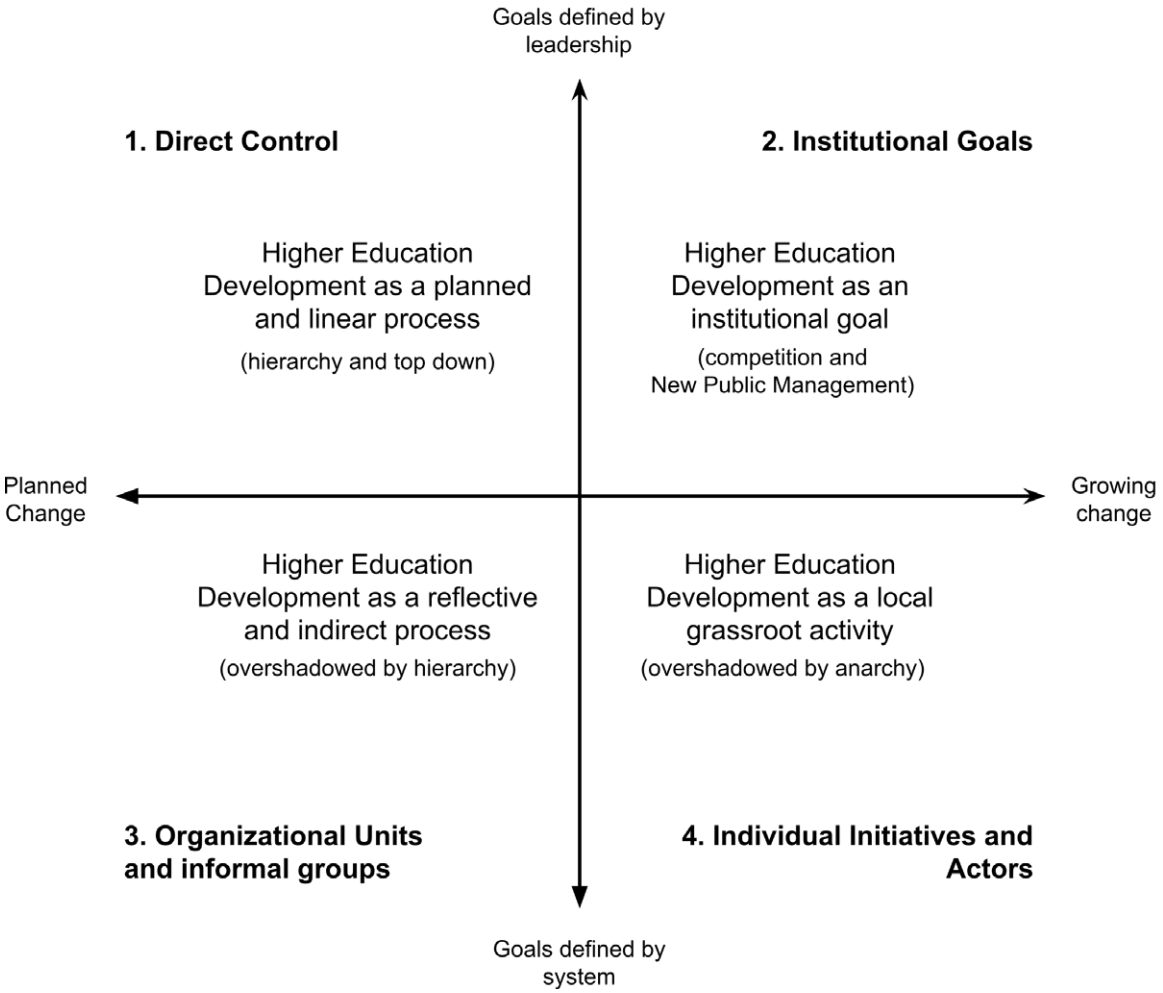

Figure 1: Governance model (Zechlin 2017) adapted for higher education development (HED)

If we combine the governance model with the fields of activity identified above, a wide range of actions can be identified. Depending on their position within the higher education (HE) institution, change agents and facilitators usually find their scope of influence limited at some point, but they also have unique possibilities within their range. Table 1 presents typical activities for different fields of action, grouped by the governance style available to change agents.

4 Navigating change

A successful change process within universities must ultimately pass through all four levels (1−4) in order to be implemented in a sustainable way (EUCEN 2009, pp. 6, 11). However, the starting point and the path followed are very different and must be carefully planned. If we take a look at how change is facilitated in HE, we can identify some possible ways of how to navigate governance strategy and activities towards a sustainable and future-ready education that has some lasting impact. Two examples:

1. A single department (3) decides to develop a common narrative (C) for its own field of work in order to reassure core members and collaborators about sustainable goals and measures. They start offering extra-curricular courses (A) (3) and then make their way through committees to accredit a course (A) (1). At the same time they recruit and educate partners (A) and start to build up a network with similar initiatives at other universities (D).

2. An individual (4) has developed strategies to deal with crisis and failure (D) on the basis of her long professional experience, which she has developed into models that she would now like to pass on. She contacts both the Vice-President for Continuing Education (1) and draws on a research project (3) with the aim of presenting her models and making them available to members of the university (A). A research project and publication will contribute to an ongoing, local and regional discussions on the topic.

	A) Empowerment of people	**B) Shaping of organizations**	**C) Shaping of narratives**	**D) Dealing with crisis and failure**
1) Direct governance	Promote and declare an agenda for sustainability Establish study courses on sustainability Offer continuing learning opportunities for staff, students and non-university groups	Create departments on sustainability Integrate sustainability in syllabi Connect your institution with regional, national and global actors	Connect local actions to global values and goals Promote a policy for social and global responsibility in higher education Facilitate a discourse on personal impact and meaning of sustainability issues	Establish a supportive discourse on sustainability Support resilience on organizational level Support a fair error culture and promote experiments
2) Governance by targets	Make sustainable development goals (SDG) a prime agenda Support local initiatives with funding and recognition	Include sustainability in goals and objectives on department level Recruit personnel with background and experience in sustainability	Include sustainability as prime requirement in funding initiatives Encourage application of sustainable thinking and action on local level	Include sustainability issues in quality development and evaluation Establish a critical review of expectations and achievements Establish indicators of success
3) Governance by less formal groups	Include sustainability in leadership programs and recruitment policy Recognize individual engagement and enthusiasm	Connect to other departments and units Make SDGs your goals on department level Facilitate cooperation between disciplines and cultures	Relate sustainability issues, goals, and actions to your organization Make activities visible for all and relate them to meaningful goals	Establish a resilient culture on individual level Establish a positive error culture Encourage group activities and shared responsibilities
4) Governance via individual initiatives and actors	Qualify and educate individuals Raise awareness of sustainability on personal level	Recognize individuals for their engagement Organize common interests and promote SDGs at your workplace	Share personal values, ideas, and experiences on local level Make good use of social media	Get professional, help, support or training Connect yourself to groups, networks or similar initiatives

Table 1: Example governance-activity matrix for facilitating change in higher education development

The processes described in these short scenarios are not arbitrary procedures but follow strategic ideas and goals:

- Sensitization on current issues and topics in higher education development and SDGs
- Connectivity to established ways of communication and organizational structures, thus respecting the local institutional culture
- Turning affected persons into empowered participants
- Aim for a broad discourse in order to gain traction and persistence
- Strengthening and qualification of individuals, teams and committees

5 Recommendations

These brief examples instruct us to facilitate and support strategic thinking on all institutional levels in order to open up windows of opportunity for sustainable change towards future-ready higher education.

Not only top-level management and heads of departments should be expected to take a strategic vantage point. By the model we introduced and the fields of activities we described, every individual and small unit within an institution is entitled to think and act strategically. Academics' autonomy remains a major feature even in times of context or policy change (Henkel 2005). Also, research on the role of microcultures in academic development has shown its potential for facilitating change through community building and networking (Mårtensson 2014, Mårtensson/Roxå 2008). Last but not least, academic developers have a great variety of backgrounds and attitudes (Land 2004). These findings offer a great resource for empowering change on a micro or meso level.

Most people in the HED community are by definition experts in empowerment, lifelong learning and reflective development. They have the experience, the means, and – most importantly – the possibility to act strategically. We have to spread awareness and encourage people to make use of easily accessible strategic tools to empower our colleagues to consciously navigate all levels of institutional change, whatever their starting point. We propose classical governance strategies and insights into learning organizations as helpful tools for further reflection and actions on behalf of the SDGs in university settings.

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ICED 2020 proceedings:

Applied strategies for educational development as cultural work

Karin Brown, Pia Scherrer[1]

Educational Development and Technology, ETH Zurich
Haldenbachstrasse 44
8092 Zurich, Switzerland

Robert Kordts-Freudinger[2]

Institute of Business Education and Educational Management, University of St.Gallen (HSG)
Dufourstrasse 40a
9000 St.Gallen, Switzerland

Roman Suter[3]

Educational Development Unit, University of Bern
Schanzeneckstrasse 1
3001 Bern, Switzerland

Abstract

This paper views cultural work as a threshold concept in educational development which helps to interpret institutional contexts and informs decisions on future practice. Three cases describe how the authors' educational development work is nurtured by a cultural perspective. Specifically, we address making teaching a "community property" (Shulman, 1993, p. 6) at ETH Zurich; the analysis of microcultures at the University of St. Gallen (HSG); and the cultural role of brown bag lunches at the University of Bern.

1 Introduction

For the ICED conference we had planned a workshop which elaborates cultural work approaches to teaching and learning for participants by sharing theoretical perspectives and application strategies for different institutional contexts. The following text seeks to mirror this approach. It introduces educational development as cultural work and provides practice examples from three institutions.

We follow Schein's definition of culture as the "pattern of basic assumptions, […] that [is] considered valid and […] is to be taught to new members as the […] correct way to perceive, think, and feel […]" (1990, p. 111). We share Stensaker's understanding of cultural work in educational development as "a deliberate attempt to develop and disrupt the organization on the basis of established and emerging practices and knowledge" (2017, p. 277) with the goal "to develop local practices which […] are crafted in ways that are quite unique to the individual organization" (2017, p. 281).

[1] karin.brown@let.ethz.ch; pia.scherrer@let.ethz.ch
[2] robert.kordts-freudinger@unisg.ch
[3] roman.suter@zuw.unibe.ch

2 ETH Zurich: Make teaching a community property

A core faculty development task is to offer courses for teaching staff. We build on Shulman, who advocates leaving "pedagogical solitude" to make teaching a "community property" (1993, p. 6). He suggests producing artifacts "that capture [the] richness and complexity" (Shulman, 1993, p. 7) of teaching and making these available for peer review. We embedded these two strategies in our course programmes: to complete a course, teachers prepare a written artifact which focuses on their teaching practice and share it with other teachers. For each faculty group, the requirements are adjusted along the two dimensions suggested by Kern et al (2015): (a) the range of people an artifact needs to be shared with, and (b) the level of systematicity ("[s]ystematic means […] a methodical, planned, and deliberate process to acquire knowledge" (Kern et al, 2015, p. 4)). The requirement is set by considering each group's teaching-related needs (e.g. teaching tasks, career relevance, etc.).

Programme target group	Needs	Written artifact required	Systematicity	Publicness
Professors	• Busy point in career • Practical course preparation	• Hands-on product (e.g. course syllabus) • Short course reflection	Apply basic analysis questions about teaching and learning in reflection	Within own class
Scientific staff	May require teaching certificate for career purposes	Teaching project	Short, fairly systematic report on teaching and corresponding student learning in one of their courses	Shared with programme alumni
Teaching assistants (TAs)	• Teach in application-focused formats • Appointments may happen at short notice	Teaching proposal	Application of a teaching technique and assessment of its effectiveness	Shared with programme alumni

Table 1: Course programmes offered at ETH viewed through a cultural work lens (selection)

In this approach, faculty themselves build a culture where teaching becomes community property. Educational developers support this in two ways: we invite teachers to build on their course products, e.g. by seeking more formal publication opportunities (e.g. in our institutional or a discipline journal), or more public opportunities, e.g. brown bag lunches on teaching (see Brown, Scherrer, Suter, 2018). Also, we select parts of artifacts as examples of teaching and learning aspects and reintroduce them as material in our courses (teacher's permissions provided) (see Brown & Scherrer, 2018).

3 University of St. Gallen (HSG): Microcultures at work

HSG follows a tradition of integrating business and economics programmes with the social sciences and humanities. Study programmes are headed by at least one academic director and one administrative manager who reports to the school. Working in the university's educational development unit, we have used the organisational culture model by Schein (1990) and founded our educational development activities on the analysed values and basic assumptions, as evidenced by visible artifacts. Work by Alvesson (2013; Alvesson & Sveningsson, 2008) has also informed the approach by focusing our attention towards people's everyday behaviour and by stressing the importance of smaller communities within an organization and more local cultures.

An institution-wide analysis of the teaching and learning cultural aspects of our university yielded a largely hierarchic understanding of a business-like relationship between instructors and students, quite similar to the manager-worker relation, especially for the undergraduate

programmes. In this culture, students are kept rather distant from the instructors and usually need a lot of extrinsic motivation through written exams. Extrapolating these aspects to the relationship between programme managers and instructors implied a manager-worker relationship as well. Programme managers, in this view, could impose decisions in a top-down enactment of top management, hence yielding a hierarchical vertical model of programme management. Based on this idea, we have been working with the programme managers in several ways in order to develop their programmes, mainly by supporting them directly with their specific projects, such as programme reforms, which has worked well. In addition, we sought to install a university-wide event series for all programme managers. When asked, the majority of programme managers supported the latter idea. However, some colleagues explicitly voiced their concerns that the events would result in work overload; these concerns were in part fuelled by their fear of obligations imposed top-down.

Our cultural understanding was thus refined in this way: the hierarchical understanding of teaching and learning was confined to the areas where it was clearly visible. Apart from that, we now interpret the programme managers' position as well as ours as a laterally and horizontally leading role based less on top-down authority (e.g., Thomann & Zellweger, 2016). In addition, further progress in differentiating between micro-cultures at HSG led us to favour a local approach to educational development, in line with current thinking on the cultural approach in educational development (e.g., Stensaker, 2017).

4 University of Bern: Just another Brown Bag Lunch?

The University of Bern is a comprehensive university in the tradition of European universities, with eight faculties. The quality of teaching is anchored as one of four sub-strategies in the Strategy for 2021 (University of Bern, 2013).

In order to implement this sub-strategy, the Vice Rectorate Teaching and the Educational Development Unit launched a joint initiative called "FEDERALL" (Faculty and Educational Development Research Alliance) with the aim of encouraging lecturers to engage in a systematic discussion of their teaching activities; to promote interdisciplinary exchange on teaching among teaching staff; and to enable exchange among the very heterogeneous teaching and learning cultures at this university. In building this community, an attempt was made to create a micro-cultural environment which can be described as a Commons (Roxå & Martensson, 2015). Commons are characterized by an open discussion atmosphere, mutual trust and shared concerns and responsibilities.

As an instrument and forum for this community, Brown Bag Lunches take place once a semester. They are organized and moderated by members of the Educational Development Unit and attended by lecturers from different departments. During the Brown Bag Lunches, two lecturers give a short insight into their current Scholarship of Teaching and Learning (SoTL) projects. They show their results, raise methodological questions and, above all, discuss implications for their own teaching. Thus the focus is not so much on whether results attain publication requirements in educational development journals, but rather on their applicability to the local conditions at the institute or department. Therefore, with FEDERALL we emphasize the importance of local knowledge about teaching and learning (Ashwin & Trigwell 2004; Martensson, Roxå & Olsson 2011). Shulman (1993) postulates artifacts as a means to make teaching more visible and accessible for a broader discourse. Therefore all presentations of the FEDERALL Brown Bag Lunches are freely accessible on the website of the Educational Development Unit (www.federall.unibe.ch).

FEDERALL is cultural work within educational development, because a discussion of artifacts, values and basic underlying assumptions (Schein, 1990, p. 111) takes place explicitly. What appears to be a very classical measure for the support of SoTL projects turns out to be an important moment for cultural work for the development of teaching and learning at the University of Bern.

5 Conclusion

Through our collaboration we have come to regard cultural work as a threshold concept in educational development (Meyer & Land, 2003). Once we started viewing our institutional environment through a cultural lens, it allowed us to articulate an overarching framework for our work which informs decisions on our practice. Although the phenomena observed and practice strategies adopted differ among our three institutions, we share the underlying cultural framework which helps us to interpret our environments and systematically foster contributions towards each institutional teaching and learning culture.

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ICED 2020 proceedings:

Future-ready directors: Owning a new educational development leadership role

Martha Kalnin Diede[1], Laurel Willingham-McLain[2]

Center for Teaching and Learning Excellence
Syracuse University
130 Smith Drive, Mail Stop 151 Link Hall, Syracuse, NY 13244, USA

Abstract

This article focuses on educational developers who direct centers for teaching and learning (CTL) in new-to-them institutions. Professional guidance exists for entering educational development (Gillespie, et al, 2010; McDonald, 2010) and starting centers (Dickens et al., 2019), but not for transitioning into directing roles. Experienced educational developers in new director roles must develop self-awareness and a thorough understanding of their new environments. This article starts with an appreciative inquiry approach for identifying directors' strengths, opportunities, aspirations and results (SOAR, Stavros & Hinrichs, 2019), and then outlines questions for analyzing institutional strategic positioning.

1 Introduction

This article focuses on educational developers who direct centers for teaching and learning (CTL) in new-to-them institutions. Professional guidance exists for entering educational development (Gillespie, et al, 2010; McDonald, 2010) and starting centers (Dickens et al., 2019), but not for transitioning into directing roles.

Experienced educational developers in new director roles must develop self-awareness and a thorough understanding of their new environments. This article starts with an appreciative inquiry approach for identifying directors' strengths, opportunities, aspirations and results (SOAR, Stavros & Hinrichs, 2019), and then outlines questions for analyzing institutional strategic positioning.

2 Applying the SOAR framework

The SOAR framework for strategic thinking focuses on curiosity, possibility, innovation, energy, action and results (p. 16). Through learning conversations, this "whole system approach helps stakeholders see and understand how the system works and where their unique contributions make a difference" (p. 10). Table 1 adapts SOAR to self-examination for CTL leaders in new roles (p. 53). Throughout the transition, new directors can engage trusted colleagues in conversations to explore these questions. Colleagues' primary role is to listen and support personal discovery through SOAR. Beginning these conversations prior to applying for positions increases self-awareness, informs applications and interviews, and can lead to a strong fit, where the new director is interviewing the new position as much as being interviewed for it.

[1] madiede@syr.edu
[2] lwilling@syr.edu

SOAR	Individual
Strengths	What strengths do you bring to your new role? How do your strengths fit the demands of the new role? Think specifically of your most significant accomplishments. How do these accomplishments demonstrate your strengths? What strengths did you develop in the process? What new strengths are emerging in this transition?
Opportunities	What opportunities appear for you in the new context? What opportunities will be your focus in the first few months? How can you reframe challenges you face as leader so you see the potential in them?
Aspirations	What most excites you? What generates energy for you? What do you care deeply about? Who are you, and who/what do you want to become? How do you want to be known in your new context?
Results	What early actions or goals will you commit to? What will it take to accomplish them? What are meaningful measures of progress toward them?

Table 1: The SOAR framework applied to individual CTL directors

Table 2 outlines questions to prompt explorative conversations with various CTL stakeholders to create shared meaning. If the CTL doesn't yet exist, apply the questions to the organizational leadership above your center. For more ideas, see "Soaring at multiple levels" (pp. 45-55) and *Conversations worth having* (Stavros & Torres, 2018).

SOAR	Center for Teaching and Learning
Strengths	In what ways does the existing CTL best support the institution's goals and strategies? What are key CTL accomplishments, and how was the center strengthened through these?
Opportunities	What is the CTL's part in promoting institutional goals? How is it positioned to grow in its stakeholder support? What potential partnerships exist to increase impact?
Aspirations	Looking at strengths and potential, what meaningful difference can the CTL make for stakeholders? What necessary actions will make this difference? What resources are required?
Results	What indicators will you use to ascertain your progress? How often will you review your progress? How will you communicate it?

Table 2: The SOAR framework applied to CTLs

The SOAR framework focuses attention on what's compelling and possible. It creates a context for quickly implementing and evaluating new plans, and then iteratively asking the SOAR questions. This approach is especially important while the COVID-19 pandemic demands that CTLs respond quickly to new teaching and learning challenges, and when faculty may experience overload, isolation and anxiety. CTLs are compelled to guide faculty in imagining new ways of teaching and learning, and drawing them into a life-giving upward spiral of openness and wholeness.

While considering personal goals and their fit with the CTL, investigate the position of the CTL within the institution, and become aware of how that position might be changing.

Strategic positioning	**Ask these questions about the *current state* of the** • **Center for Teaching and Learning** • **Division** • **Institution**
Information and communication	What systems exist for sharing information? What backchannels exist? How might you access these? Who will share what you need to learn? Where does "official" information live? How do you access it? How do stakeholders shape that information? What happens when official policies or communications do not already exist? What is CTL communication like? Is CTL information up to date (e.g., web, job descriptions, calendar, contact)?
Culture and behaviors	What perceptions exist? Why? How have these changed over time? For what does the institution reward faculty most? How? What do faculty value? How is faculty morale? What teaching and learning practices are valued? How does the institution solve problems? What was the last major disruption? How did the institution react? Is the CTL seen largely as a reaction to problems or a strategic move towards the future? In what ways are academic leaders such as CTL staff evaluated and valued? What professional development is supported and expected for them?
Management systems	Is there a CTL strategic plan? How is progress toward goals reviewed and communicated? How do these goals relate to other strategic positions? What are the budgetary systems? Where do you find policies? What unofficial budget practices and assumptions exist? Who shares trustworthy information? How are centers evaluated? How do they show their worth? How are staff evaluated? Do staff receive ongoing feedback? Are accommodations appropriately made? What facilities and equipment does the CTL have? Are there satellite locations?
Organizational structure	Does the CTL have a team? How does it function? What are the roles? What CTL services exist? Is there an advisory committee? What is its role (e.g., oversight, advocacy, etc.)? Who are the members? What standing committees include CTL representatives? At what tables does the CTL have a seat? What major initiatives have CTL staff helped lead? To what effect? What is the top-level investment in the CTL? Grassroots? What partnerships does the CTL have? How healthy are they? Are they formally documented? How helpful are they to advancing vision, mission, and goals?

Table 3: Investigating the current state of strategic positioning

3 Discovering institutional strategic positioning

The SOAR framework also offers a tool for analyzing strategic positioning (Porter, 65-68) in four areas: Information and Communication, Culture and Behaviors, Management Systems, and Organizational Structure (Stavros & Hinrichs, 2019, pp. 33-34). In stakeholder conversations, learn the current state of these four foci, then imagine the desired, future state.

Table 3 outlines four areas pertinent to institutional, division, and center levels, and to their interconnectedness.

Information and communication are key. Interpersonal connections are built and strengthened by the way that information flows among people. Most institutions have both official information channels and backchannels. Even institutional leaders seeking transparency have some protected information and processes by which important new information is shared. Determining how the most accurate information flows, and what is perception and what is fact, is essential to determining how the CTL fits into operationalized strategic plans.

Communication and information flow reveal many aspects of institutional culture and behaviors. Knowing the culture in which faculty and CTLs operate and the behaviors that the institution values and rewards is crucial, so you can maximize your use of management systems and strategically position the CTL – both in systems defined by the organizational chart and those defined by relationships. Step back to examine how the CTL is currently positioned in the larger organizational structure and how it is structured internally.

Look over the current state of all four areas. At the heart of SOAR are conversations in which stakeholders inquire into strengths and opportunities, and imagine and implement potential, desirable futures. These conversations generate power and inspiration for future successes (Stavros & Hinrichs, 2019, p. 35; Stavros & Torres, 2018). In stakeholder conversations, outline the ways in which the CTL already has potential to reach its strategic goals. Consider together how you can leverage leadership strengths and opportunities to guide incremental growth from current to future states necessary for achieving CTL goals.

4 Future-ready: Plan to SOAR

You, too, can SOAR in your new role. Transition often brings a large cognitive load, and you may find yourself fully engrossed in planning for CTL successes. Avoid a lopsided relationship to the CTL in which you ignore your own professional progress and goals. Remember your back story of experience and expertise, and keep the conversation going with trusted colleagues about how your leadership in this context helps you attain personal aspirations and results.

With so much to discover and accomplish, choosing how to move ahead is challenging. The SOAR approach encourages you – through systematic conversations – to implement new ideas and achieve and communicate early results. Just as we tell faculty and students, a fail is simply a First Attempt In Learning. Using a growth mindset of learning from missteps, you can make changes in the next iteration (Dweck, 2006). Together, you and the CTL can SOAR. It's a question of imagining what this soaring will look like.

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ICED 2020 proceedings:

Possible, probable and preferable futures of university teaching, and how to explore them as academic developers

Florence Dujardin[1], Phil Long[2]

Centre for Staff and Educational Development,
University of East Anglia Higher Education
Norwich Research Park
Norwich NR4 7TJ, United Kingdom

Abstract

Understanding the pedagogical uses of technology is a key requirement for many academic developers. To explore lecturers' perceptions, aspirations and concerns in this area, we used the Ethnographic Futures Research (EFR) approach, a little-used method in academic development research. The paper first introduces this approach to exploring socio-technical scenarios for the future; it then summarises our experiences in a small research project before making the case for using this method to support academic development activities.

1 Introduction

Calls for educators to include anticipatory skills in the curriculum are long-standing, to enable young people to address critical issues such as inequality and climate change and to foster step changes in the way we view the future (Facer, 2016; Priyadharshini, 2020). As the covid crisis is compelling society to make swift adaptations, these calls have taken on a new urgency. As academic developers, we need to offer training events that enhance lecturers' "future literacy", that is, their ability to explore alternative futures and act accordingly (Miller, 2015) using the affordances and debates shaping their disciplines. The goal is to encourage them to nurture in students the mindsets and skills required to navigate social and environmental change and to view it as space for innovation (Dator, 2014).

We had intended to provide such an event at the ICED 2020 conference, to support delegates' exploration of possible futures for academic development. Instead, this paper shares and reflects on our experiences of using a futures research method, in the hope that readers will adapt it for their own purposes. We chose "digital practice" as the focal domain because of current pressures for lecturers to teach online. The paper first outlines the method, before offering practical guidance. It closes with an evaluation of futures approaches for academic development practice and research.

2 What is futures research?

Education is sometimes viewed as a means of replicating social order, but its very nature is to encourage learners to forge different paths for themselves. It is an "interventive co-creator of futures" rather than a kind of insurance or "corrective" for uncertain futures (Facer, 2016). Conversely, digital technology is often perceived as a herald of change when in fact it can reify social practices. What makes different socio-technical futures possible are human agency and vigilance when faced with increasingly "intelligent" technologies (Aagaard & Lund, 2019). Futures research methods are well adapted for freeing our imagination and uncovering and evaluating alternative versions of the future with a view to promoting action (Dator, 2002).

[1] f.dujardin@uea.ac.uk
[2] p.long@uea.ac.uk

The Ethnographic Futures Research (EFR) approach to interviewing is an interactive, non-directive method for eliciting participants' visions for the future in relation to a specific theme and its possible evolution within their organisations or society (e.g. Lowdon, 2010; Veselsky & Textor, 2007). The "ethnographic" element of the method stems from the situatedness of the participants' views. EFR interviewers do not research present cultural patterns. Instead, they ask:

> *Within the context of overall trends and possibilities as you perceive them, what potential changes in your sociocultural system do you (1) want, (2) fear, and (3) expect? (Veselsky & Textor 2007)*

EFR works on the basis that while the future does not exist, what does exist are our hopes and anxieties about our culture within a specific future horizon, as well as our preferences among alternative futures. Researchers elicit from interviewees their presently-held opinions about pessimistic, optimistic and probable futures, in order to develop contextualised scenarios. Gathering such varied and sometimes contradictory views is essential when planning action, as "stories we tell about the future are powerful resources for shaping our sense of possibilities and readying to fight for change" (Facer, 2011).

3 Conducting futures research interviews

EFR interviews are just one of the methods used to probe perceptions of the future. There are variations on the "interview" element of EFR. For example, Mitchell (2002) used it in conjunction with "élite interviewing" to explore civic leaders' views on the "digital divide". In higher education contexts, one of the authors of this paper used it to ask a small sample of lecturers in our university how they saw the future of their digital practice (Dujardin & Walker, 2016). This was done with an assumption of steady development; the kind of "feral future" brought about by crisis (Ramírez & Ravetz, 2011) and now unfolding in universities had not been factored in. Yet the project findings and an offshoot workshop were very useful in supporting the pivot to online teaching occasioned by the covid-19 crisis.

Dujardin and Walker (2016) used the following instructions for unstructured interviews in which participants were conceptualised as informants for their departmental settings:

> *During the interview, you'll explore three scenarios about what the future might bring. Consider your practice, your discipline, and any department and/or university factors, as well as your students' expectations.*
> 1. *An optimistic scenario – If you could get all the technology you would wish to support students, what would the future look like?*
> 2. *A pessimistic scenario – In a least favourable scenario, what would the future look like? What would impact your practice the most? What would hinder it?*
> 3. *An intermediate, realistic scenario that is most probable – What would your practice look like in this version of the future? What factors would affect it?*

Project findings and conclusions were amplified in a follow-up workshop in which, with some adaptions, EFR was used at larger scale. During our university's Learning and Teaching conference, Ms Dujardin asked 40 lecturers participating in a workshop to respond to the above instructions, using coloured "post-its" to articulate their optimistic, pessimistic and probable visions for digital practice (see Figure 1 below). Lecturers' contributions offered valuable ideas for reviewing a module on digital practice offered on our Master's in Higher Education Practice.

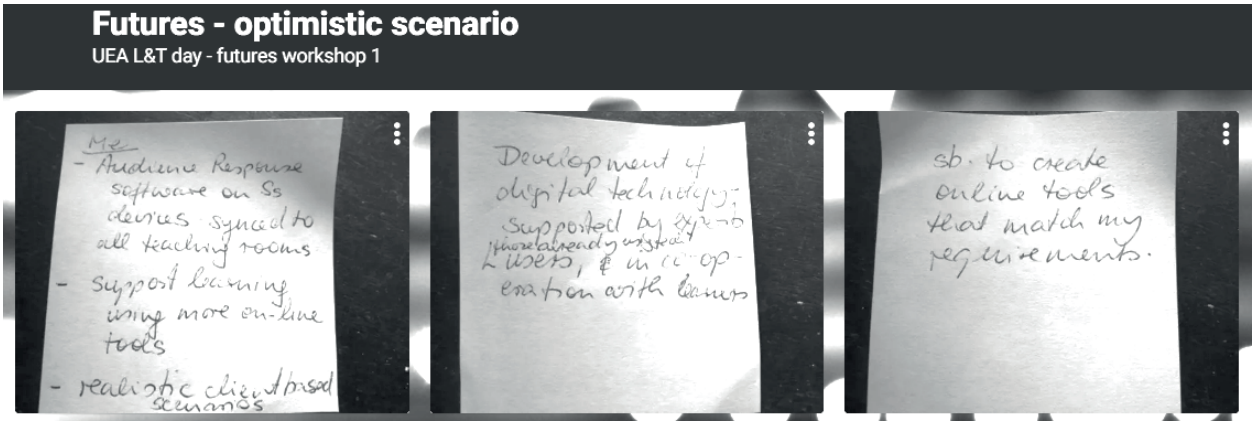

Figure 1: Example imaginings of optimistic futures in digital practice

Using EFR requires skills in facilitating unstructured interviews and workshops. Perhaps the most unsettling aspect when first using this method is to engage not with facts but with perceptions of something that does not exist – the future. Yet participants responded well and provided rich data; they also reported having fun – an emotion not normally associated with interviews or focus groups. Using EFR also offered an inclusive approach to capturing participants' trajectories in digital practice within their disciplines.

4 Why use EFR?

EFR is associated with conventional ethnography, and therefore shares similar limitations and benefits. For academic developers, it can also create ethical tensions because participants express their values as well as their perceptions of the institution they work for; care must therefore be taken when reporting participants' scenarios or acting upon them. We recognise these issues, but also wish to highlight the potential of futures research. Its purpose is to maintain or enhance people's well-being and sense of agency, so futurists seek to understand trends and what can be changed, accelerated or prevented through individual or collective action (Bell, 2017: 111). Academic developers share similar goals: to make teaching and learning productive, they need to pay attention to trends and factors in order to devise training and other initiatives that support transitions and enhance individual and institutional practices. Having appropriate tools is necessary to identify issues early and to involve lecturers in identifying priorities and solutions. Futures research therefore has a place among the techniques that academic developers can use. Working with individuals or groups yielded insights that may not be easily accessible with more conventional research methods such as surveys.

In addition to providing a novel way of uncovering lecturers' learning needs, futures research offers another benefit. Eliciting stories challenges the assumption of a single inevitable future, which can help participants to prepare themselves better for changes to come and motivate them to influence events. This sense of preparedness gained through exploration of coherent alternatives has been called "future literacy" (Miller, 2015). Our 2016 study initiated discussions around the skills that students need as digital citizens in an increasingly complex world. Such conservations perhaps lacked urgency then, but this has changed: the covid-19 pandemic has "unlocked" many problems, including the need to develop anticipatory skills to address crises and the value of digital skills in the new futures of work (Blanc, 2020). Exploring alternative stories for the future, evaluating the factors and values that underpin them, and developing action plans are valuable not only for academic development but also within all academic disciplines.

5 Conclusions

Though used in higher education research, futures research is under-explored in the academic development literature. Our pilot study (Dujardin and Walker, 2016) outlined its potential and is now being expanded to review our support provision to enhance lecturers' digital literacies. The unprecedented pivot to online teaching in spring 2020 created challenges for campus-based universities. It represented what futurists call a "trend-break" (Blanc, 2020) during which online teaching became acceptable and necessary. There is much work to do to understand lecturers' perceptions around this mode of working and their priorities for the years to come (Vlachopoulos, 2020). Futures research provides a novel and participative way of carrying out such needs analyses and planning professional development initiatives – some of which will need to address "future literacy" to enhance resilience among academics and students.

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ICED 2020 proceedings:

Guided by theory, informed by practice: Teaching philosophies of academics from universities of teacher education

Mònica Feixas[1]

Center for Teaching and Learning in Higher Education, Zurich University of Teacher Education
Lagerstrasse 2
8090 Zurich, Switzerland

Amira Berzi[2]

Hoeh Rohnenweg 19
8832 Wilen bei Wollerau, Switzerland

Abstract

What influences the teaching philosophy of teachers from universities of teacher education the most? Is it theory? Professional development? Experience and personal beliefs? Articulating a teaching philosophy allows a reflection on one's identity as a teacher and guides behaviour by codifying a set of principles by which a teacher acts (Goodyear and Alchin, 1998). This is a means for university teachers to share their developed values, principles and practices.

In this study, we provide insights on teaching philosophy statements from academics of an international network. For its analysis, the conceptual framework of Schönwetter et al. (2002) is used as a reference for looking at seven dimensions (purpose of teaching and learning; role of the teacher; role of the student; methods, and assessment) and two framing devices (critical incidents and acknowledgement of contextual factors). Such insights reassured us on the appropriateness of writing teaching philosophies for professional development purposes.

1 Introduction

Most teachers have a teaching philosophy, which may or may not be formalized into a written document, the Teaching Philosophy Statement (TPS). A TPS is a true representation of what guides the author's behaviour as an academic and a teacher. For the writer of a teaching philosophy, the ultimate question is "Why do I teach?" The answer can be constructed by gathering the reactions to several "what" questions, such as: *What is the concept of teaching and learning that I hold? Which methodology of teaching do I use? What is the overarching goal of education? What are the outcomes of my teaching which I strive to observe?*

To Schönwetter et al. (2002: 98), a teaching philosophy is "a systematic and critical rationale that focuses on the important components defining effective teaching and learning in a particular discipline and/or institutional context." Thus, each teaching philosophy reflects not only personal beliefs about teaching and learning, but also disciplinary cultures, institutional structures and cultures, as well as stakeholder expectations.

[1] monica.feixas@phzh.ch, +41 43 305 6483, http://phzh.ch/hochschuldidaktik
[2] amira.berzi@yahoo.com +41 763 459 485, www.amiraberzi.com/about-me/

We established an international network where participants were asked to write their TPSs. LECU (Learning Cultures in Universities) is a network that brings together 24 teachers and curriculum developers from universities throughout Albania, Kosovo and Switzerland with the aim of sharing best teaching practices among academics at universities of teacher education. Over a period of four years, they met face-to-face and online to carry out a series of guided assignments, such as duos (a joint inquiry between two members of the same institution) and trios (a project between members of the three different countries).

In this paper we present a summary of the analysis of LECU TPSs. The conceptual framework of Schönwetter et al. (2002) is used as a reference. It identifies seven components: values and goals of teaching and learning; concept of teaching; concept of learning; teaching methodology; interaction with students, assessment of students' learning, and professional growth. Additionally, we looked into the transcultural dimension. Finally, we refer to the importance to educational developers of designing programmes which incorporate TPSs.

2 The study

In this research project we asked ourselves: How diverse are the TPSs of academics from universities of teacher education in three different countries? What are their goals and beliefs? And how do they describe their practices?

We performed a content thematic analysis (Krippendorf, 2004) of 20 TPSs of LECU participants. They were organized around goals, beliefs and practices along the abovementioned categories. Texts were assigned labels and were coded by two researchers to assure reliability.

3 The results

We group the results according to LECU participants' values and goals, beliefs and practices.

3.1 Goals

The student-centred goals of a teacher can vary in considerable ways. A statement can demonstrate whether one's goals are quality-oriented, inspirational, missionary, content/knowledge-oriented, skill-oriented, lifelong career-oriented, or affective and interpersonal goals. Some examples of goals can be found here:

Values	**Goals of Teaching and Learning**
Quality	"Provide best possible education for my students." (L01) "Characteristics of good teaching: high cognitive activation, learning intensity and consolidation" (L07)
Integration	"All lessons are language-conscious, with the aim of cumulatively expanding and deepening students' competences in all educationally relevant languages and subjects." (L17) "I achieved for myself the perfect combination of both being a teacher educator, but also having psychology deeply rooted in my work." (L04)
Inspiration	"Relationships with life and giving opportunities to compare, judge, evaluate, and do things independently makes teaching more attractive and effective for students." (L09)
Mission	"I believe a teacher is a missionary and lives to serve. A teacher is dedicated to learning, to his or her discipline, to his or her students, and to asking the future the best possible place for all of us to live." (L10)

Table 1: Goals of teaching and learning

In our analysis, most goals relate to the need to provide good quality teaching, enabling students to make successful careers, helping to shape society and fulfilling individual needs. In some cases, they are personal-centred/oriented, society-centred, and discipline-centred.

3.2 Beliefs

Some sample beliefs are illustrated in the statements. They are tied to each individual's original purpose in teaching, and some have shifted with experience.

Beliefs	**Beliefs about Teaching and Learning**
Students	"Each student has a different learning style … and the potential to learn." (L01) "My students should have in mind that they aren't teaching only a subject but they are developing children's personalities." (L05)
Learning	"… is an active process." (L15, L14) "As a teacher I can create an environment that stimulates learning, but I cannot directly impose 'content' to be learned. This is also due to very different learning biographies and mental constructions of learners. Therefore, I know connecting with prior knowledge is key." (L15) "I know how students develop and learn. I recognize that students actively construct and transform their own knowledge based on experiences and interactive learning." (L11)
Role of the teacher	"a change agent taking into account students potentials and their learning styles" (L03) "identify problems, difficulties, but also find out student interests and provide support for each of them. … care for the results of student achievement, provide continuous information on their progress or stagnation and motivate them in further work" (L04)
Teacher as learner	"we are all learners, we grow and develop together with our students" (L04) "is a learning process for myself too" (L13)
Learning activities	"I forecast the relevant learning activities and execute different teaching methods in order to both challenge students' intellectual abilities and allow each of them to think and grow. I exert every effort to present the instructional materials in a variety of formats that respond to student's different learning style and maximize their learning." (L11)
Assessment	"The grade should be an incentive and assessment must be objective, reasonable, public and with relevant arguments." (L01)
Environment and climate	"A diligent and reliable organization of a course is critical to create a constructive learning climate." (L15) "I arrange my lessons rhythmically and with different didactic and methodical suggestions in the sense of a pedagogical *double-decker*." (L07) "For maximizing the performance of students, I prefer to design activities based on a very famous Yerkes-Dobbs law in psychology which emphasizes '*that for maximum performance, anxiety should be neither too high nor too low, but somewhere in between'*." (L06)
Institution and community	"Beams, Higgins, Nicol (2012) refer to a paper in which Higgins argues that developing a connection with place provides a start point for relationships with people within a community." (L16) "The promotion of learners in the language of education is, of course, the joint responsibility of all persons and institutions involved." (L17)

Table 2: Beliefs about teaching and learning

3.3 Practices

Next, some selected examples of how teachers reflect on their practices:

Practices	Practice Teaching and Learning
Activating competences	"Support of self-regulated learning requires good tasks and diligent consulting of students. These are two key topics I follow to this day." (L15) "I give students a lot of space so that they can discus, analyze, and argue with each other and with me… I'm a fan of using digital media while I encourage my student to bring their devices to faculty settings." (L05)
Multi-methodic	"Lectures, questioning, practice and feedback are some of the teaching methods I use in my classroom." (L01) "Learning journals, peer assessment, debates, field trips and experiential learning…" (L12) "The idea is to integrate outdoor learning in daily teaching activities. This should be considered in a place-based learning." (L16)
Tutorials	"In the tutorials, we conduct group exercises, presentations, discussions, etc. where students can reveal their full abilities – their analytical skills, their depth of thought, ability to synthesize, criticize and make judgments." (L04)

Table 3: Teachers' reflections on their practices

The different strategies and methods used take into account the premises of active learning that is cooperative, dialogic and reflexive, and they also challenge students' cognitive abilities.

As for analysis of the language used, the TPSs were analysed according to anecdotal references, conceptual statements, the "me-I-my" perspective, "should-must" accounts as well as value and goal-oriented reflections. For example, there are interesting anecdotes on the start of the teaching experience and the idea that teaching is like parenting in the way it involves a careful observation of the young student's development. Another example refers to the observable differences in the quality of two otherwise very similar seminars: "*This spring, I taught two courses on self-regulated learning in two different contexts with two very different feedback (in one course the feedback was outstanding, in the other it was devastating). I try to understand what made the difference: …*" (L15).

Most statements start with "I-me-my", indicating an individual view or experience: "*Personally, as a teacher I give tests over the studied material. Since I teach English as a foreign language, I also use analytic assessment with students…*" (L01). A few write in a less personal way using expressions with "should-must", suggesting that it would be expected but perhaps not necessarily performed or achieved: "*Based on the requirements of the curriculum, we must first clearly define the goals we are expecting from the learner, what skills should demonstrate, what values should I cultivate, what behavior should I reflect and what knowledge I have to own*" (L03).

Many actions appear to be guided by theory, which comes from either research, pre-service or in-service teacher training, and which teachers have adapted to their own experience and intuition. "*I have in mind the Vygotsky theory of effective learning while social interacting with each other*" (L05).

In summary, we can maintain that the teaching philosophies of university teachers of universities and faculties of education are very powerful statements representing beliefs,

values and practices that are well rooted in their own (past and present) personal, familiar and professional experiences as educators, coaches, counsellors, educational administrators and parents, as well as in the theories which they firmly believe should guide their teaching practice. Both socio-constructivist theories and specific discipline-related theories are didactically and critically reflected. Students are at the forefront of the teaching experience and their learning needs are taken into account in planning courses, devising the educational environment, promoting sound interaction and designing authentic assessments.

4 Conclusions

Three main conclusions can be derived from the study:

1. TP is a useful roadmap through which teachers can identify their pedagogical strengths and also weaknesses. Since reflecting about teaching philosophies is a way of making private theories more acceptable, which leads to a healthy challenging of "espoused theories" (Brookfield, 2015), TPSs have become popular assignments in academic development. In this study, writing a TPS has proven to be a challenging yet pleasant task.

2. Teaching is of more a value than a research-based activity. One strength of academics at universities of teacher education is a desire to prove that their actions as teachers are primarily guided by research. However, despite justifying teaching choices using literature, the guiding force of most of the choices appears to be more a set of values than research-based knowledge. Teachers are unable to escape from the fact that "teaching is a value-laden activity" (Goodyear & Allchin, 2001).

3. Values are strongly embedded in the vocational goals, pedagogical knowledge and previous experiences of academics at universities of teacher education. They are, therefore, rather independent of origin, context or culture. While in the analysis we were looking at possible differences across countries, a transcultural dimension is not evident. Teacher trainers, school curriculum designers and university academic developers, regardless of country, university or teaching discipline, define themselves as educators who provide an attractive student-oriented approach with a good mixture of expert knowledge input and practical application based on their experiences of teaching.

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ICED 2020 proceedings:

An experiential learning approach to educational development: Responses to teaching architecture through the lenses of reflective practice

Ingrid Le Duc[1]

Teaching Support Centre (CAPE), EPF Lausanne
1015 Lausanne, Switzerland

Dieter Dietz[2], **Patricia Guaita**[3]

ALICE, IA ENAC, EPF Lausanne
1015 Lausanne, Switzerland

Abstract

This paper tells the story of a decade-long relationship between a teaching team (TT) and an educational developer (EDP). They have been using an experiential learning approach to monitor improvements in teaching architecture to first year students.

We explain how the model ALACT (Korthaghen & Vasalos, 2005) serves to scaffold the construction of a common pedagogical experience. Indeed, we will explain how ALACT, as a model in teacher education, can also help teachers in architecture and EDPs to balance learning-by-doing. This uses a situated approach, capable of moving between ideas of craft, know-how and educational development (ED).

As a result, the architectural vocabulary became interweaved into ED activities such as teaching workshops, student feedback surveys, student focus group interviews and conversations with faculty and studio directors (SD). We suggest a model for ED that aims to go beyond standard quantitative analyses by integrating reflection on the experience which brought the EDP and TT together in a common endeavor of mutual care.

1 Introduction

1.1 A model for ED in architecture teaching

In a broad sense, the term ED groups all services and activities aiming for better teaching and learning. In addition to the services often provided by ED (individual support, curricular and instructional development, institutional development), for architecture teaching ED has also included team meetings with SD and student representatives, visits to the studios, specific pedagogical workshops and student focus groups. All these services and activities have followed an iterative reflection for advising on teaching and learning.

Evidence-based ED means using data to reflect and to decide on adjusting current instructional practices. In the ED for the architecture studio teaching in question, it constantly provided a safe space to innovate instruction and to collect data about it. In this sense, our experience

[1] Ingrid.leduc@epfl.ch – corresponding author
[2] Dieter.dietz@epfl.ch, https://www.epfl.ch/labs/alice/
[3] Patricia.guaita@epfl.ch

adheres to ED's general definition of the term and its functioning (Fraser et al, 2010; Gibbs, 2013, POD Network).

In addition to the services, we use the term ED as incorporating specific terms used for teaching architecture such as *design methodologies*, *building* ideas (imagining, designing, drawing) and *understanding the making* of architecture as a complex system where the work is presented and discussed collectively. Using Gibbs own words *(2013, p.4)*, ED led us to

> *gain some perspective on what, at a particular moment in time, might seem inevitable or "the only approach possible," but which in retrospect appears simply as one of a number of stages on a long and winding road, or as one of a number of different paths that it might be possible to take.*

1.2 The pedagogies of studio teaching in architecture

Architecture teaching in the studio means combining conceptual tools and practical learning, with its flaws and strengths. Srinivasan's (2011) insightful review of architecture teaching mentions Donald Schon's (1984) praise of architecture studios as a "place for reflection and action." It also criticizes the individualization of students through study and production in the studio because it leads to a *"promotion of the individual, and lack of systematic development of communication and interpersonal skills"* (Nicol, D. et al, 2000, in Srinivasan, 2011, p.1834).

To overcome this criticism, Srinivasan (2011) proposed reframing design studio pedagogy using Kolb's experiential learning cycle. Kolb's learning cycle (1984) pictures a learner-centred construction of knowledge in four key steps: (1) doing (having an experience); (2) reflecting on the experience; (3) learning from the experience; and (4) experimenting by applying what has been learned. In our studios, architectural tools and spatiality generate a collective transformation for students and for teachers.

With this in mind, we will explain how ED supported better teaching and learning in the architecture studio through a shared reflective journey. Although they did not follow Kolb's model, the TT and the EDP went through the experiential learning cycle proposed for teacher education following the ALACT model described below.

2 Application of the ALACT model

Teacher education requires that unexperienced teachers improve professional practice by looking back and assessing their actions during training. Reflecting on practice is known to equip inexperienced teachers with confidence to teach (Darling-Hammond, 2002; Reupert and Woodcock, 2010; Beddoes and Panther, 2018). The ***A-L-A-C-T*** model thus stands for ***A***ction, ***L***ooking back on the action, ***A***wareness of essential aspects, ***C***reating alternative methods of action and ***T***rial. Korthaghen & Vasalos (2005) thought this extrapolation of Kolb's model would boost teacher educators to reflect on how their own instruction may impact their students' future ways of instruction. The model's basic idea is to promote improvement of instruction through reflective practice and repeated trial (Korthaghen, et al, 2006).

For the EDP and the TT, Action meant becoming aware of tensions in a studio, perceptions on the grading criteria and the fatigue blamed on the workload. In line with Korthagen (2017, p. 388), ALACT here helped to encourage a "*connection with the person of the teacher,"* as well as that of the EDP, through self-reflection. This because SD believe that heavy investment is prevalent and inescapable in an architect's education.

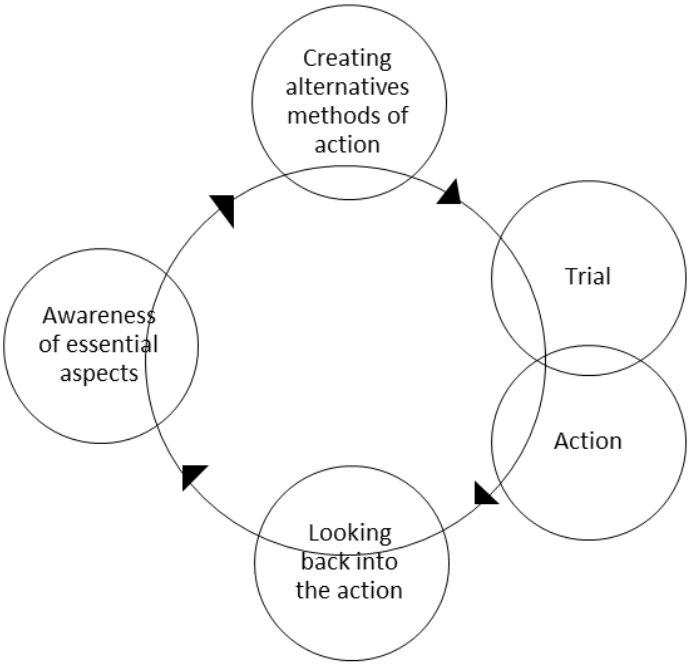

Figure 1: Adapted drawing of the ALACT model

It should be clear by now that ALACT represents the reflective journey of everyone involved in improving teaching. In the next paragraphs we describe our journey in the first year Architecture course.

2.1 The architecture studio set-up

The student numbers for this studio have fluctuated between 250-310 students divided into 10-16 studios. Each group of 15 to 24 students is supervised by an SD and a student assistant.

2.1.1 Working space and daily organization

The on-campus working spaces are permanently open and are extremely flexible: spatial arrangements are undefined. This organization outsmarts traditional pedagogy and emerges as an extension of the individual and the collective work.

2.1.2 Teaching

The program has two semesters. The first sets the foundation for the entire year. Here students get to know the tools of the architect, such as drawing by hand, crafts models and 1:1 prototypes. The first semester prepares them to understand architectural tectonics, including measure, scale, and the body in space.

Next is the realization of an architectural project that deals with space and construction within an architectonic discourse. Students' work in individual and collective projects was later tested in protostructures for a chosen construction site.

Students are also expected to develop communication skills when sharing their work. This prepares them for the future.

2.1.3 Exchanges

Four types of exchange take place simultaneously in the studio:

1. Constant conversation within the studio (SD, student assistants) provide feedback on the basis of the work that is done (hand drawings models, prototypes, texts). These help to clarify concepts and rehearse techniques.
2. Private weekly tutoring of 20 to 40 minutes takes place with the SD (with drawings/ models / prototypes). These sessions are scheduled reflective conversations about techniques, and concepts but mostly about the process.
3. Group tutoring takes place, where 2 or 3 students present their work to their studio on a regular basis. These are led by each SD and aim to prepare students to present to critics. Student test their arguments and display their production techniques to get feedback.
4. Intermediary and final reviews expose all studio processes and finalized work to the entire class. While the head teacher and SD may invite expert designers and architects for comment, all students and student assistants are invited to participate.

2.1.4 Knowledge through crafts

Sketching, drawing by hand, crafts modelling and 1:1 prototyping are essential skills and knowledge for the architect. Today, students practice them individually or in small groups (2-4) using the 3d software available. They do so instinctively, without any lecturer-centered teaching and in different phases of the program.

However, precision and rigor became crucial in improving students' craft modelling. Therefore, small group discussion focusing on craft modelling within studios were scheduled.

3 A reflective journey

3.1 The EDP's journey

The first ***A***ction to support this course took place a decade ago and consisted of a series of meetings which made the EDP visible to the TT, such as a seminar on course alignment. She also visited the studios and observed critiques. Questionnaires were distributed to more than 300 students, and then collected and analyzed.

Looking back: The TT communicated an interest in keeping teaching diverse, deploying various perspectives, organizations and types of exchanges. Thus the student survey results, student outcomes and the TT views intersected in the discussions.

Awareness of one or two essential aspects: First, we acknowledged the importance of the student experience with alternative data collecting methods. Second, mixing pedagogical with architectural jargon became common to everyone.

Creating alternative methods for action: A specific student questionnaire for this course was constantly revised and updated. Additionally, using focus groups gave a deeper understanding of issues such as time management when under stress.

Trial of new initiatives for ED has been vast. An example is the initial presentation to SDs, which today covers design thinking and management of class climate. Now an ***A***ction, which is assessed with the TT at the end of every semester.

This application of ALACT extended to the TT journey presented below.

3.2 The TT's journey

The above-mentioned ALACT journey impacted the experience of the TT. Several changes were made during the years 2010−2019. Below we mention the most significant.

3.2.1 Teaching

While the program structure described before is stable, the structure of daily teaching has evolved. Due to curricular restructuring, the lecturing was reduced from two full days to one and a half days. This reduction was an opportunity to incorporate the EDP's advice and student feedback into teaching. Therefore, the day and a half of direct instruction was broken down into a mix of weekly scheduled lectures, blog reviews and working hours in the studio so more time could be given to practical learning and exchanges in the studio.

3.2.2 Exchanges

As stated before, over the years the organization of exchanges has gained structure. Here we can say that observing and collecting data has helped us to appreciate a variety of individual and collective learning trajectories.

The structure of exchanges has taught students and SD to give and get feedback. Studios remain a laboratory for experimenting with the space of imagination.

The iterative questioning and reviewing have installed a spirit of reflection and transformation. For example, the EDPs decreased the focus on course alignment and increased the perception of SD concerns on managing the studio climate and stimulating structured creativity. Finally, exchanges have evolved to giving feedback on the process as well as on the task or the final product.

3.2.3 Knowledge through crafts

Sequencing constant feedback and finding time to enhance knowledge in crafts proved to be a delicate task. The SD supported students directly.

Informal exchanges, observations and student feedback collected through focus group interviews and student surveys provided unique information for reassessing the approach to crafts, notably moving from hand crafts to digital tools.

4 Conclusion

The aim of this paper was to explain how an experiential learning cycle supported better teaching and learning in the architecture studio through a shared reflective journey. We presented the ALACT model to structure the reflective journey of the TT and the EDP. These journeys are distinct and parallel.

We find ALACT a useful and adjustable model for structuring ED activities such as advice and support. To conclude, a reflective approach to ED including hits and near misses should be part of the educational developers' continuing education.

We strongly suggest ALACT as a model for rethinking ED in post-COVID teaching development initiatives.

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ICED 2020 proceedings:

Towards sustainable transformative, universal and lifelong learning: Emerging regional communities of practice in educational development

Mary Omingo

Aga Khan University
PO Box 30270 - 00100, GPO
Nairobi, Kenya

Abstract

Despite increasing calls from different global stakeholders in education for transformative, universal and life-long learning, a shortage of educational developers to drive the above agenda exists in the global South. This article examines the role of technology in enhancing academic practice in an emerging community of practice of educational developers across universities in East Africa. The results of an online survey of 25 multipliers who completed a 6-week asynchronous online course indicate that they found it flexible in terms of time and space. Future-ready educational developers may need to rethink educational development activities conducted in physical settings, with a view to moving the activities online.

1 Introduction

Future-ready graduates need both broad and specialized knowledge (UNESCO Futures of Education; OECD Education, 2030). This implies that students' learning spaces have to expand to locations such as online spaces, the community, businesses, social media, living laboratory and incubation spaces. However, learning spaces for lecturers, especially workshops in physical settings, may be limiting in terms of space and time. Lecturers need to be exposed to other learning spaces to enable them facilitate students' learning in the abovementioned learning spaces. Sutherland (2018) proposes a holistic approach towards academic development to include academic roles such as research service and leadership. This approach may not be possible if lecturers' time to learn how to teach is rigid and their learning spaces are confined to physical settings. In this article I propose that online platforms are likely to be learning spaces for future-ready educational development and future academic developers, especially if development practice has to grow across universities, countries and continents. It may also be appropriate and necessary in the current state of the COVID-19 pandemic, where lecturers have been forced to utilize online platforms for students' learning. I analyze the online experience in enhancing the practice of 25 lecturers from four universities in East Africa – two in Uganda and two in Tanzania – who participated in a 6-week asynchronous online course moderated by academic developers from Kenya and the UK.

2 Learning as practice

Learning as practice is about doing but not just doing in and of itself, but through linking thinking with doing and people with contexts (Boud & Brew, 2013, p.212). According to Wenger (1999,

p.5) practice is doing in a historical and social context that gives structure and meaning to what we do. Wenger further argues that if learning is an integral part of our everyday life and a way of being in the social world, then, to learn, a person has to negotiate and renegotiate meaning through active participation in the world. Wenger explains that negotiation of meaning involves participation and reification. One cannot learn if one does not participate, and learning would not have taken place if there is nothing tangible to show that it took place.

Boud and Brew (2013) advocate viewing learning from a practice perspective which goes beyond acknowledging the importance of activities and agency and focuses attention on the nature of associations connecting people and artefacts. Boud and Brew (2013, p.214) explain that from this perspective learning focuses on "what is done and what needs to be done and not on individuals enacting the doing." They further emphasize the importance for academics of "changing work demands to drive learning."

3 Methodology

The methodology used in this article was to analyze the online survey on the participants' experience. 13 out of the 25 participants responded to the following questions: How was your online learning experience? What are the existing plans to cascade the training to colleagues?

I transferred the responses into an MS Word document and read through the responses; reflecting on the meaning of each response. Most of the responses were on the flexibility that the platform provided, the intrinsic motivation for completing the course and the high level of confidence in facilitating the courses.

4 Results

4.1 Online learning experience

The analysis showed that a number of participants found online learning a great learning experience as it provides space and time to practice.

> *I found the online learning process convenient in terms of planning my time. I also had time to pause and reflect on the feedback as I was not required to respond immediately as I would in a workshop in a physical setting. It was asynchronous and thus enabled me to work at my own pace but complete my tasks within the prescribed deadlines. (P1)*

Whereas attendance of a face to face workshop is extrinsically motivated for some participants, comments by participants show that they were intrinsically motivated to learn in the online course.

> *Although I had to do most of the things on my own like navigating the different features in Moodle, I found it effective and motivating. It pushed me to do more to keep up the pace with others. I had that self-drive to complete this training as it has become increasingly necessary to acquire such skills. (P2)*

Some participants found the course interactive and useful for their professional growth. They learned by doing and also from the moderators' feedback.

> *The online learning process was an interactive one that improved my online skills further with constant feedback from my peers and moderators. It was useful for my capacity-building. I also found the feedback given to my peers very useful. (P3)*

In summary, the online learning process was a great learning experience, as the participants had to learn by doing and reflected on the feedback provided by the moderators. They were intrinsically motivated to learn. The course was useful for their professional growth as it helped them improve their online skills.

4.2 Emerging communities of practice

The educational development activities for this group were structured in such a way that they first attended face to face workshops on course re-design and gender responsive pedagogy as participants. They were then trained as multipliers on the abovementioned courses. During the second workshops, at their universities, they co-facilitated under the guidance of educational developers from Kenya and the UK. In the third round of workshops the multipliers facilitated, but with the support of the educational developers. The final online training course was on how to facilitate lesson planning. At the end of the online course, most of the participants were confident in their facilitation role, as indicated by the comments “I am one of the multipliers. I can fit almost in every area of the training” (P5) and “I am active in our meetings and I am ready to train and mentor other colleagues” (P6).

At the time of writing this article, multipliers from one of the universities had trained their colleagues.

> *We are actually doing it; training colleagues. It is real. Before the training started, I was doubting my potential; now that the training has begun, I am amazed by what we have done so far. (P7)*

5 Discussions and implications

5.1 Discussions

In this article, the online platform provides perfect space and time for lecturers to negotiate and renegotiate meaning on their practice (Wenger, 1999). They critically reflect when they interact with the online resources, the moderators’ feedback on their lesson plans and feedback on their peers’ lesson plans. This is in line with Boud and Brew’s (2013) view of focusing attention on what is to be done, the lesson planning, and not on the individuals enacting the doing; and Wenger’s (1999) idea of negotiation of meaning which involves participation and reification. The reification/artefacts in this case are the lesson plans that were produced by participants.

Further, lecturers were intrinsically motivated to participate in the online course because of the new work demands of teaching students online. Boud and Brew (2013) contend that the most powerful influence on educational development is not the provision of learning opportunities, but changing work demands. This requirement has precipitated the training of other lecturers at institutional level, enhancing the realization of communities of practice.

5.2 Implications

Unlike educational development activities that are traditionally conducted in physical settings at scheduled times that may not be convenient to all lecturers, lecturers can comfortably participate in asynchronous online courses at their own time and pace. Future-ready educational developers may need to rethink the conducting of workshops in physical settings and move educational development activities online in order to reach a wider audience across universities, countries and continents. Lecturers also need to experience the learning spaces available to future-ready graduates. Future educational developers may need to expose lecturers to these learning spaces.

6 Conclusions

Technology is likely to play a great role in future educational development as it enables lecturers to learn at their own pace in their own time. The educational development model of training multipliers across universities and countries discussed in this article could be used for future educational development to ensure sustainable, transformative universal and life-long learning for all. A study on lecturers' learning experience in an industrial and/or community-based engagement may be useful for future educational development.

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ICED 2020 proceedings:

Sustainability mindset framework for educational developers supporting future-ready curricula and student learning

Gesa Ruge[1]

University of Canberra
11 Kirinari Street, Bruce, 2617
Australian Capital Territory
Australia

Abstract

Sustainable development and climate change have been recognised as among the most important global challenges of our time. Yet, to date, only a small number of universities have made sustainability a central focus for institutional activities, curricula and student learning. This paper investigates the current context for the integration of a sustainability mindset as a value-based framework in higher education. Educational developers are potentially well positioned and institutionally skilled to support the implementation of a sustainability mindset enhancing diverse disciplinary cultures, future-ready curricula and student learning. Initial findings highlight the need for an institutionally connected vision, skills support for educational developers and academic staff and linkage to a critically reflective paradigm for continued improvement and engagement.

1 Introduction

Despite the increasing recognition of sustainable development and climate change as key global challenges, only a small number of universities to date have made sustainability a central focus across their institutional activities, curricula and student learning (Leal Filho et al., 2017). The research discourse on how to achieve this transition revealed that a "systemic and connected view of sustainability across institutions is required to transform the educational experience of students… a realignment of all activities with a critically reflective paradigm which also supports the construction of more sustainable futures" (Tilbury, 2011, p.2). The notion of the "reflective institution" was successfully demonstrated by Biggs (2001, 2014) in his research and implementation in Australia and Asia of constructive alignment of learning experiences via curricula to institutional values. Since then, the discourse has recognised the complexity of addressing epistemology, methodology and pedagogy in education for sustainability (O'Flaherty & Liddy, 2018).

Educational developers and curriculum managers are well positioned within the institutional structure and have the expertise across the diverse disciplinary cultures and critical conversations to be actively involved in transitions to more sustainable futures (Fraser, 2006; Debowski, 2014). How can educational developers support a shift towards a sustainability mindset in higher education for future-ready curricula and discipline learning?

The Sustainable Development Goals (SDGs) adopted by the United Nations represent the most recent and extensive framework for international implementation across member countries (Owens, 2017). Setting measurable goals and targets, the SDGs actively engage industry sectors, including higher education, across biophysical, social and economic systems

[1] ruge.gesa@gmail.com, +61 422 134 373

(Le Blanc, 2015). SDG No.4 focuses on "Quality Education" and includes targets and indicators which cover access and participation, early childhood, school, VET, higher education, skills, gender equality, education infrastructure and teacher training (Parkes, Buono & Howaidy, 2017). The aim is to advance global sustainable development whilst enhancing local and national long-term performance across its wide range of indicators (Sneddon et al., 2006; Sachs, 2012; Costanza, Fioramonti, & Kubiszewski, 2016). It can therefore be expected that the impact of sustainable development on decision-making in government, private and community sectors will continue to increase.

2 Education for a sustainability mindset

The increasing awareness of the limits of our planet and the slow pace of adaptation towards longer term sustainable development has resulted in increased discussion on the importance and role of education and sustainability. Current practice includes education about sustainability with a subject- and discipline-specific focus; education for sustainability, which is shifting towards a cross-disciplinary approach of addressing complex contexts; and education for a sustainability mindset. The latter aims for capacity building as a value-based approach able to reach across educational courses, disciplinary contexts and develop students' capacity to contribute in their chosen careers and communities (Molthan-Hill, 2017; Cajiao & Burke, 2016). This has led to the introduction of the concept of the sustainability mindset advocating for a more holistic and dynamic approach to learning and teaching for sustainability (Kassel, Rimanoczy & Mitchell, 2016; Hermes & Rimanoczy, 2018). Many of these initiatives involve university educational developers' expertise for implementation in institutional, faculty, individual course and unit level contexts (McDonald and Stockley, 2008; Baughan, 2015; Debowski, 2014).

The evolving definitions of sustainability perceptions and values focus on a broadened and multi-dimensional frame of reference across disciplinary boundaries with a focus on underlying beliefs and values for sustainable outcomes (Ruge, 2019). The three key sustainable mindset dimensions identified by Kassel et al (2016) include "being" or values, "thinking" or knowledge and "doing" or competency (Kassel, Rimanoczy & Mitchell, 2016). Recognising and making explicit the connection between values, knowledge and competency allows analysis of a complex context with an awareness of personal and institutional values and the development of more sustainable and innovative practice and outcomes.

3 Acknowledging educational developers' skills and importance for sustainability mindset strategies

The current role and responsibility of educational developers in higher education has been recognised as increasingly diverse and complex (Clegg 2009; Shay, 2012). It includes educational policy and process, learning design and skills development, faculty engagement and training, supporting individual academics' learning and teaching implementation, and institutional quality assurance and standardisation metrics, to name but a few of areas of responsibility (Harvey & Kamvounias, 2008; O'Neill, 2010; Fransson & Friberg, 2015). In addition, educational developers' roles are well positioned within the organisational structure of universities to translate the strategic policy directions of institutional boards and leadership into educational procedure and guidance for practice implementation at faculty, discipline and unit learning levels.

The drivers for change are predominantly implemented as "top-down" or "whole of university" strategic plans, or as "bottom-up" discipline and faculty specific initiatives with internal and external stakeholder support for implementation (Ruge, Tokede and Tivendale, 2019). The literature identifies a number of constraints and barriers that educational development initiatives face. These include limited support and funding to engage academics and casual staff in educational training for teaching and learning (De La Harpe et al., 2000; Watty, 2003; Sumsion & Goodfellow, 2004). On the other hand, a key strength for educational development

strategies can be the motivation of discipline teams and individual academics, who are supported in their skills development to lead change in close connection with students, institutional stakeholders and employers (Entwistle, 2005; Blumberg, 2009; Mak, et al., 2013).

At the front lines of educational transitions towards sustainability, educational developers are rarely acknowledged as critical agents for change and adaptation. Yet that is what the shift towards a sustainability mindset implies, especially if there is to be a clear progression from strategic plan and operational goals to engaging academics in developing future-ready curricula and student skills and attributes.

In higher education, the three key attributes for a sustainability mindset defined by Kassel et al (2016) as "value, knowledge and competency" could take on a distinct meaning in terms of educational developers' impact on institutional development. First, with awareness of "values" across institutional strategy, faculty culture and individual academics' capabilities, educational developers are able to encourage academic colleagues to reflect, articulate and connect their values, beliefs and practices to future-ready curricula and student learning experiences. Second, they are able to connect "knowledge" and thinking from disciplinary fields to institutional policies, procedures and processes. This is important for long term integration of a sustainability mindset throughout university operations and course design, learning and teaching (Doppelt, 2012; Naeem & Neal, 2012; Parkes, Buono, & Howaidy, 2017). Third, "building competency" is at the centre of educational development's day to day activities. As part of the sustainable mindset framework, it connects future-ready graduate skills and attributes for graduate employability with contributions to community and society at large. The literature calls for educational developers and educators to foster and promote sustainability attributes to influence students' worldviews and their future potential towards more profound sustainability leadership and social change (Dobson, 2007; Young & Nagpal, 2013; Setó-Pamies & Papaoikonomou, 2016).

4 Conclusions

This paper has investigated the current context for the development of a sustainability mindset as a value-based framework in higher education. The key sustainable mindset elements of "value, knowledge and competency" suggested by Kassel et al (2016) were explored in the context of educational developers' roles. This research opens up further conversations and future research opportunities on the process of and capacity for development of a sustainability mindset in higher education. It was proposed here that educational developers are potentially well positioned and institutionally skilled enough to support the implementation of sustainability mindset in diverse disciplinary learning cultures. Initial findings highlight the need for an institutionally connected vision and skills support for educational developers and academic staff in order to enable development and implementation of a sustainability mindset for future-ready curricula and student learning.

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ICED 2020 proceedings:

A future-ready teaching philosophy: Opportunities to reflect, re-value and re-frame a teaching philosophy

Dieter J. Schönwetter[1]

Dr. Gerald Niznick College of Dentistry, University of Manitoba
D113-780 Bannatyne Avenue
Winnipeg, Manitoba, R3E 0W2 *Canada*

Gesa Ruge[2]

Research and Education, Business TLC: train.lead.change
PO Box 879
Cottesloe 6911, Perth, Western Australia

Coralie McCormack[3]

Independent Scholar, Canberra
ACT 2614, Australia

Robert Kennelly[4]

Faculty of Business Government and Law, University of Canberra
11 Kirinari St
Bruce, 2617, ACT

Nicole Gareau-Wilson[5]

Student Records, University of Manitoba
Winnipeg, Manitoba, R3E 0W2 *Canada*

Abstract

This paper offers a reflective experience for educational developers, educators and university managers/administrators involved in supporting the "future-ready" capabilities of academics and student cohorts through their teaching and learning journeys. Readers are guided through reflective statements that share aspects of a teaching philosophy (TP) as a capacity building, future-ready resource. The learning outcomes are three-fold. First, to activate/identify the context and purposes of a TP. Second, to acquire knowledge of our research findings relevant to the future-ready value of a TP including examples of practical suggestions by research participants and attendees at research dissemination events. Third, to reflect and develop an action plan about the role and capabilities of a TP for future-ready higher education professionals and identify personally relevant "take-away" ideas.

[1] Dieter.Schonwetter@umanitoba.ca, +01 204-480-1302
[2] ruge.gesa@gmail.com
[3] coralie.mccormack@gmail.com
[4] rmkennelly@homemail.com.au
[5] Nicole.Gareau-Wilson@ad.umanitoba.ca

1 Introduction

In today's changing higher education context, the impacts of beliefs, values and practices related to educational developers' and academics' teaching and learning philosophies have received little attention (Arroyo et al., 2015; Schönwetter et al., 2002). Yet, teaching philosophies are likely to be "increasingly important" when academic work "is being defined in terms of a set of competencies" (p. 40; Fitzmaurice & Coughlan, 2007). For educational developers, educators, and managers/administrators to be future-ready in today's higher education context requires "…challenging oneself to be aware, and to be mindful when making decisions" in times of rapid change and complex uncertainty (Sonnenfeld, 2015). This implies that we are able to draw on our own as well as others' values and beliefs in order to be "ready to be valuable, and to produce value [for and with others]" (McCormack and Ruge, 2016). Whereas in the past we thought of the future as an element that exists "over there", the future is really right now, which requires us "to be in the moment and to act within it…being 'future ready' really means having an expressive capacity to create value" (Sonnenfeld, 2015).

The learning content and experiences in this paper are based on recent research findings by the authors on the value and impacts of a teaching philosophy involving members of the Canadian Society for Teaching and Learning in Higher Education (STLHE) and the Higher Education and Research Development Society of Australasia (HERDSA). Research findings show that the supported development of TPs builds personal, collegial and institutional capacity through increased teacher knowledge, skills, confidence and competence, including deeper and more explicit engagement with student learning and quality teaching, and by elevating dialogues about teaching quality across the institution. During 2019, these findings were shared and expanded with feedback from over 750 higher education participants at workshops held in Canada, New Zealand and Australia (Ruge et al., 2019). This paper, based on a workshop designed for ICED 2020 participants, offers a reflective experience for educational developers, university managers/administrators and academics to better understand, engage and future-ready themselves and their professional and institutional context. Why is this important? Because the future is now!

2 Personal reflection

Foundational to reflecting on one's TP is an awareness that a TP focuses on important components defining effective teaching and learning (Schonwetter et al., 2002). Over time the conscious process of engaging in iterative review, reflection and improvement supports alignment with targeted teaching and learning outcomes (Ruge, Tokede and Tivendale, 2019). This involves personal beliefs, values, educational pedagogy and practice. It focuses on how one's beliefs are enacted in one's teaching practice and how they influence our students' learning (Schonell, et al, 2016).

> First self-reflection activity: Have you written a TP? If "**yes**", who or what experience(s), prompted you to write your TP? What value has emerged for you from writing a TP and does that value continue, change, or disappear? If "**no**", What/who could prompt you to write one? Can you see any value in having a TP?

3 Valuable insights from interviewees

Sixteen interviewees from among the 3M and the HERDSA Fellows were asked, through purposive sampling, to explore the value of a TP for today's academics and their institutions. As seen in Table 1, following independent coding and theme identification involving iterative inductive and deductive analysis produced four key themes.

Value of a TP	• Capacity building for effective learning & teaching • Reflecting and enacting goals and values • Increases career opportunities
TP Development	• Increasing impact over time • Collaborative reflective practice • Writing process supports skills development
TP for Teaching & Learning	• Confidence to engage and communicate • Able to enact values in T&L situations • Supporting students and staff
Institutional Context	• Tends to formulaic use of TP for promotion • More recognition and support needed • Institutional processes exclude/ lack TP linkages

Table 1: Key themes with supporting examples from our research findings

4 De-centring the "Eurocentric voice"

Four practical opportunities to enhance future-readiness of TP: Links between the value of a TP and teacher resilience-building factor literature; re-view the commonly used name "teaching philosophy statement"; de-centre the current "Eurocentric voice" underlying the development of a TP; and TP interviewees' personal stories.

> Second self-reflection activity: Describe an indigenous or Euro-centric, multi- or inter-cultural experience (something or someone who made you re-value and reflect and perhaps revise your position). How did this experience make you reflect on your own beliefs? Did you review, clarify or change your values? Is this experience reflected in your current practice?

5 Reviewing common terminologies

The workshop series and conference presentations provided feedback from various attendees to reconsider the terminologies used for the classic TP.

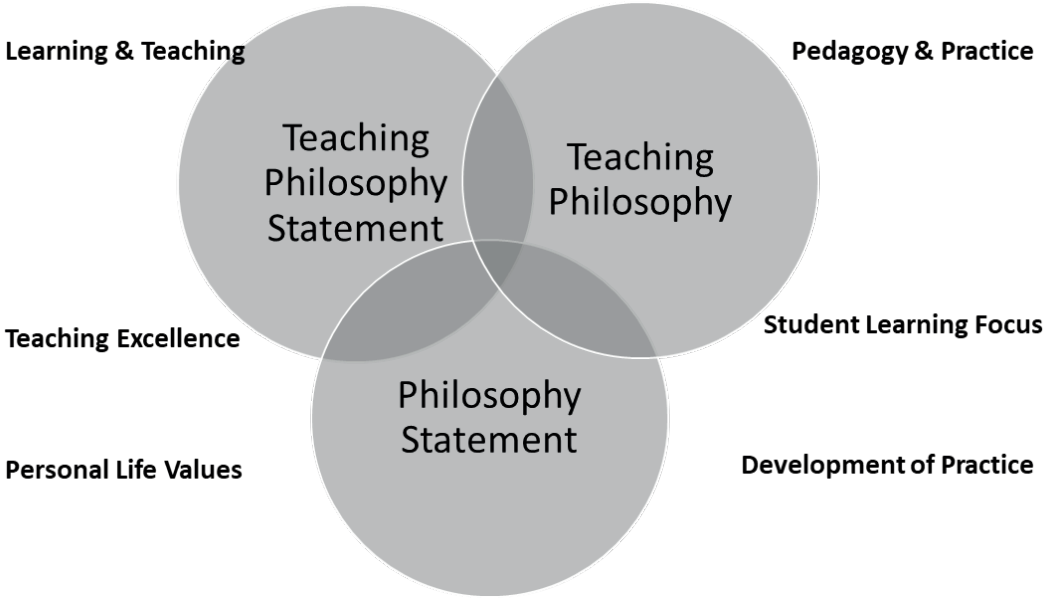

Figure 1: Common terminologies identified

Third self-reflection activity: Which elements of the TP centric diagram (Fig.1) best resonates with you and why? How might you distinguish the differences among each of these?

6 Value of a TP: Personal and professional

Based on the 16 interviews, Fellows' experiences perceived to be of relevance or importance to them, their students and their institution were further identified. The most influential value was that of resilience building. In other words, it involves the "coming to know who you are as a teacher" so you can "be true to yourself" by "coming to know your inner motivation" and deeply questioning your beliefs and values in safe relationships with others, to increase your confidence, competence and credibility and teaching knowledge and skills.

As seen in Table 2, Fellows noted that the process of thinking, reflecting and writing one's TP provided capacity building for effective learning and teaching. It yielded the motivation to teach or solidified the call to teach. This motivation had both a personal and professional focus, as seen in Table 2. One of the side benefits was the ability to use the TP in garnishing supportive relationships with other like-minded academics. Over time, sharing, reflecting and even rethinking and modifying one's TP provided teacher with resilience for their long-term careers and learning journeys as well as building critical capacity for career advancement.

Capacity building for effective learning and teaching				
↓				
Motivation to teach: Call to teach				
"At the very core I'm a teacher and that's what I'm most proud of and that's where I've had probably the most influence, and that's what I was put on the earth to do." (H02)				
↓				
Motivation as a teacher (personal focus)		**Motivation as a teacher** (professional focus)		**Supportive Relationships**
Enhanced self-awareness, self-discovery and understanding of teaching self	Increased confidence, competence, commitment and credibility	Critical self-questioning clarified and made visible teaching values and beliefs	Deeper engagement with student learning, quality teaching and what it means to be a teacher	Formal and/or informal connections through collegial and collaborative conversations
↓				
Teacher resilience for the long-term career and learning journey		**Builds critical capacities for career advancement**		

Table 2: Key themes with supporting examples from our research findings

Fourth self-reflection activity: In what ways does your TP identify your motivation or call to teach? Are you able to see elements of the personal and professional focus in terms of motivation as a teacher through your TP?

7 Value of a TP: Resilience building

Following the identification of resilience building as another major theme or benefit of a TP, we conducted a literature search focusing on resilience-building factors in 46 empirical studies. As seen in Table 3, we were able to identify four parallel dimensions of teacher resilience in the interviews of our 16 Fellows. In the left-hand column we identify the four dimensions reported in the literature, and in the right-hand column we provide examples from our interviewees.

Dimensions of teacher resilience	**Resilience-building factors identified in a sample of 46 empirical studies**	**Value of a teaching philosophy identified by 16 TP research interviewees**
Motivation to teach: strong intrinsic motivation	• Call to teaching: sense of vocation, ethical & moral purposes, make a positive difference in the lives of children/young people • Persistence/Perseverance/Determination: commitment to students' learning & achievement	• Call to teaching: from deep within, at the very core, I teach who I am, make a positive difference in students' lives • Persistence/ Perseverance/ Determination/Driven to focus on: students' learning, always captivated by student learning, never be able to stop teaching
Motivation as a teacher (personal focus): high self-efficacy	• Competence: agency, effectiveness, recognition, autonomy, achievement, self-belief • Confidence: experiencing positive feelings, managing emotions positively. • Commitment • Identity: personal awareness, self-understanding as a teacher, sense of identity as a teacher	• Competence: recognition, achievement, institutional credibility, self-belief (internal credibility) • Confidence: positive feelings • Commitment: love of teaching and learning • Identity: self-awareness, self-discovery, know myself as a teacher, know what is important to me as a teacher and why it is important, my TP and my life-philosophy are aligned
Motivation as a teacher (professional focus): being reflective and professional	• Reflection: critical self-questioning, reflective teaching, reflective attitudes • Professionalism: responsibility, enthusiasm for the profession, knowledge acquisition, socio-cultural awareness, professional goals & purposes, classroom skills, problem-solving • Sense of well-being: work-life balance, self-care	• Transformative • Being reflective: importance of reflection, self-questioning (Who? What? How? Why?), thinking/digging very deeply about what it was to be a teacher/what I was actually doing • Professionalism: socio-cultural awareness, T & L knowledge and skills, professional goals and purposes, enthusiasm for the profession (discipline)
Supportive relationships or formal/informal connections	• Enabled through connections, collegiality and collaboration to be built through teacher conversations with: colleagues, students, friends & family, school leader, mentors, students' parents, peer groups/networks, administrators	• Mentoring others and being mentored, colleague conversations (elevator conversations, workshops, networks, communities of practice, faculty meetings as reflective conversations about learning and teaching) and connecting with students through conversations

Table 3: Dimensions of teacher resilience parallel to interviewee findings

The close alignment of the benefits (value) of developing a TP, and the key resilience building factors identified in teacher resilience literature offers academics four sources of support through which to grow their resilience.

> Fifth self-reflection activity: How can we, the ICED community, encourage and lead collaborative development in terms of "future-readying" our academics to enable them

to benefit from the value of reflecting on, writing, sharing, and rewriting their TP? How do we do this at the individual level, at disciplinary levels, and the institutional level? How do we invite colleagues to collaborate and benefit from the value-added resilience building dimensions that many academics have experienced through TPs?

8 Conclusions

Based on the merging of our research findings with our numerous conference and workshop presentations, we have benefitted by finding invaluable outcomes for those who think about, write on and share their TP. As leaders and facilitators of educational development, our desire is for all academics to have the opportunity to focus on their TP. In doing so, they too might be able to benefit. As such, we ask you to reflect and develop an action plan in our last self-reflection activity.

Final self-reflection activity: What is the role of the TP for future-ready higher education professionals, educators and institutional managers? What are the capabilities of the TP for future-ready higher education professionals, educators and institutional managers? Identify personally relevant "take-away" ideas.

Acknowledgements

This paper is based on the research project "What is the value of a teaching philosophy for today's academics and their institutions?" supported by a 2019 EDC Grant from the Society for Teaching and Learning in Higher Education, Canada and the workshops of the "Tour Down Under" supported by a 2019 grant from the Higher Educational Research Development Society of Australasia.

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ICED 2020 proceedings:

The future is now as educational developers foster academic integrity in universities

Christine Slade[1]

Institute for Teaching and Learning Innovation
The University of Queensland (UQ)
St Lucia Qld Australia

Karen Benson

Institute for Teaching and Learning Innovation
The University of Queensland (UQ)
St Lucia Qld Australia

Abstract

External factors impact academic integrity in universities, making academic misconduct by students in assessment a high risk factor. In response, institutions are embracing a suite of prevention, detection and investigative initiatives. Educational developers play a significant role in enhancing academic integrity in tertiary institutions through their collaboration with stakeholder groups, influence in policy development and interpretation, and currency in research findings. This paper briefly examines current and future educational development roles in fostering institutional academic integrity, using Bertram Gallant and Drinan's (2008) four stage organisation change model (recognition and commitment, response generation. Implementation, and institutionalization). In each stage, examples are provided from the academic integrity work in a large, metropolitan, research-intensive university.

1 Introduction

Threats to institutional academic integrity have always existed, but now sophisticated online contract cheating services are a new threat, offering students fee-based individualised assessment responses written by a ghost-writer that can be submitted as the student's own work. These services bombard our students with persuasive marketing messages, and vulnerable students can find themselves accepting this "help" as situational ethics come into play (Rowland, Slade, Wong & Whiting, 2018).

Acceleration in student cheating is a symptom of broader sector disruption (Bretag et al., 2019). Funding uncertainty for universities drives corporate priorities, such as attracting students from broader pools, reliance on the extensive casualisation of teaching, and placing extra demands on educators with fewer resources. Similarly, today's students face increasing individual and contextual challenges while undertaking academic study that can influence their ethical decision-making behaviour (Slade, Rowland, & McGrath, 2016).

In 2015 detailed Australian media reports of student cheating resulted in the regulatory body, the Tertiary Education Quality and Standards Agency (TEQSA), requiring universities to account for their academic integrity responses and to become more proactive in ongoing accountability to sector standards.

[1] c.slade@uq.edu.au

While the scope of academic integrity responses varies across universities, mandatory areas include ensuring robust policies, procedures and processes, support for detection, education for students and staff and strengthening assessment design (Slade et al., 2016). A mix of stakeholders such as institutional decisionmakers, professional staff, educators and students are involved. This situation has significant implications for educational developers, who have a "key role to play in stimulating increased collaboration, coherence, and even organizational learning in the modern university" (Stensaker, 2018, p. 276). Educational developers act as institutional brokers between stakeholders (Sutherland, 2018) and policy interpreters (Smith, 2016). The recent rapid transition from face-to-face teaching to remote delivery in response to the COVID-19 pandemic highlights the importance of these educational development roles in terms of practical organisational decision-making and maintaining evidence-based teaching and learning principles and practice.

This paper connects several ICED 2020 conference themes (Future-ready Assessment, Educational Developers, Universities and The Future is Now) with educational development. In particular, it briefly examines current and future educational development roles in fostering academic integrity. Bertram Gallant and Drinan's (2008) four stage model of organisational change to enhance academic integrity across an institution provides a useful heuristic for the following section. This section also provides educational development examples of addressing academic integrity from a large, metropolitan, research-intensive Australian university. The purpose of the paper is to provide one translation of the model into educational development practice and stimulate discussion within the sector about educational developers' own experiences.

2 Educational and organisational lens

The four stages in Bertram Gallant and Drinan's (2008) institutional model are recognition and commitment; response generation; implementation; and institutionalisation. Educational developers play a leadership role in guiding and supporting the movement through these stages and addressing some resistance issues. The following sub-sections look more closely at each of the stages.

2.1 Recognition and commitment (Stage 1)

Academic integrity has always been a core value of universities. The term "academic integrity" is defined by the International Center for Academic Integrity "as a commitment, even in the face of adversity, to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage. From these values flow principles of behavior that enable academic communities to translate ideals to action" (ICAI, 2020, n.p.). In more recent times, increased stimuli for Australian institutional recognition and commitment of academic integrity has come from public media attention, particularly about contract cheating[2]; new sophisticated ways for students to cheat online; institutional accountability to the national regulatory body; influence of accrediting bodies; and of reputational risk to the individual, the institution and the public.

Recent research reported by the Centre for Research in Assessment and Digital Learning (2020) provides further theoretical clarity by separating academic integrity from academic security. Academic integrity emphasises the educative process to enable learners to uphold the values of academic integrity. Academic security focuses on assessment design and places restrictions on assessment to prevent cheating attempts. Both academic integrity and academic security are needed to maintain a holistic perspective. In summary, external impetus, organisational awareness, and theoretical clarity provide educational developers with opportunities for professional conversations with staff and the ability to make informed

[2] "Contract cheating occurs when a student submits work that has been completed for them by a third party, irrespective of the third party's relationship with the student, and whether they are paid or unpaid." (Source: Haper & Bretag et al. 2019)

contributions to institutional commitment, and provide leadership in initial and ongoing response generation.

2.3 Response generation (Stage 2)

In 2016, as a result of institutional decision-makers' request for a background paper on student dishonesty in assessment, three educational developers from the University's central teaching and learning unit undertook a desktop environmental scan of current research and university responses to academic misconduct[3]. Its findings included eight strategic responses in scholarly literature and other universities' practices. Overall, it was evident that a holistic, multi-pronged institutional response was needed, as explained in Figure 1.

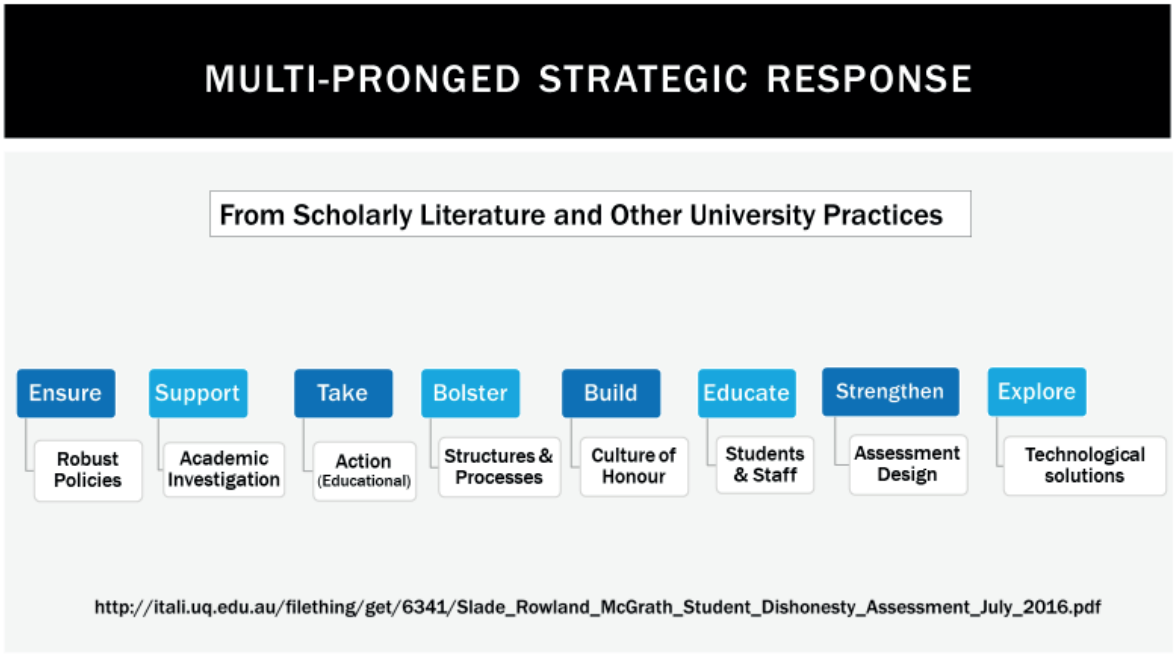


Figure 1: Findings of Student Dishonesty in Assessment Background Paper. Source: Slade, Rowland, & McGrath (2016)

A timely review of current assessment policies and procedures then enabled the inclusion of a new focus on academic integrity, and the decision was made to develop the *UQ Academic Integrity Action Plan* to oversee the implementation of its recommendations.

2.4 Implementation (Stage 3)

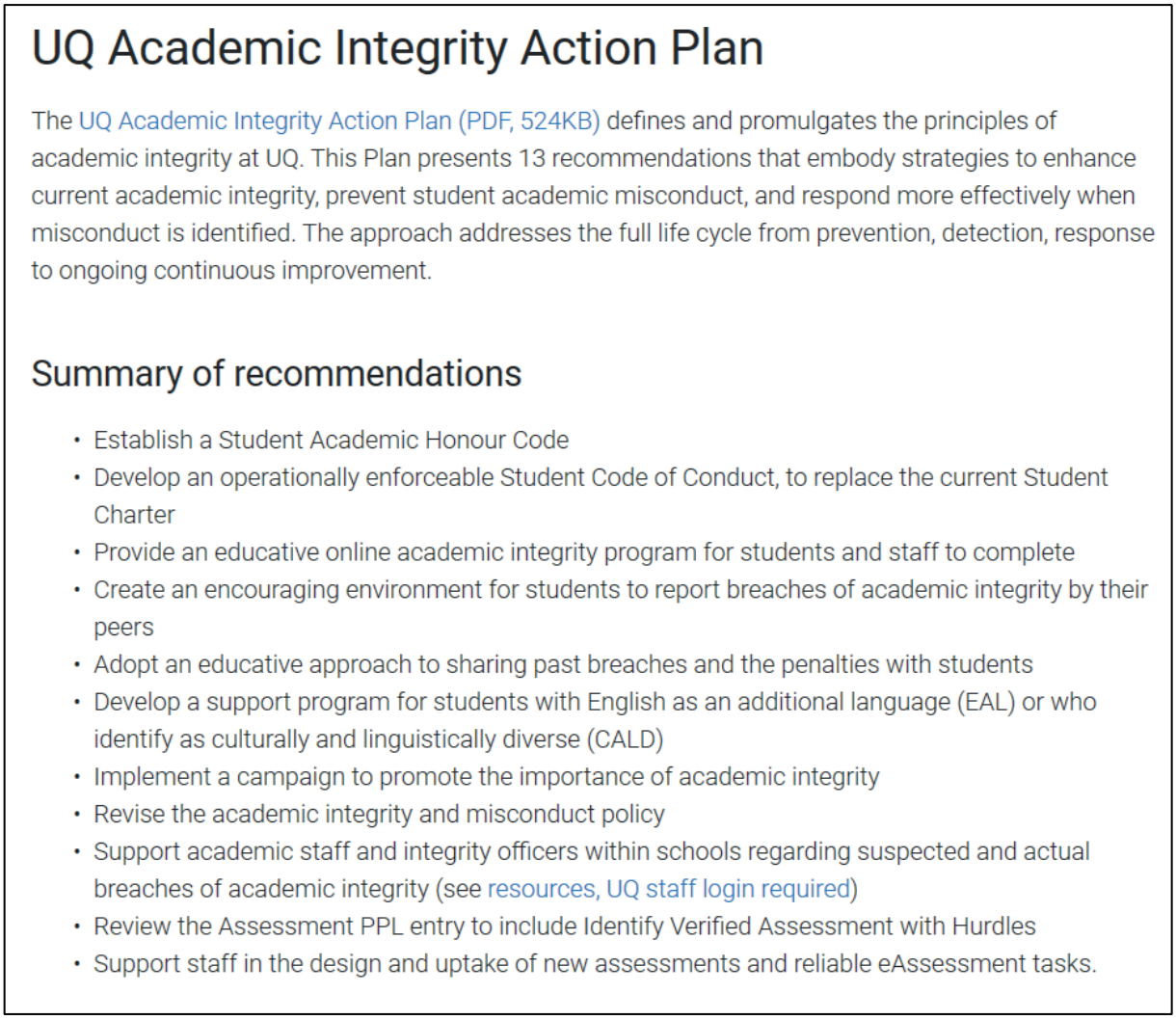
The Action Plan was approved in February 2020, with responsibilities attributed across the University for its 13 recommendations (see Figure 2). The central teaching and learning unit was responsible for providing an educative online academic integrity program for students and staff and to support academic staff and integrity officers in their detection and investigation processes. Providing academic integrity support is continually challenged, as the academic integrity officers in various parts of the university change often, on a two-three year cycle.

Developing resources for new academic integrity officers is one of the intended outcomes of the accompanying *Academic Integrity Resource Plan*. Further, this work encouraged new collaborations between the different departments involved in academic integrity promotion and student misconduct investigations. Academic integrity was seen as an important strategic priority and educators were concerned about their students' lack of learning if they cheated.

[3] The full paper can be accessed at https://itali.uq.edu.au/files/1246/Discussion-paper-addressing-student-dishonesty-assessment.pdf

2.5 Institutionalisation (Stage 4)

The University made good progress towards institutionalisation, seeing measures of integration, a shift in progressing cultural norms, and staff embracing academic integrity as a priority. Institutional progress was supported by increased collaboration across the sector, emergence of new research findings and strong collegiate participation in TEQSA-funded national academic integrity workshops. While Bertram and Drinan (2008) anticipated that there



UQ Academic Integrity Action Plan

The UQ Academic Integrity Action Plan (PDF, 524KB) defines and promulgates the principles of academic integrity at UQ. This Plan presents 13 recommendations that embody strategies to enhance current academic integrity, prevent student academic misconduct, and respond more effectively when misconduct is identified. The approach addresses the full life cycle from prevention, detection, response to ongoing continuous improvement.

Summary of recommendations

- Establish a Student Academic Honour Code
- Develop an operationally enforceable Student Code of Conduct, to replace the current Student Charter
- Provide an educative online academic integrity program for students and staff to complete
- Create an encouraging environment for students to report breaches of academic integrity by their peers
- Adopt an educative approach to sharing past breaches and the penalties with students
- Develop a support program for students with English as an additional language (EAL) or who identify as culturally and linguistically diverse (CALD)
- Implement a campaign to promote the importance of academic integrity
- Revise the academic integrity and misconduct policy
- Support academic staff and integrity officers within schools regarding suspected and actual breaches of academic integrity (see resources, UQ staff login required)
- Review the Assessment PPL entry to include Identify Verified Assessment with Hurdles
- Support staff in the design and uptake of new assessments and reliable eAssessment tasks.

Figure 2: Recommendations summary from the UQ Academic Integrity Action Plan. Source: https://itali.uq.edu.au/resources/assessment/academic-integrity

would be resistance to change, and the resulting iterative renewal processes between stages, our biggest challenge so far as a predominantly face-to-face teaching institution has been the unexpected rapid delivery of online assessment in response to the COVID-19 pandemic. There was no time for protracted assessment discussions or significant curriculum redesign, and we were somewhat unprepared for ensuring student identity verification in online examinations and for designing robust online assessment tasks. Educational developers supported staff with a suite of just-in-time academic integrity resources (see Figure 3), one-to-one consultations, and in ongoing organisational decision-making, and ensured that all of our students across the globe could use the existing online Academic Integrity Tutorial.

It was very encouraging to see that the pre-COVID-19 foundational academic integrity work remained strong, and that despite the pressured situation, academics were still prioritising academic integrity. Whilst the full implications of our academic integrity response is still open

for reflection, developing these resources, and engaging in new thinking about online assessment issues, has definitely accelerated parts of the Action Plan's implementation in an unexpected way.

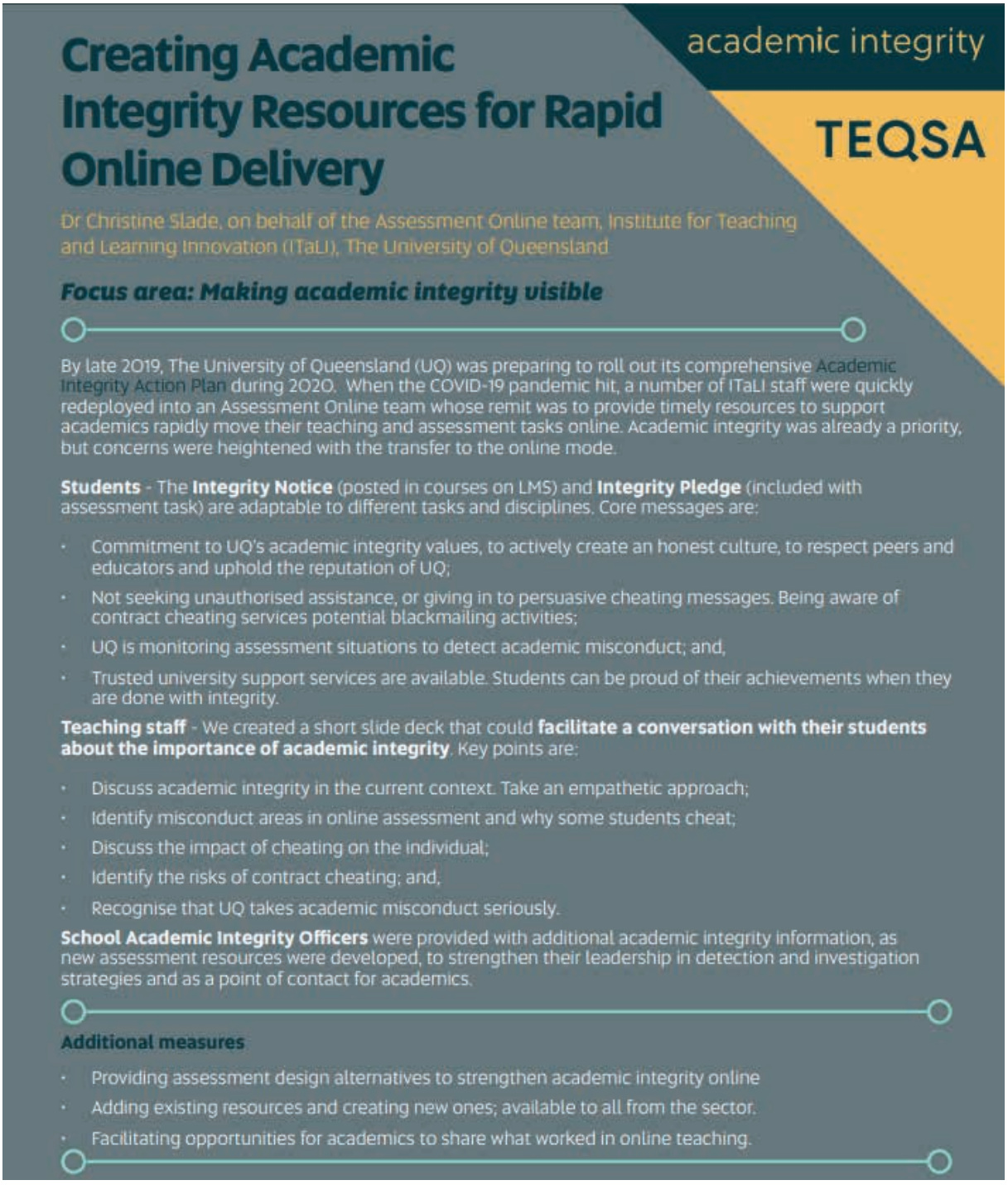


Figure 3: An Educational Development Response to Rapid Online Delivery during COVID-19. Source: https://www.teqsa.gov.au/sites/default/files/creating-academic-integrity-resources-rapid-online-delivery-uq-v2.pdf?v=1589166198

3 Conclusions

This short paper demonstrates ways educational developers can provide significant teaching and learning leadership now and also, as new academic integrity threats continue to emerge, in the future. It takes time and sustained effort by educational developers to maintain momentum and reach the implementation and institutionalisation stages. The organisational change process is not linear, but rather iterative by nature. For example, there can be different parts of the University or various stakeholder groups at various degress of implementation. Unexpected events like COVID-19 can bring progress in unexpected ways. Future reflection and research is needed to understand more fully the role of educational development in enhancing institutional academic integrity as the COVID-19 pandemic continues, and in future recovery phases.

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ICED 2020 proceedings: Why do I teach? A glimpse into teacher motivation

Abigail Grover Snook[1]

Department of Physiotherapy, Medicine Faculty, University of Iceland
Saemundargata 2
102 Reykjavik, Iceland

Asta B. Schram[2]

School of Health Sciences, University of Iceland
Saemundargata 2
102 Reykjavik, Iceland

Abstract

In our study we wanted to explore responses to teaching motivation statements by sessional and tenured faculty across a health science school. Educators (n = 235) evaluated six "I teach because" statements and an optional open-ended question (n = 46). Impacting students in the next generation, believing their content was important, enjoyment, and teaching as a duty were highly rated motivations on the part of both sessional and tenured faculty. Sessional faculty were more likely to be motivated by former teachers and beliefs that teaching helps them keep current with knowledge than tenured faculty, although the differences were not significant. The open-ended question provided the additional aspect of being pressured to teach, especially on the part of sessional faculty. Examining differences and similarities regarding teaching motivation statements can help guide future-ready faculty development for all types of teachers.

1 Introduction

As faculty developers attempt to engage faculty in faculty development (FD), they need to consider the reasons why educators teach. Authors of the Best Evidence Medical Education Guide on FD initiatives in the health sciences state that "the majority of (FD) interventions emphasized skill acquisition, often ignoring faculty members' motivations for teaching, values, and professional identities" (Steinert, Mann, Anderson et al., 2016, p. 78). In FD, reinforcing the reasons that motivate educators to teach may engage educators more and enhance the effectiveness of the medical teaching workforce (Dahlstrom, Dorai-Raj, McGill et al., 2005).

Most of the literature examining the reasons why educators teach has been qualitative, with small numbers of educators discussing the question. Common motivations mentioned for teaching from this literature include duty, enjoyment, altruism, development of personal skills, sharing knowledge, and inspiration from former teachers (Dahlstrom, Dorai-Raj, McGill et al., 2005; Dybowski & Harendza, 2014; May, Mand, Biert et al., 2012; Steinert & Macdonald, 2015). Another motivation to teach mentioned from self-determination theory (SDT) is the teacher's perceived importance of the course content (Dybowski & Harendza, 2014). However, no research could be found that examined which motivations were more common in larger populations and also whether these motivations were the same for tenured faculty (TF) and sessional faculty (SF: aka adjunct, casual, part-time, contingent, non-tenured).

[1] snookabby@gmail.com
[2] astabryndis@hi.is

The aim of this study was to examine responses to “I teach because...” statements across a health science school to see if there was agreement with smaller qualitative studies, quantify the reasons to indicate which were more common, and also to compare responses between SF and TF to determine if there were differences that might influence the future of FD.

2 Methods

2.1 Population, ethics and survey development

We collected email addresses for both TF (n = 212) and SF (n = 651) at the School of Health Sciences in 2016-17. The Bioethics committee of Iceland determined there was no need for ethical approval for the project. We announced the project to the Icelandic National Data Protection Authority, who publicized the project as per Icelandic regulations. We developed an online survey that included six common motivations to teach that were mentioned by participants in qualitative studies (Dahlstrom, Dorai-Raj, McGill et al., 2005; Dybowski & Harendza, 2014; May, Mand, Biert et al., 2012; Steinert & Macdonald, 2015). (Statements are included in Results, Section 3.2.) These reasons were evaluated using a 6-point Likert scale of agreement (“strongly disagree”, “disagree”, “somewhat disagree”, “somewhat agree”, “agree”, “strongly agree”). In addition, an open-ended question, “I teach because…” was included as an option if educators wanted to add additional reasons as to why they taught. We collected demographic information, including teacher type (SF or TF) at the end of the survey.

2.2 Survey analysis

Responses to “I teach because” statements were only included if the educator indicated whether they were either a TF or SF. We utilized frequency analysis with one-sided Fisher’s Exact on the six statements and utilized a p value of < .05. To avoid cells with less than five responses and because we felt these answers showed support for the factor, we combined “strongly agree” and “agree” responses and compared them to all other combined responses. We compared responses between SF and TF to see if there were significant differences or trends. We included the open-ended response to the analysis if it was filled out (n = 46) and performed a thematic analysis on the answers. Once themes were determined, they were compared to the original statements to identify any new themes identified by the open-ended question.

3 Results

3.1 Demographics

Of the 278 answers to the rating statements, 78 TF (33%) and 160 SF (77%), or a total of 238 responses, also indicated if they were a SF or TF and were used in the analysis. Table 1 shows the demographic distribution and shows that there were more females in the sample, but was similar in distribution to the reported tenured faculty distribution across the various departments.

Of the 46 educators that answered the open-ended question, 15% were TF and 85% were SF. All but 10 of these educators were from either the medicine or nursing faculty (78%).

3.2 Statements and open-ended results

Table 2 shows the responses to the six statements when comparing SF and TF. As can be seen, the two highest rated teaching motivation statements were about the importance of the lesson content and contributing to the future of heath science students; these were followed

by teaching as a duty and enjoyment of teaching. This was true of both SF and TF. Although there were no significant differences in any of the statements listed in Table 2, there were trends that suggest that teaching as a way to learn and being inspired by former teachers were more common factors for SF.

	All TF N=212	SF emails N=651	TF n=78	SF n=160
Female	45%	-	62%	71%
Medicine faculty	56%	-	54%	66%
Nursing faculty	15%	-	19%	22%
Odontology faculty	9%	-	6%	2%
N&FS faculty	6%	-	8%	1%
Pharmacy faculty	6%	-	5%	4%
Psychology faculty	8%	-	8%	5%
> 52 years old	-	-	54%	38%

TF = tenured faculty; SF = sessional faculty; All TF = total of School of Health Science TF reported by university website; emails = email addresses collected; F = female; Med = N&FS = Nutrition and Food Science; - = information not available

Table 1: Demographics

	Type	SD/D/WD/WA	A/SA	Fischer's exact (1-sided)
I teach because it's important for me to make my contribution to students becoming good health care professionals in the future	TF	6%	94%	0.577
	SF	7%	93%	
I teach because I find the contents of my lesson important	TF	6%	94%	0.496
	SF	7%	93%	
I enjoy teaching most of the time	TF	15%	85%	0.371
	SF	18%	82%	
I teach because I am convinced that it is a health professional's duty to pass on his/her knowledge	TF	14%	86%	0.189
	SF	9%	91%	
I teach because I was inspired by an excellent teacher as a health sciences student	TF	51%	44%	0.128
	SF	42%	51%	
I teach because it challenges by established views and enables me to keep learning	TF	39%	61%	0.087
	SF	29%	71%	

SD = strongly disagree; D = disgree; WD = somewhat disagree; WA = somewhat agree; A = agree; SA = strongly agree

Table 2: Responses comparing tenured (TF) and sessional faculty (SF)

Themes identified from the open-ended question were similar to the Likert scale statements, with 15/46 mentioning enjoyment, 10/46 mentioning the benefits of teaching to their own learning, and 10/46 mentioning altruistic reasons for teaching. One popular theme not mentioned in Likert statements was “feeling pressured by colleagues or university to teach”. This was mentioned by 10/46 teachers; 9 of these teachers were SF.

4 Discussion

The main results from this study support what has been seen in most qualitative studies, but adds to the literature by indicating how common these motivations are. First, 92-93% of our educators are motivated to teach by the altruistic value of contributing to future health care professionals, a motivation commonly mentioned in the literature (Dahlstrom, Dorai-Raj, McGill et al., 2005; May, Mand, Biert et al., 2012; Steinert & Macdonald, 2015). Second, 92-93% of educators were motivated to teach by the importance of their lesson content – an interesting

result, as this factor was rarely mentioned in qualitative studies but was obviously a motivating factor, as suggested by an SDT study (Dybowski & Harendza, 2015). Other factors similar to qualitative studies that were well-supported (> 82%) were enjoyment of teaching and teaching as a professional duty (Dybowski & Harendza, 2014; Steinert & Macdonald, 2015; Thomson, Haesler, Anderson et al., 2014). Most of the abovementioned factors were identified in qualitative studies with SF, so it is also of interest to see that the same factors are just as motivating to TF. We would suggest that that FD interventions that reinforce and celebrate these reasons to teach may be motivating for all types of teachers.

Other reasons mentioned in qualitative literature (Steinert & Macdonald, 2015) that were not as common overall were “teaching enables me to keep learning” and “I was inspired by a former teacher”. However, these two motivating factors tended to be more important to SF when compared to TF (SF/TF:71%/61% and 51%/44%, respectively). We would suggest that these factors, especially the opportunity to learn and stay current with knowledge, might be emphasized when recruiting SF and training SF.

The open-ended question results reinforced the statements that enjoyment, duty, and learning were important factors for motivating teachers. They also added the information that educators, especially SF, often felt pressured to teach by their departments/universities. This is considered a negative form of controlled motivation by SDT (Deci & Ryan, 2008) and should be avoided if possible.

5 Conclusions

In this study we confirmed factors that motivate teachers to teach in the health sciences and quantified what percentage of teachers found these factors motivating. When recruiting and motivating teachers, FD interventions can reinforce the aspects contributing to future health care professionals, professional duty, and enjoyment for all types of teachers, including TF. An idea might be to have faculty members share positive, personal stories about how they enjoy teaching or how they perceive they have impacted students with their professional values. With SF, FD interventions can also reinforce how teaching enables them to continue to learn and grow as practitioners. Again, stories of personal experiences of how teaching helps keeps knowledge current may be effective in accomplishing this. Reinforcing these positive factors for teaching in recruitment and FD interventions may help reduce the need to pressure health care professionals to teach and help recruit and retain good educators as SF and TF for the future.

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Faculty development initiatives offered by Centers of Teaching and Learning

Dilmeire Sant'anna Ramos Vosgerau[1]

Graduate Program of Education, Pontifical Catholic University of Paraná
Imaculada Conceição Street 1155
Curitiba, Brazil

Lincon Venancio Bilibio[2]

Department of Economics, Pontifical Catholic University of Paraná
Imaculada Conceição Street 1155
Curitiba, Brazil

Abstract

Establishing a Center for Teaching and Learning (CTL) is one of the ways a higher education institution can signal its commitment to faculty development. We investigated 23 of the best teaching universities in the world to identify the faculty development initiatives offered by their CTLs in a qualitative, exploratory study. The data from the institutional websites of the CTLs was analyzed in ATLAS.ti using cycles of coding. The analysis yielded not only a list of the initiatives, but also a four-dimensional model of how CTLs operate. We propose that CTLs have an attitude dimension, a subject dimension, a delivery dimension, and an administrative dimension. Framing CTLs in such a way can help institutions to establish or enhance their own CTLs in a way that considers their own capabilities and weaknesses, and therefore prepare for the future.

1 Introduction

Faculty development grounds pedagogical work and contributes to the quality of the educational process (Zabalza, 2004). As such, it should not be seen as a responsibility of faculty only, but rather of the educational institution as a whole. The pedagogical work done by faculty is a collective – and not a solitary – endeavor which needs to be developed. It is up to both the institution and faculty members to work together to ensure this development occurs.

One way a higher education institution can show its commitment to faculty development is by establishing a Center for Teaching and Learning (CTL). By doing so, the institution gives voice to the collective endeavor of faculty development and materializes that commitment through actions, resources, and conditions that enable it.

Some of the actions performed by CTLs constitute the process known as *pedagogical support*, which should function "[…] always through inquiry and intervention, culminating in the production and advancement of knowledge […]" (de Souza, 2010), and ultimately connect to teaching. It involves inquiry into the practice of teaching as a premise to improve professional quality (Mayor Ruiz, 2007; Sánchez Moreno, 2008).

Inquiry into teaching as a way to produce and advance pedagogical knowledge was proposed by Boyer (1990) in his seminal redefinition of scholarship. What he initially proposed as a

[1] dilmeirerv@gmail.com
[2] lincon.bilibio@gmail.com

scholarship of teaching was later reviewed to include inquiry into learning (Hutchings & Shulman, 1999), coining the concept of *scholarship of teaching and learning* (SoTL) that is commonplace in academia today.

Certain that creating a CTL is an important step for future-ready universities, we set out to identify faculty development initiatives offered by established CTLs at the best teaching universities in the world.

2 Methodology

The methodological design of our research is shown in Table 1 below.

RESEARCH CHARACTERISTICS			
What faculty development initiatives are offered by established CTLs?			
Qualitative approach	Exploratory method		Pragmatic worldview
CTL data collection			
25 best teaching universities (Times Higher Education World University Rankings 2019) ➡	Identification of CTL websites ➡	Collection of 8 data points (website institutional texts) ➡	Data spreadsheet
Data analysis – Coding cycles in ATLAS.ti (Saldaña, 2013)			
Eclectic coding (provisional coding from theoretical framework + descriptive coding emerging from data) ➡	Subcoding on codes grounded in too many quotations ➡	Identification of four dimensions of CTLs (researcher inference) ➡	Code mapping into the four dimensions

Table 1: Methodological design of the research

2.1 Data collection

We used the Times Higher Education World University Rankings 2019 to identify the 25 best teaching universities in the world. 22 of them had readily identifiable CTL websites. Eight data points were collected from these websites. Three came directly from institutional texts and were the data proper used in the analysis: mission, objectives, and activities. The collection of these data proved challenging because they were not neatly organized in these categories on the websites, and some texts were repeated across multiple collected pages. The five remaining data points were demographic: university name, country, CTL name, affiliation, foundation date, website, and access date. The data were organized in a spreadsheet to be imported into the qualitative analysis software ATLAS.ti.

2.2 Data analysis

In analyzing the data, we primarily drew from our theoretical framework of SoTL. We created 18 provisional codes *a priori* involving three papers that described characteristics of SoTL (Huber, 2001; Kreber, 2002; Rice, 1992). Whenever we encountered identifiable CTL activities that were not in the theoretical framework (such as *offering consultations*), we created new descriptive codes. Occasionally, we also found themes that were common to many CTLs, but were not activities by themselves, such as references to *inclusive teaching*. We also coded these themes descriptively.

In our analysis, we identified that some codes shared certain characteristics. For example, *pedagogical knowledge* and *assessment* were codes that described subjects taught by CTLs, whereas *consultations* and *courses* described ways CTLs interacted with their target audiences. Through inductive reasoning, we proposed that our codes could be grouped in four dimensions: the subjects being taught, the ways of delivering these subjects, the intended

results and attitudes to be fostered, and the administrative tools the CTL had available to articulate its programs. Finally, we mapped all of our codes into these four broad dimensions.

3 Results

The primary result of our research was identification of the faculty development activities offered by the CTLs. Due to analysis technique, we were able to achieve a secondary result in identifying a four-dimensional model to support the establishment of a CTL. As this model contains the primary result – which comprises what we called the *delivery dimension* – we will present them together.

3.1 Four-dimensional model of CTLs

Our model is made of: (1) a *Subject Dimension*, which can best be described by the content subjects of faculty development or by the interaction faculty–student; (2) a *Delivery Dimension*, which refers to the channels the CTL uses to reach its target audiences, the interaction CTL–faculty; (3) an *Attitude Dimension*, which comprises the attitudes the CTL projects to and tries to foster within the university; and (4) an *Administrative Dimension*, which comprises the tools and mechanisms a CTL has to advance its goals. It can also be described by the participation of an external (out-of-university) agent, either in funding or regulation. Table 2 presents all the codes in the final iteration of analysis, mapped to each dimension, ordered by the number of CTLs that exhibited them.

SUBJECT DIMENSION	#
Pedagogical knowledge	20
Curriculum development	17
Assessment	14
Instructional technology	11
Professional development	9
Learner-centered approaches	8
Pedagogical content knowledge	7
Student engagement strategies	5
Online activities for students	5
Faculty recording of teaching and learning	3
Feedback	2

DELIVERY DIMENSION	#
Consultations	17
Programs and courses (no credit)	13
Workshops	12
Events	11
Giving feedback to educators	8
Developing instructional technology	6
Credit-bearing courses	6
In-class observations	5
CTL recording of teaching and learning	5
Documenting innovation	4
Confidential consultations	3
Pre-term orientation	3
Web activities for faculty	3
Media production	3
Video recording	2
Open classes	1
Theater	1
Tutoring students	1

ADMINISTRATIVE DIMENSION	#
Providing grants and funding	11
Articulating education strategy	8
Awarding prizes	4
Participating in national projects	1

ATTITUDE DIMENSION	#
Teaching excellence	14
Fostering innovation	13
Being guided by evidence	12
Inquiry into learning	12
SoTL	9
Inclusive teaching	8
Multi-disciplinary knowledge	7
Novel resources for students	7
Reflection on teaching and learning	7
Creating physical spaces for sharing	7
Supporting faculty experimentation	6
Supporting MOOCs	6
Collaboration	6
Communities of practice	6
Supporting presentations	5
Supporting publications	5
Affirming a commitment to sharing	5
Valuing good teaching	3
Acknowledging staff diversity	3
Showcasing good teaching	2
Teaching expertise	2
Acknowledging university particularities	2

Table 2: Number of CTLs per type of initiative offered, mapped to a four-dimensional model

3.2 Relationship between SoTL and the age of the CTL

We managed to identify characterizations of SoTL in the data of nine CTLs, despite the University of Michigan's CTLs being the only one that explicitly uses the words *scholarship of teaching and learning* on their website. Out of the nine centers that proposed SoTL as a faculty development initiative, six had been established more than 8 years prior to the data collection (2011 being the latest foundation date), and only one was less than 5 years old.

4 Discussion

Establishing a CTL can be a daunting task for a higher education institution. We propose the four-dimensional model as a general pathway for institutions that do not have a CTL to begin thinking about its establishment. We also think the model might be valuable to institutions that already have a CTL and are looking for ways to either validate the faculty development initiatives being offered, or expand their range of action.

In order to make the model easier to use, we proposed several questions to help guide the establishment of a CTL (Table 3). These questions were generated after the analysis of the code-mapped data, so naturally the categories in Table 2 are some of the possible answers for them. However, we highlight the importance of each institution focusing on its own strategic development goals and the capabilities and limitations of its staff in answering these questions.

Attitude Dimension	Subject Dimension	Delivery Dimension	Administrative Dimension
What is the mission of the CTL?	What subjects need to be taught to faculty to realize the CTL's mission?	How can the CTL deliver the contents in the Subject Dimension?	What mechanisms does the CTL have available to advance its goals?
What beliefs does the CTL have?	In what areas do faculty need support?	In what ways can the CTL interact with faculty?	How does the CTL gather support for its cause?
What values does the CTL want to foster in the academic community?	In what areas does the CTL want classroom dynamics to be improved?	What concrete activities can the CTL offer?	How can the CTL inspire and reward faculty?
What message does the CTL want to convey?			What are the external agents that can interact with the CTL and in what ways do they do so?

Table 3: Questions to guide the establishment of a CTL in the four-dimensional model

We can also say that the four-dimensional model is cyclical. The *attitudes* idealized by the CTL define the *subjects* which need to be developed, which in turn calls for a *delivery* mechanism to interface with faculty, which allows for the identification of *grant and award* recipients and can help steer *administrative* policies. The *administrative* policies, in their own turn, enable the CTL to realize its *attitudes* by providing mechanisms of articulation and funding.

We were satisfied to see that 12 of the 22 CTLs either conducted or helped faculty conduct inquiries into learning, and that at least nine of these made efforts to disseminate and publish their results, characteristic of SoTL. We understand that conducting SoTL requires some maturity and may not be feasible for recently established CTLs. Indeed, there seems to be some relationship between the age of a CTL and its commitment to SoTL, as explained in subsection 3.2.

Naturally, we also recognize that not conducting SoTL is not detrimental to the establishment of a CTL. SoTL is, after all, the last link in the chain, as defined by Kreber (2002), and subsumes both teaching excellence and teaching expertise. In fact, all the 15 remaining CTLs that are not engaged in SoTL are probably situated in what Kreber calls teaching expertise.

5 Conclusions

We strongly believe that future-ready universities must commit to excellent teaching and learning, and that establishing a CTL and ultimately conducting SoTL is a robust way of doing so. In particular, we can say that the best teaching universities in the world today promote teaching excellence, innovation, inquiry into learning and SoTL, and inclusive teaching, and are guided by evidence. They do this through consultations, programs, courses, workshops and other events, and by providing feedback to educators and developing new technologies. These universities address topics such as pedagogical knowledge, curriculum development, assessment, instructional technology and professional development by leveraging means such as grants, funding and awards, and by articulating education strategy within the university.

We hope that this four-dimensional model will serve as an entry point into the rich potential of CTLs for universities looking to establish or restructure their own CTLs, and help them design long-term plans for addressing each of the four dimensions.

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Back to the future – Challenging traditional positions and hierarchies in academic development

Patric Wallin[1]

Department of Education and Lifelong Learning
Norwegian University of Science and Technology NTNU
NO-7491 Trondheim, Norway

Abstract

With the emphasis on evidence in academic development, it is important to consider *how* research on higher education is conducted, *who* influences its direction and *what* questions are being raised. In this work, I will take a closer look at students' research projects in the "*Environments for learning in higher education*" course and, based on experiences from that course, explore how to involve students as researchers in higher education and how to provide opportunities for students to influence academic development through research. In the discussion, I argue that challenging traditional positions and knowledge hierarchies at higher education institutions are central for the future direction of academic development.

1 Introduction

With the current emphasis on change in higher education (Tagg, 2008), contemporary academic development reveals an interesting ambition to base approaches to teaching and learning on empirical evidence. In the emerging discourse educational research is easily reduced to providing clear guidelines for systematic improvements and to distinguishing effective from ineffective education practices. The emphasis on evidence in education is embedded in a neoliberal ideology that has changed education in profound ways during the last few decades (Giroux, 2002; Olssen & Peters, 2005). By focusing on efficiency in education, education research and development are reduced to finding *best practices* without considering questions as to whether particular interventions are desirable or what means are used to achieve effects. In this way the focus is on education as a technological practice rather than a moral practice that is shaped, interpreted, and negotiated by the people involved in it. Or as Biesta (2007, p. 5) put it: "The focus on 'what works' makes it difficult if not impossible to ask the questions of what it should work *for* and who should have a say in determining the latter."

Empirical studies should definitely inform and are a crucial element in academic development processes, but it is important to consider potential limitations. One main concern with an unreflected emphasis on evidence in academic development is coupled to *how* research on higher education is conducted, *who* influences its direction and *what* questions are being raised.

While students might be involved in academic development efforts as informants, and sometimes even as partners, they are rarely involved in conducting research on higher education during their time as students (Bovill, Cook-Sather, Felten, Millard, & Moore-Cherry, 2016). In this work, I will explore how to involve students as researchers in higher education and how to provide opportunities for them to influence academic development through research. I argue that it is important to reflect on the practices that are used to drive

[1] Patric.Wallin@ntnu.no

development and change and to reconsider the relationship between academic development, undergraduate teaching and research. By challenging traditional positions and encouraging partnerships between students, teachers, developers and researchers to explore pedagogical practices together, new forms of higher education research and academic development can emerge (King, Potter, & Pitts, 2015).

2 One example from practice

Here, I will focus on the course "*Environments for learning in higher education*" (Wallin & Aarsand, 2019), which is given under the Experts in Teamwork (EiT) umbrella at the Norwegian University of Science and Technology (NTNU) (Wallin, Lyng, Sortland, & Veine, 2017). Nearly all students at NTNU are required to take one course under the EiT umbrella during their fourth year at the university, meaning that students from all professions and disciplines are taking these courses. The courses have 20 to 30 Master's students each from various study programmes working in groups of four to six over a period of 15 weeks on a self-defined research project coupled to the overall theme of the course. During the project period, the students and the teacher meet once a week from 8:00-16:00. Students work on their group projects in a self-defined manner and the teacher acts in a way similar to a dialogue partner and critical friend (Costa & Kallick, 1993) to provide additional perspectives to the students' ideas and approaches, as well as reoccurring formative feedback.

Over the last four years (2017-2020), a total of 91 students have taken the course and worked on 18 different projects. One central element in the projects is that the students take into account their own experiences and use them as a starting point to define research questions that they deem interesting. Figure 1 shows a rough overview of the different topics that students have covered in their projects. Most project reports are available in Norwegian at www.patricwallin.org/student-research/.

Figure 1: Overview of research topics covered in the projects (2017-2020)

To explore their research questions, project groups have used a variety of different approaches. Four groups both conducted interviews with students, teachers, and other resource personnel at the university and used qualitative frameworks like thematic analysis and affinity diagram analysis to approach their research questions. Six groups designed and distributed their own surveys to collect empirical data from both students and teachers. The emphasis in the analysis of the survey data was on simple statistics for Likert-scale questions and the inclusion of free-text answers to provide additional nuances to the quantitative information. Two groups focused on development projects that took an analytical approach to (1) an already existing study program and (2) existing physical learning spaces. The remaining six groups did not collect empirical material on their own, but focused more on literature work to explore their research questions.

At the end of the semester, students share findings from their projects in the form of reports and short presentations. These are important resources for academic development at NTNU and are highly valued by persons in the central administration who develop and improve learning environments. While reports are obligatory in the course, they can be short and be complemented with other materials. Four groups have to varying extents worked with the development of smartphone applications and websites; three groups have produced podcasts where they explore their topics; and three groups have developed concrete recommendations and workshop designs to take findings from their projects further.

3 A pedagogical discussion

Building upon ideas of dialogue and liberation in higher education (Shor, 1996; Shor & Freire, 1987), contemplative education (Roeser & Peck, 2009), student partnership (Cook-Sather, Matthews, Ntem, & Leathwick, 2018) and the student as producer (Neary & Winn, 2009), the aim of the course outlined above is that by defining, planning and running their own research projects, students can raise questions about university learning environments that they deem important and remain in control of how to conduct and frame their research.

While a course provides potentially conflicting boundary conditions, it also provides unique opportunities for more inclusive and open forms of partnership by involving students who otherwise would not participate in activities linked to higher education research and academic development. A focus on interdisciplinarity means that students from different disciplines such as music, physics, psychology and sociology can work together. On a project level, this means that the work has the potential to go beyond specific course development actions within the contextual boundaries of a single discipline and focus on questions that go across disciplines. On a partnership level, the work's interdisciplinary nature provides a basis for challenging assumptions and reference frames about research paradigms and enables thought-provoking discussion among students and between students and academics about their ontological and epistemological positions.

Through my experience from the "*Environments for learning in higher education*" course and students' contributions over the last four years, I argue that challenging traditional positions and knowledge hierarchies at higher education institutions are central for the future direction of academic development. It is through collaboration between students and academics with the common purpose of co-creating knowledge and meaning (Neary, 2016) that we can initiate, scaffold and maintain change processes and academic development in higher education.

By considering each other as partners rather than in opposition to each other, the aim is for students and teachers to create a space where collective cultures can emerge and flourish. This form of *radical collegiality* genuinely challenges and subverts accepted power relationships and also has an explicit political goal: "it is through radical collegiality that one upholds democratic community" (Fielding 1999, 29). One important element here is that the students' work has meaning beyond the course. By making the reports, presentations and other material openly available, the projects can contribute directly to academic and campus development. In this way, students indeed take positions as knowledge producers by making their work available both to the local community and worldwide.

For my own position as a teacher and researcher in higher education and university pedagogy, it is than central to create a space that allows me and the students to learn and relearn together by acknowledging each other as partners in the education process. It is through dialogue – "a moment where humans meet to reflect on their reality as they make and remake it" (Shor & Freire, 1987) – and building upon everyone's diverse experiences that new practices in higher education can emerge. In addition, I argue that this approach can help students to learn how to ask difficult questions about the status quo and re-imagine a different kind of society and way of being.

Acknowledgements

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ICED 2020 proceedings:

Faculty Fellows: A promising program using the power of Dialogue Education

Nancy V. Winfrey, PhD[1]

Center for Teaching Excellence
North Carolina A&T State University
Greensboro, NC 27411, USA

Audrey M. Dentith, PhD[2]

Center for Teaching Excellence
North Carolina A&T State University
Greensboro, NC 27411, USA

Abstract

Centers for Teaching and Learning play a key support role in the enhancement of the instructional skills of faculty, yet many Centers are not adequately staffed or funded. One solution has been to leverage the knowledge and enthusiasm of successful faculty members by embedding them within their colleges as "extension agents" of the Center to provide faculty support services. One of the dilemmas of this approach is the question of Faculty Fellows delivering consistently high-quality educational workshops to their peers. These proceedings provide a brief overview of a Dialogue Education model that worked to frame all workshop designs created and delivered by Faculty Fellows across campus, and which served, as an added benefit, to improve their own teaching as well.

1 Introduction

Centers for Teaching and Learning play a key support role in the enhancement of the instructional skills of faculty. However, many Centers are not adequately staffed or funded. One way to alleviate these shortcomings has been to garner the knowledge and enthusiasm of successful faculty across campus (Cruz, 2019; List, 1997) and embed those faculty, as extensions of the Centers for Teaching and Learning within their colleges and departments (Sorcinelli & Austin, 2010). In this way the Centers have a stronger presence across campus, as faculty support is decentralized and more easily contextualized by discipline. At our institution, a Faculty Fellows program was developed to address the need to expand the reach of the newly established Center for Teaching Excellence (CTE).

A dilemma of embedded professional development is the question of Faculty Fellows' ability to offer consistently high-quality educational development services to their peers (McKee & Tew, 2013; Smith, Greenwald, Nave, Mansure, & Howell, 2020). Faculty in higher education are disciplinary experts, but they seldom receive formal training in teaching or providing support services. Our Fellows assume a variety of professional developer roles, and it was an early focus of the CTE to provide quality training for every role and responsibility.

One of our Fellows' key responsibilities is the creation and delivery of 30-minute workshops on a variety of topics that are offered across the campus. The concept of creating and delivering workshops is a shift for many faculty as a workshop, by definition, is a seminar or

[1] nvwinfrey@ncat.edu
[2] amdentith@ncat.edu

meeting that emphasizes the *exchange of ideas* and the *demonstration* and *application* of techniques, skills and so on. It is not the more familiar academic presentation where one person presents (i.e. "talks") for thirty minutes. The focus is on participant activity rather than facilitator knowledge, and leverages the experience and insight of colleagues working together to improve their teaching and the expected subsequent student success.

To facilitate a collective understanding of the 30-minute workshop format, a training session was designed and delivered to the Faculty Fellows. The training session followed that same format, and faculty were able to "unpack" their experience as they made connections between the workshop in which they participated and the format they were learning to use.

2 The 30-minute workshop design

The 30-minute workshop has theoretical underpinnings. First, its foundation rests on the adult learning principles of Malcom Knowles (Knowles, Holton, & Swanson, 1998), who crafted a theory differentiating teaching strategies for children from those more effective for adults. Among his principles we focused on two: that adult learners are problem-centered, and that they bring rich and varied experiences into the learning process. Content should be relevant and useful and build upon prior knowledge. On Knowles' foundation of adult learning theory is also scaffolding from Vella's (2002, 2008) Dialogue Education work. Again choosing principles and practices from this that are most salient for our purposes, we focused on three: learning requires safety; sequence; and meaningful engagement. Thus, our workshop design is mindful of an audience of colleagues; is sequential in terms of level of action; and utilizes active learning strategies. Throughout the framework runs dialogue between colleagues: in pairs, in small groups, and in the whole group during debriefing.

The approach we adapted from adult learning theory and dialogue education is useful on two levels. First, Fellows utilizing the framework experience a consistent, concise and outcomes-oriented format that accommodates varied learning strategies for engagement across disciplines. Second, the framework necessitates a design process that pushes faculty to focus on essential principles and practices, thus improving their own craft.

2.1 One objective, four steps

In terms of workshop design, the 30-minute time limit makes it imperative to be focused. Regardless of the targeted learning domain – cognitive, psychomotor, or affective – creating an *achievement-based learning objective* ensures that indicators of learning will be observable during the session itself. While the format was expected to be consistent in all Faculty Fellow workshops delivered across campus, the content was open to the expertise of the Fellow and/or the needs of their particular college. In either case, a single achievement-based learning objective was crafted for each workshop.

Once the objective was clear, a component of Vella's (2008) design framework was introduced. The framework has four steps: Anchor, Add, Apply and Away. Within the 30-minute limit frame faculty will begin with inductive work: anchoring new content in relation to their own context and experience; move to the addition of new content; follow with implementation tasks that invite them to immediately apply the new content; and finally propose integration tasks (the "Away") where the learning transfer is considered.

A simple example would be the following achievement-based learning objective:

> By the end of this workshop, participants will have chosen the healthiest ingredients for a peanut butter and jelly sandwich.
> *Anchor*: With a partner, reflect on the version of peanut butter and jelly sandwiches that you ate as a child, and exchange stories.

Add: Working in a small group, review a chart of peanut butter brand ingredients and nutritional information. Continue with jelly brands and bread options. What are the important numbers and why do they matter? Based on your research, choose the healthiest option for each of the three sandwich components.

Apply: Compare your childhood (or current) choice of peanut butter, jelly, and bread to the healthy options you have identified. What adjustments can you make? Create a shopping list of new items to try out at home.

Away: Consider another favorite food and brainstorm with a partner how you might utilize the same process to assess nutritional value and make adjustments.

In addition to providing consistent workshop delivery across colleges, this framework establishes a routine of engagement. Faculty Fellows do not begin from scratch with every new topic, and colleagues who participate in the workshops know what to expect. The dialogue works to create community within the group and in every case a learning cycle is completed within the 30-minute time frame.

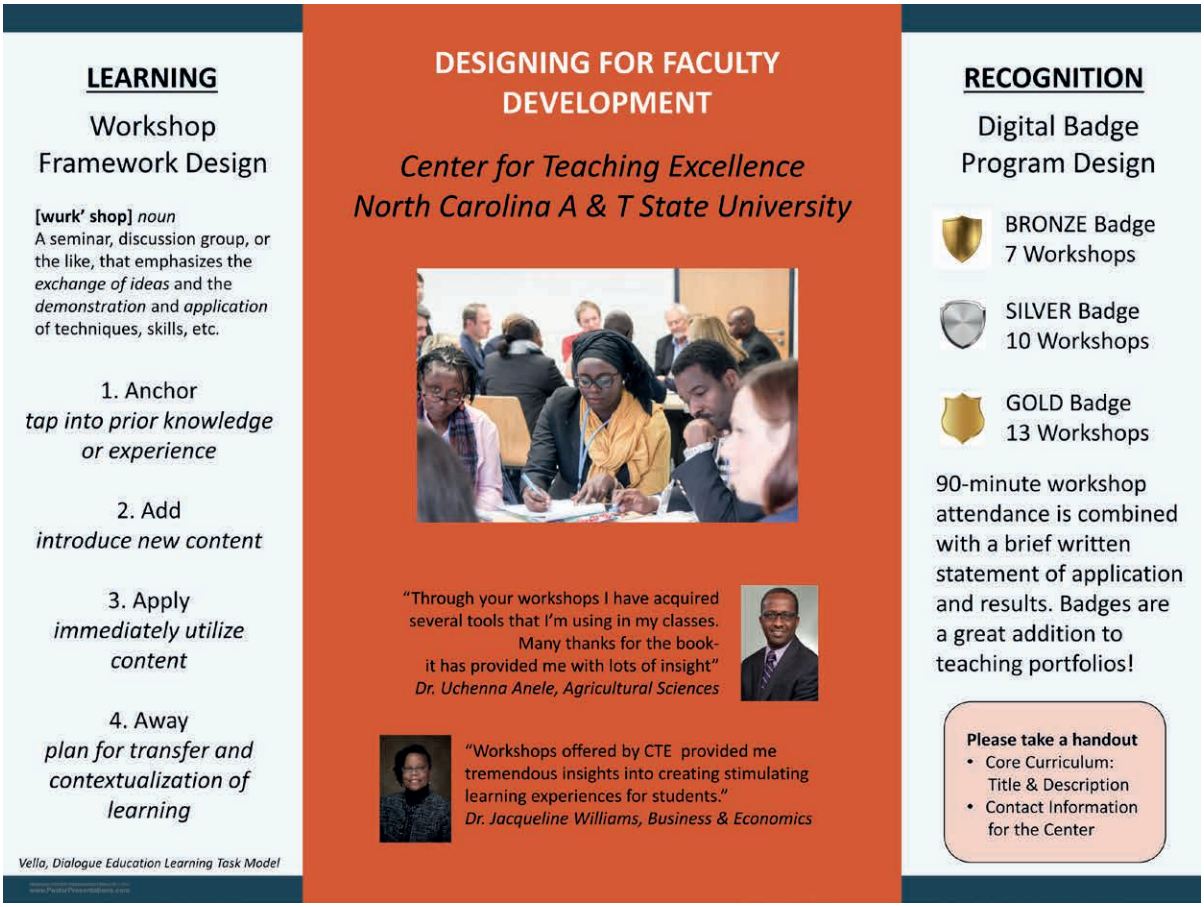

Figure 1: Designing for Faculty Development poster

2.2 Engaging with the workshop design

Instructors make many important instructional design decisions based on convenience, comfort, or current educational trends. The idea of a "design" for learning was intriguing, but Fellows also found it confining. First, the singular focus of one achievement-based learning objective was challenging – conceptually and in practice. That design component stands in contrast to the broad conceptualization and complexity that an expert in the field holds as tacit

knowledge, and which guides the academic presentation. The learning objective is for the *learners*, and the four design steps are crafted ahead of time to ensure that the theoretical underpinnings of the workshop format are honored (Hammons, 2017). Creativity is essential when choosing relevant, problem-centered, active and sequenced activities.

A template was generated to aid the process, and Fellows worked independently and in small groups to create their workshop design. They delivered the workshop and received feedback from their peers and the CTE staff, and then delivered the workshops across campus. The added value of a universally applicable framework is that Fellows could transfer the workshop design principles and practices to their own teaching routines, and in effect benefit themselves from the professional development they were delivering to colleagues.

3 Lessons learned

Our Faculty Fellows program has had its struggles. We learned through focus group data garnered at the end of the first year that many of the Fellows had hoped to focus on their own teaching initiatives, not the professional development of their colleagues. Despite the generous stipend ($3000) per semester, they thought the program failed to afford them time and resources to pursue their own agendas. This might have been due to some initial miscommunication in the design and purpose of the program. With that said, all of Fellows indicated that they learned a great deal about teaching in general, and the field of faculty development. The workshops, for the most part, were successfully developed according to our model, but conflicts in schedules prevented many of the Fellows from actually delivering their workshops across campus. Several Fellows, seen as leaders across the campus, were called to other leadership positions and did not continue in the program. The program has been redesigned to accommodate current needs given the COVID pandemic. A new Digital Learning Faculty Fellows program has been initiated and the same model and expectations have been implemented, including a commitment from the Fellows to provide one-on-one support for faculty struggling with online teaching. The purpose of the program is clear and, so far, indicators seem to be that the program goals are being realized. We look forward to continuing to hone this program and to realizing the immense potential of a Faculty Fellows program.

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ICED 2020 proceedings: Engaging students as partners in learning and teaching

Jiaxin Wu[1]

Center for Teaching and Learning, Duke Kunshan University
No.8 Duke Avenue
Kunshan, Jiangsu, China

Haiyan Zhou[2]

Center for Teaching and Learning, Duke Kunshan University
No.8 Duke Avenue
Kunshan, Jiangsu, China

Abstract

Research (Cook-Sather et al., 2014; Healey et al., 2016) indicates the importance of student-faculty partnership. Students as Partners (SaP) initiatives, mainly in the form of Scholarship of Teaching and Learning (SoTL), have been seen in but are not limited to universities in the UK, US, Canada and Australia. Despite that, it is still an emerging yet contested topic in higher education to actively and intellectually engage students as partners in learning and teaching, considering the inclusivity of involvement, faculty buy-in and so on (Matthews et al., 2018; Matthews, 2019). Thus, this case study of a pilot SaP initiative at Duke Kunshan University, a young joint venture university in China, aims to enrich the literature and inform further discussion about its values, challenges and practices.

1 Introduction

The Center for Teaching and Learning at Duke Kunshan University plays a key role in helping faculty to create the highest quality educational experiences for students. We work with faculty to implement evidence-based strategies for effective student learning, by offering training on educational technology, consultation on syllabi, and instruction in specific classroom techniques. However, it is always challenging for us to present student voices to showcase excellence in teaching as well as to empower students to be more active agents in their own learning experiences. Healey et al. (2014) mapped out multiple ways of student involvement. In reality, though student course evaluation is weighted and student-faculty collaboration in subject-based research is common, very limited opportunities have been provided to stimulate intellectual conversations about teaching among these stakeholders. We piloted the *Undergraduate Student Partners of Teaching and Learning Initiative* for one year and endeavored to engage students in pedagogical dialogues and course development. This paper illustrates the implementation of this pilot initiative and highlights partnership activities to empower students. In a full paper to be submitted for peer review, we will discuss the challenges we encountered, the impacts and further recommendations.

Since the launch of our undergraduate program in AY 2018-2019, we have offered a few signature programs for faculty. These include the annual Learning Innovation Fellowship, co-led with Duke University and designed for new faculty to get the basics of course design and active learning techniques in the new teaching environment; mid-term Small Group Instructional Feedback; the Visit a Classroom program; the Teaching & Learning at Lunch

[1] jiaxin.wu@dukekunshan.edu.cn, +0512 3665 7531
[2] hzhou@duke.edu, +0512 3665 7285

series; and one-on-one consultations on pedagogy and instructional technology. To better prepare faculty for teaching, we analysed the situational factors, such as students' cultural backgrounds, academic preparation, and language proficiencies, to help faculty better understand the student profile. We also facilitated focus groups to gain a deeper insight into the student academic experience, in order to help faculty develop best practices of teaching. Then we realized that student voices and their learning experience are not only critical to inform our strategic planning, but also to showcase the best teaching practices of faculty. Most importantly, students will increase their awareness and ownership of learning when being heard.

We learnt different models from literature and conversations with colleagues in educational development. Some had recruited juniors or seniors to conduct educational inquiries into their capstone experiences; some worked closely with graduate students to explore the effective use of technologies in teaching; and some engaged students in program evaluation projects. However, as a new and growing institution we encountered several challenges. First, the first cohort of our undergraduate students were rising sophomores who may not be able to demonstrate professionalism or confidence when talking about teaching and learning, especially with their professors. Second, given that the overall curriculum was still under development, we had little opportunity to engage students in evaluation projects like other institutions'. Third, we promote liberal arts education, so students are encouraged to take courses across disciplines. Thus, the chances are high that faculty may meet and know every single student. Conflicts of interest are inevitable when inviting students to share their learning experiences.

2 Implementation

Engaging students to play a significant role in educational development is supported by prior research (Healey, 2014; Cook, 2016) and cases in other institutions around the world, such as the *Student Partners Program* at MacPherson Institute and the *StudentShapers Program* at Imperial College London. Facing with these challenges, we started with baby steps by communicating with university leadership and divisional chairs frequently to seek their support. When interviewing student applicants, we valued their reflectivity on learning and acute observations about teaching. By August 2019, we had formed a team of three student partners and six student advisory board members, whose major interests vary across arts & humanities, social sciences, and natural & applied sciences.

Last year, these students gained exposure to teaching and learning by partnering with faculty in pedagogical discussions and course design.

2.1 Teaching stories

Continuing our tradition of sharing excellent teaching stories, student partners helped to interview five faculty members across divisions, researched pedagogical approaches, collected student feedback, and collaborated with faculty to tell their stories. These stories have been posted on our Center's communication channel and have received positive feedback, especially from new faculty. Through this project, faculty shared their teaching philosophy with students naturally and then built trust, which is the foundation of any future partnership.

2.2 Student panels

We intend to incorporate student voices as early as possible, so as to foster a transparent and positive teaching and learning environment. During the Learning Innovation Fellowship, we collaborated with faculty representatives and student partners and offered a panel to discuss the key considerations in course design. New faculty really appreciated such a conversation early on to reach a consensus on course expectations. Close to the end of each semester, we

also invited students to celebrate their professors' excellence in teaching by sharing their learning experiences and expressing gratitude to their professors in person. After hearing the positive feedback from their students, faculty tend to be more comfortable when articulating questions and challenges to seek further advice.

2.3 Teaching showcase

We also encourage faculty to present in the annual teaching showcase, which targets a wider audience. Engaging in many pedagogical conversations, student are confident and competitive enough to collaborate with faculty in the presentations. Their involvement and facilitation in last year's showcase were highly praised by multiple stakeholders at the university.

2.4 Course development projects

Once trust is built, faculty members are more willing to actively engage students in future projects. So far, student partners have contributed to three course development projects: assisting the development of course materials, reflecting on the effectiveness of interdisciplinary learning, and contributing to resilient teaching preparation under crisis.

3 Discussion

The first-year pilot was successful in building trust and communication among faculty, students and us.

3.1 Faculty buy-in

When we interviewed faculty to share experiences with newcomers, they emphasized the value of student voices in course development, recommended events represented by the teaching showcase and student panels, and spoke highly of the community with student involvement. In addition, the student panel was ranked first among all Learning Innovation Fellowship activities.

This year, the challenge of face-to-face instruction posed by the COVID-19 pandemic needs to be addressed wisely to maximize the student learning experience. Under great uncertainty, faculty are spontaneously partnering with students to build a resilient teaching plan together.

3.2 Student reflection

Alberto Najarro and Lingli Tang are among the first cohort of student partners and have participated in all the projects above. Alberto Najarro reflected on the pilot program:

> *It is key for students to have a more active role in paving the road towards their academic success. By creating more collaboration platforms between faculty, students, and educational professionals, higher-quality and more engaging academic experiences can be developed. When different stakeholders come together it can be undeniably challenging at first; however, in the long run, we all seek to configure a cooperation hub that makes it easier for all to achieve the goal of high-quality education.*

Lingli Tang is particularly grateful for the student panel. She shared that "Professors cherish students' feedback and voices so that I can share my perspectives and discuss with them freely. This is exactly what a traditional Chinese saying 教学相长 stands for – teaching and learning enhance each other."

4 Conclusions

We hope our experience in the pilot initiative can inspire and encourage those who want to launch or enhance student-faculty partnership in learning and teaching, as well as stimulate further discussion on building a reliable and sustainable model of engaging students.

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Future-ready universities

To be future-ready, how will our organisations need to develop? What forms of leadership and collaboration are required, and how do we cultivate them? Where does power currently reside inside and outside our organisations, and what stances do we take?

ICED 2020 proceedings:

Fostering a culture of innovation in teaching and learning in research-intensive universities: Implications for academic developers

Adriana Briseño-Garzón[1]

Centre for Teaching, Learning and Technology, University of British Columbia
Vancouver, Canada

Karin Cattell-Holden[2]

Centre for Teaching and Learning, Stellenbosch University
Private Bag X1, Matieland 7602, South Africa

Hannah Lora Freeman[3]

Centre for University Teaching and Learning, University of Zurich
Hirschengraben 84, 8001 Zürich, Switzerland

Jeff Miller[4]

Centre for Teaching, Learning and Technology, University of British Columbia
Vancouver, Canada

Andreas Reinhardt[5]

Educational Development and Technology (LET), ETH Zurich
Haldenbachstrasse 44, 8092 Zurich, Switzerland

Abstract

In this paper we present the goals, structure and impact of five different programs currently operating in four international research-intensive universities, and discuss how these initiatives foster a culture of innovation in T&L at their home institutions. We also discuss the contributions and roles played by academic developers as well as the current dilemmas and open questions we face.

1 Introduction

Higher education institutions around the world are confronted with rapid changes in technology, alternative learning offers outside traditional institutions, and increasingly complex problems to be tackled by future graduates. This puts pressure on faculty and academic developers alike to demonstrate educational leadership and to develop and integrate innovative approaches to teaching, learning and curriculum design. This is a challenge, especially in research-intensive universities where cultures of innovation are established within

[1] adriana.briseno@ubc.ca
[2] kcattell@sun.ac.za
[3] hannahlora.freeman@uzh.ch
[4] jeff.miller@ubc.ca
[5] andreas.reinhardt@let.ethz.ch

the particular research disciplines but not to the same extent for the corresponding teaching and learning (T&L) practices within or across disciplines (Asarta et al., 2018; Alexander et al., 2019).

In research-intensive universities, programs that invite faculty to teach in non-traditional ways through, for instance, the integration of learning technologies, evidence-based practices, and community service, have grown in diversity and scope over the past decades (Hubball, Clarke, & Pearson, 2016; Wieman, 2017). At the core of these programs are often funding mechanisms that are intended to foster a culture of innovation in T&L in collaboration with faculty, students and other stakeholders. Such approaches are seen as essential contributions to the advancement of faculty and academic developers (Geertsema, 2016), which ultimately helps to prepare research-intensive universities for the future. These approaches also enhance the status of teaching at institutions with a strong research mandate (Mårtensson, 2014).

We discuss how four international research-intensive universities are fostering a culture of innovation in T&L through the implementation of institutional initiatives. Specifically, we share the goals, structure and impact of five different programs currently operating at those universities:

- Teaching and Learning Enhancement Fund (TLEF) & SoTL Seed Program – University of British Columbia (UBC), Canada
- Innovedum fund – ETH Zurich, Switzerland
- Fund for Innovation and Research in Learning and Teaching (FIRLT) – Stellenbosch University, South Africa
- Teaching Fund (Lehrkredit) – University of Zurich, Switzerland

We use program evaluation outcomes as a basis to discuss the contributions and roles played by academic developers as well as the current dilemmas and open questions we face. The relationships our programs have built between faculty and educational developers have provided us with agile strategies to meet the extraordinary challenges faculty, staff and students are currently facing at our universities due to the Covid-19 pandemic.

2 Selected programs and their implications for academic developers

3.1 Teaching and Learning Enhancement Fund (TLEF) and SoTL Seed Program – University of British Columbia, Canada

Two programs at UBC focus on innovation in T&L: The Teaching and Learning Enhancement Fund (TLEF, https://tlef.ubc.ca) and the SoTL Seed Program (https://isotl.ctlt.ubc.ca/services/sotl-seed-program/).

The TLEF, created in 1991, has funded over 1300 projects through a competitive process that encourages grass-roots and strategic engagement by teams of faculty, staff and students. In recent rounds priority areas included educational renewal, interdisciplinary education and Indigenous engagement. TLEF projects have a large impact at UBC: projects funded in 2019/20 reached 197 courses, impacting 22,421 students. A sustainment survey in 2018 indicated significant on-going use of resources and practices developed during TLEF projects well beyond the funding period, as well as many instances of projects having an impact well beyond their original scope.

UBC's SoTL Seed Program supports faculty members in engaging with the Scholarship of Teaching and Learning and producing high-level research. The strategies in place to increase faculty capacity to engage in reflective practices and pedagogical research include (i) partnership with expert graduate students (SoTL Specialists) who contribute from their knowledge of learning theories and methodologies; (ii) workshops and resources that facilitate

professional development; (iii) consultation from project inception to publication; (iv) collegial collaborations that encourage reflection and sharing of successes and challenges with teaching; and (v) synergistic support with other T&L innovation programs on campus, such as the TLEF.

UBC has expanded support across TLEF and SoTL Seed projects, to assist project teams with planning, development and evaluation of their projects and to provide institutional support for innovation in T&L. These programs align the enhancement of UBC's culture of innovation across projects by elevating faculty agency and accountability with teaching innovation and SoTL research. The programs rely on academic developers' expertise in educational research and evaluation, learning design, project management, facilitation of professional development and ability to interact with diverse audiences (i.e. faculty members, students, staff, senior leadership).

3.2 Innovedum fund – ETH Zurich, Switzerland

The Innovedum fund (http://www.innovedum.ethz.ch) at ETH Zurich has supported T&L projects for over 20 years. Over 270 projects at all levels of study have been supported thus far. An internal evaluation of the Innovedum program in 2016 showed that over two thirds of projects are still or at least partly in use and that overall project sustainability is good. Informal findings suggest that project sustainability is higher if stakeholders know each other and the existing project landscape. This is why community building became important early on in order to share experiences between all involved stakeholders. Academic developers today are offering and facilitating different event formats and online platforms to support this.

One of the most challenging aspects of community building activities has been how to engage faculty in transformative reflection about their own practice and on how teaching innovations can improve student learning. Inspired by the concept of the Scholarship of Teaching and Learning (SoTL) and the cultivation of quality culture (Mårtensson, Roxå, & Olsson, 2011), processes of project submission and dissemination have been adapted to further emphasize the importance of both evaluation of student learning and the involvement of students at the beginning of and during a project. As a result, academic developers have worked more intensively with faculty, preparing them for submissions, helping with evaluation concepts and supporting the dissemination of results.

More recently, external T&L impulses have been introduced to the ETH community. Selected international EdTech startups and interested faculty – with the help of educational developers – have started collaborations in order to trial new concepts of interest to both parties. The intention behind this is to specifically include external perspectives to enrich discussion of educational technology and student learning, and ultimately foster teaching innovation at the institution in general. Initial experiences show that both parties can benefit from such collaborations (Kickstart, 2019). The scaling of new concepts within the institution still remains a challenge and needs further exploration.

3.3 Fund for Innovation and Research in Learning and Teaching (FIRLT) – Stellenbosch University, South Africa

The Fund for Innovation and Research in Learning and Teaching (FIRLT, http://www.sun.ac.za/english/learning-teaching/ctl/t-l-awards-and-grants/firlt) at Stellenbosch University (SU) was introduced in 2005 to stimulate and sustain research and innovation in T&L at SU.

An evaluation done in 2018 has shown that the 430 projects funded over the last 15 years have contributed to improved teaching paradigms and practices at SU as well as increased student success. FIRLT affords faculty the opportunity to explore the Scholarship of T&L

(SoTL) and become reflective practitioners, partnered by SU academic developers. It therefore not only contributes to growing a multidisciplinary T&L research community at SU, but also fosters professional development and educational leadership.

Academic developers support faculty in formulating project proposals, networking with peers, and disseminating project results at the annual SU SoTL conference. FIRLT recipients are therefore enabled to contribute to the growth of SoTL at SU, and also in the broader academic community. Regular FIRLT writing retreats namely provide recipients with the opportunity to rework projects into publishable papers or national/international conference presentations. The low number of publications emanating from FIRLT projects poses a challenge to academic developers, however, as does sustaining the growth of the FIRLT community of practice. Overall, encouraging collaboration at SU in teaching innovation and research remains a challenge.

3.4 Teaching Fund (Lehrkredit) – University of Zurich, Switzerland

The Teaching Fund of the University of Zurich (https://www.lehrkredit.uzh.ch) aims to foster a variety of innovative teaching projects in both competitive and strategic funding lines. While the competitive Teaching Fund, in a yearly call for submissions, focuses on innovative didactic formats or teaching materials of a subject-specific nature, the strategic funding line enables the implementation of large-scale projects of university-wide relevance. With this two-pronged approach, the Teaching Fund supports innovation in T&L across multiple levels and seeks to foster an innovation culture not only through financial backing but also by raising esteem for teaching and community building among interested teachers.

Since its inception in 2016, an average of 15 competitive projects per annum and a further 6 strategic initiatives have been funded. Because great emphasis is set on the sustainability aspect, several projects have been able to continue after the funding period and have become established within the respective curricula. Early results from the Fund's first evaluation, which is currently in progress, show successful results reported for the individual projects and strengthen the notion that funding opportunities for didactic innovations – especially at research-intensive universities – foster a nurturing environment for innovation in T&L not only by providing financial means, but also through the element of prestige involved and by making it possible for a growing community to exchange ideas, often even across disciplines. Networking or discussion meetings for teachers, especially non-professorial staff, have proven to be one of the program's more popular features since opportunities to focus on (what is often seen as) experimental didactic formats are scarce.

3 Conclusions

The innovation-funding programs described in this paper serve as important engines of T&L innovation in our research-intensive universities. These programs support the work of teams of faculty, students and staff across diverse projects and create opportunities to foster a culture of scholarship in T&L activities.

Academic developers play an important role in supporting T&L innovation by providing extensive support to funded projects across multiple areas, including learning design, research & evaluation, project management, and project outcomes dissemination. However, academic developers face common challenges in supporting this work, such as growing the community of practice and reaching larger audiences; engaging faculty in evidence-based and transformative reflections around student learning; shifting institutional innovation cultures from a focus on product outputs to considering impacts on learning by nurturing a culture of evaluation and scholarly teaching; and limited capacity for long-term project support.

Institutions can learn from each other's successes and challenges. We hope this international collaboration will inspire others to communicate and exchange experiences.

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ICED 2020 proceedings:

An "excellence turn"? Rethinking teaching excellence awards for a future-ready South African university

Karin Cattell-Holden[1]

Centre for Teaching and Learning, Stellenbosch University
Private Bag X1, Matieland 7602, South Africa

Abstract

This paper examines the teaching excellence awards at a research-led South African university, a post-colonial institution which functions in both a neo-liberal higher education environment and a society characterised by inequity and inequality. The awards demonstrate an understanding of teaching excellence in terms of de-contextualised and performative values focused on the individual good. The paper proposes a social re-contextualisation of the awards, based on collaboration among all role-players, in order to reclaim teaching at the institution as a public good.

1 Introduction

Traditionally higher education was viewed as an institution both *of* and *for* society[2]. However, during the past approximately 50 years, this humanistic understanding has been replaced by a focus on the economic and private value of higher education, turning it into a neoliberal entity and a "'public of private interests'" (Hind in Nixon, 2015:165).

Within the neoliberal culture the concept of excellence has become "an organizing frame of the university" (Saunders, 2015:391). Generally understood as "of outstanding merit", it qualifies a broad spectrum of university strategies, functions and role-players, adapted for different contexts and perspectives. "Excellence" can therefore be described as a multifaceted concept with a contested and shifting meaning (Skelton, 2009).

"Teaching excellence" is likewise a fluid concept, interpreted differently from an institutional, disciplinary or personal perspective and re-defined according to changes in the social, economic and political environment (Wood & Su, 2017:462). In the neoliberal higher education environment "teaching excellence" is governed by a managerialist approach that prioritises individuals' performativity and the quantifying of productivity or output (Shore & Wright, 1999, 2015; Saunders & Ramírez, 2017). Morley (2003:48) describes this "new managerialism" as a culture of measurement and control where individuals and institutions compete according to externally prescribed criteria and goals. In this culture, performance is used as a measure of productivity, output or displays of quality, thus representing "the worth, quality or value of an individual or organization within a field of judgement" (Ball, 2003:216).

2 The "University of Excellence"[3]

Despite the humanistic roots of higher education and the pressure on institutions to contribute to social justice and democratic citizenship, the neoliberal higher education environment often results in the enhancing of social exclusion and inequity instead of inclusion and parity on all

[1] kcattell@sun.ac.za
[2] The United Nations Universal Declaration of Human Rights (1948) reinforced this view, adding the humanistic component that education is a human right (Blessinger & Makhanya, 2018).
[3] Readings, 1996:40.

levels. The related focus on individual responsibility and economic progress transcends the historical public service purpose of higher education, turning it from a public good into a private benefit (Pasquerella, 2016). In this context, social justice exists in a state of tension with "excellence" and "teaching excellence".

Values linked to social justice, such as equality, equity and social responsibility, are relegated to the fringe of the teaching excellence discourse, as the latter prioritises the individual good rather than the public good. Wood and Su (2017:452) correspondingly propose reconceptualising "teaching excellence" from a moral perspective to counter the measurement and performativity associated with the concept and draw attention to its ethical and relational aspects instead.

3 Awarding teaching excellence

Teaching excellence awards have contributed significantly to raising the status of teaching at higher education institutions (Leibowitz, Farmer & Franklin, 2012). These awards are initiated as an institutional acknowledgment of support to teaching, a recognition of the achievements of outstanding teachers, and an encouragement to other teachers to reach similar levels of inspirational teaching (Chism, 2006:589). The prestige bestowed on the recipients is powerful as it not only conveys recognition by the institution but also by peers and students.

The evaluation of "teaching excellence" generally reflects the neoliberal higher education context. Criteria are focused on the performance of the individual, excluding the complexity and diversity within which teaching and learning are situated (Chism, 2006; Behari-Leak & McKenna, 2017). A key element in this multi-faceted environment is the close link between teaching and learning. In correlation with Behari-Leak and McKenna (2017) and others, this paper argues that conceptualising and rewarding "excellent teaching" should include a focus on "excellent learning", with both discourses emphasising the ideological and unequal contexts in which students and teachers function.

4 "Excellence" at SU

At Stellenbosch University (SU) "excellence" features in a range of institutional policies and frameworks. It functions as "an organizing frame of the university" (Saunders, 2015:391), incorporating all aspects of the institution in a commitment to "excellence", which is interpreted differently in different contexts. In the *Institutional Plan 2017–2022*, for example, "excellence" appears 61 times[4], qualifying learning (as student success through diversity), teaching, research, the institution ("excellence" equals student success rates, high research output, specialised (niche) scientific fields and staff expertise), governance (repositioning the institutional secretariat function as an enabler), and social impact.

The above interpretations of "excellence" are reinforced in teaching and learning directives. In the *Strategy for Teaching and Learning 2014-2018* "good" and "excellent" teaching are conflated, only described as "quality teaching" (2). The *Teaching and Learning Policy* (2018:5) distinguishes between the two concepts in terms of their institutional standing: *good* teaching is acknowledged, but *excellent* teaching is recognised, rewarded and promoted across all systems of the University. Apart from linking "excellence" to context and responsiveness, this distinction is not clarified.

The implicit and different meanings assigned to "teaching excellence" confirm its fluidity and resultant vacuity (Macfarlane, 2007; Wood & Su, 2017). The guidelines to the SU Teaching Excellence Awards attempt to infuse the concept with definite meaning.

[4] Out of the total of 61 times, the concept is repeated 35 times as a matter of course in the listing of strategic objectives and action plans in responsibility centres and across faculties.

4.1 The SU Teaching Excellence Awards

The SU Teaching Excellence Awards (TEAs) were initiated in 2017, defining "teaching excellence" in relation to contextual awareness[5], critical reflection, student engagement, innovative practices, and the scholarship of teaching and learning. Despite the references to context and collaboration with regard to students, society and the academic community, the TEAs reflect the neoliberal higher education environment. Not only is the individual prioritised by the exclusion of team applications, but "teaching excellence" is also determined by individualist and performance-driven criteria. The financial reward successful candidates receive furthermore quantifies their "quality", academic identity and professional "worth". In addition, applications are judged by a selection panel which represents SU's faculties, senior management and academic developers, but excludes students. The TEAs therefore undervalue the relationship between excellent teaching and excellent learning (Elton, 1998). In this environment individual academics compete not to be "*the best **for** the world*" but "*the best **in** the world*", overturning the re-envisioning of SU in the *Teaching and Learning Policy* (2018:2). The individual (private) good therefore transcends teaching and learning for the social (public) good – the TEAs emphasise "the competitive arena of excellence at the expense of attending to unequal social and economic relations" (Behari-Leak & McKenna, 2017:3).

4.2 Re-envisioning the SU TEAs

"The space of the possible" (Davis & Phelps, 2004:4) in the relation between the TEAs and the public good could be enlarged in five ways. Firstly, "excellent learning" should be incorporated into the discourse of "excellent teaching", focusing on the inequity and inequality in teaching and learning contexts. The student voice should therefore be included in the TEA selection panel, emphasising the value of collaboration between academics, management and students in recognising "teaching excellence".

Secondly, shifting the present individualist value of "excellence" into the above-mentioned moral context should add truthfulness, respect and authenticity (Nixon, 2007) to "excellent" teachers' approach to students. Nixon (2007:25) calls this "a duty of care and compassion" exercised for the public good. It would also provide students with the opportunity to observe and practice the modelling of these values (Leibowitz, 2012:xxiv). This leads into the third possible change: adapting the managerialist TEAs narrative as a more inclusive and collaborative system, engaging all role-players on what "teaching excellence" means [at that time] to ensure that everyone is represented and catered for, as far as possible (Behari-Leak & McKenna, 2017:13).

Fourthly, the TEAs as a private good could be broadened by introducing disciplinary/interdisciplinary teams and projects. This would require academics (and students) to collaborate for the benefit of overall improved learning (Leibowitz et al., 2012:17) and would stimulate the co-construction of professional knowledge and growth. A collaborative approach to excellence, countering performativity, individualism and the implied competition and othering, would contribute to reclaiming teaching as a public good. In addition, lastly, the current individualist performative criteria could be replaced by more inclusive domains, for example, how academics construct knowledge in their disciplines, create an inclusive learning environment, enhance critical thinking and problem-solving skills, and foster lifelong learning.

5 Conclusions

A focus on the spaces of possibility beyond the boundaries of the TEAs could shift the system into a broader network of relations and thus enhance its meaning to SU and its social community. Moving "teaching excellence" from individualisation to collaboration would help

[5] For 2020, "context" also includes the effects of COVID-19 on academics' teaching and students' learning, for example the move to emergency remote teaching.

foster an enabling environment for teachers and students to contribute to transforming South African society and, ultimately, to reclaiming teaching at SU as a public good. If higher education is not merely an interested observer but a "strategic actor looking to influence the world in which it operates (…) the area where it can, and should, make an impact is on inequality" (Atherton, 2018).

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ICED 2020 proceedings:

An online interactive monitoring system as an instrument for data-driven self-reflection on education policy and quality assurance processes at faculty and study programme level

Ilse De Bourdeaudhuij[1], Hilde Van Puyenbroeck[2], Janis Vanacker[3], Sien Uytterschout[4], Joke Claeys[5], Katrijn De Cock[6], Nele Mahieu[7]

Department of Education Policy, Ghent University
Sint-Pietersnieuwstraat 33
9000 Gent, Belgium

Abstract

Future-ready universities take into account the challenges posed by a "VUCA World". The question, then, is how to prepare study programmes for such an uncertain, complex and rapidly evolving future. Ghent University considers adaptability, co-leadership and self-governance as crucial aspects of study programme management. It has recently developed an *online interactive monitoring system* for faculties and study programmes that supports self-evaluation and stakeholder engagement. Via the "education monitors" of this system, faculty and programme management can document, argue, and reflect on their mission/vision, processes, actions, quality indicators and results. The structure of the monitors is based on the PDCA principle, and allows detailed reporting on each of the pre-determined topics' vision and policy (PLAN), implementations (DO), monitoring (CHECK), and improvement actions (ACT). This paper gives an insight into how the monitors are built, how they operate technically, how they stimulate self-reflection and monitor quality, and how they go beyond learning and teaching.

1 Introduction

Ghent University is a top 100 university and one of the major universities in Belgium. Our 11 faculties offer more than 200 study programmes and conduct in-depth research within a wide range of academic disciplines. Ghent University Global Campus is also the first European university in Songdo, South Korea. In the context of changing legislative contours in Flanders, Ghent University policy-makers saw a window of opportunity to take significant and daring steps towards a fully-fledged university-wide quality culture. One of the crucial elements in this cultural shift has been the development of the education monitor: an online interactive monitoring system for faculties and study programmes, which facilitates data-driven policy-making and stakeholder engagement. The monitor also allows faculties and study programmes to monitor and enhance education quality on a permanent basis.

1.1 The Education Monitor: WHY?

Legislative changes in Flanders (2014) gave higher education institutions the opportunity to take quality assurance of study programmes into their own hands. A new Quality Code

[1] ilse.debourdeaudhuij@ugent.be
[2] hilde.vanpuyenbroeck@ugent.be
[3] janis.vanacker@ugent.be
[4] sien.uytterschout@ugent.be
[5] joke.claeys@ugent.be
[6] katrijn.decock@ugent.be
[7] nele.mahieu@ugent.be

suspended the external quality assessments of study programmes that had been customary up until then, and in its place introduced the institutional review**.** Supervised by the Accreditation Organisation of the Netherlands and Flanders (NVAO), the institutional review and its concomitant procedures aim at gauging the HEI's policy and quality assurance conduct. The new legislative contours provided the incentive for the development and implementation of Ghent University's internal quality assurance system. Some of the important basic principles that underlie the quality assurance system are "trust in the expertise held by faculties and study programmes"; "shared ownership" and "continuous improvement". The new internal system will contribute to installing a fully-fledged university-wide quality culture, "in which all stakeholders naturally strive for continuous quality assurance as well as quality enhancement."[8] To live up to this aspiration, and to support study programme management, Ghent University needed a new and efficient quality performance tool. Given the fact that education management increasingly has to contend with an ever-changing, highly dynamic and unpredictable context – the current pandemic has taught us that much – the new tool had to allow quick and accurate analysis of education quality, and facilitate reflection and joint decision-making at faculty and study programme level. More than ever, future-readiness equals being able to adapt to changing conditions.

1.2 The Education Monitor: HOW?

Since 2019, Ghent University has started to implement education monitors for every faculty and every study programme. These education monitors are built in a SharePoint environment. The backbone of each monitor is a set of operational objectives; the objectives for faculties and study programmes are aligned with university-wide strategic educational goals ("the Six") and with (the framework of) the Flemish Quality Code and the standards and guidelines for quality assurance in the European Higher Education Area (ESG). In the SharePoint environment, the operational objectives are arranged into thematic clusters (e.g. "learning outcomes", "programme", "assessment", "internationalisation"), each corresponding to an overarching chapter.

Every chapter is built on the PDCA principle. A clear distinction is made between a relatively stable "PLAN-DO phase" on the one hand, and a more dynamic "CHECK-ACT phase", on the other. For every chapter, the faculties/study programmes identify their general policy intentions (PLAN), and describe in broad outlines the actions that are being undertaken to execute that policy (DO). This makes up the relatively stable part of the monitor. The CHECK-ACT phase is highly dynamic: faculties/study programmes regularly conduct a self-evaluation, in which all internal stakeholders (the programme management, lecturers, students) participate. The online monitor also allows external stakeholders (e.g. representatives of the professional field and alumni) to participate actively in the self-evaluation process. During this exercise, all stakeholders reflect together on whether or not, and to what extent, each of the operational objectives is met.

Each objective's "check" is made by means of a four-point scale (ranging from "excellent" over "more than sufficient" and "sufficient" to "not meeting expectations"). Checks can either be substantiated by means of quantitative data or by qualitative data. With regard to the former, it is important to know that the education monitor is linked directly to Ghent University's Business Intelligence System, which contains all data related to student performance/learning analytics, and data obtained from surveys (e.g. course feedback, programme feedback, lecturers' survey, alumni survey). As mentioned before, the "checks" on the operational objectives are the result of a discussion among stakeholders. These checks will reveal whether or not improvement initiatives (ACTs) are necessary. For every operational objective, faculties and study programmes (can) stipulate specific improvement initiatives/actions. The education monitor then generates an automatic quality improvement plan, giving an overview of all the

[8] https://www.nvao.net/nl/procedures/vlaanderen/instellingsreview.

proposed improvement initiatives. This improvement plan is a useful instrument in the faculties' and study programmes' day-to-day working, and forms the basis of future self-evaluations.

1.3 The Education Monitor: WHAT?

The Ghent University education monitor is a tool that clearly facilitates data-driven education policy: it is a digital dashboard which gives faculties and study programmes up-to-date information on education quality in general, and the extent to which specific education objectives have been attained.

The education monitor facilitates active participation of all the important stakeholders in self-evaluation, and in discussions on improvement initiatives. In so doing, it strengthens stakeholder engagement and co-leadership at faculty and study programme level. At Ghent University, we believe that the principle of co-leadership is crucial to the future-readiness of higher education (management).

1.4 Success factors

A crucial success factor in the development of the monitor has been stakeholder involvement. In the course of the entire development process, every stakeholder group was surveyed to identify existing needs, and was asked to participate in test sessions. The feedback that was gathered at every step of the process was then used to fine-tune the tool further. Finally, this resulted in a user-friendly end product that answers the faculties' and study programmes' real needs. This stakeholder involvement, which will include any possible future users, will continue to play an important part in the tool's continued success.

An important success factor at the moment of introducing the monitor has been the launch of a strong and targeted internal communication campaign and the provision of coaching sessions for faculties and study programmes. Several communication initiatives were set up in order to give the monitor greater publicity among its (future) users. In addition, all faculties and almost every study programme were coached intensively in putting their monitors into operation.

Faculties also fulfil an essential part in education support and quality assurance of their study programmes: they translate (institutional) policy lines into faculty- and programme-specific measures and guidelines, and actively promote professional development and exchange of good practices. Since efficient policy presupposes a healthy amount of introspection, faculties are also expected to regularly (annually at least) carry out a critical self-reflection on their education policies, internal quality cultures and the implementation of university-wide strategic educational goals ("the Six"). Last but not least, Ghent University's critical attitude is also highlighted at the institutional level: the administration carries out a critical reflection at least annually, scrutinizing the university's education policy, the general quality culture and its own operational objectives. Here, too, the exercise is supported by a central education monitor.

2 Conclusions

Future-proof universities pursue an education policy that responds to, and engages with, ever-changing circumstances and challenges. Active stakeholder participation and self-governance are an indispensable feature of any such policy. At Ghent University, the implementation of an education monitor has shown that digital technologies – more specifically, digital quality performance tools – are an absolute prerequisite for achieving this objective.

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ICED 2020 proceedings:

What does the future tell us about the present? Learning pathways as future models for universities and a stimulus for student reflection

Maren Lübcke[1], Funda Seyfeli[2], Klaus Wannemacher[3]

HIS Institute for Higher Education Research (HIS-HE), Hanover
Goseriede 13A
30159 Hanover, Germany

Abstract

The research project AHEAD took a glimpse into the future of the higher education landscape in 2030 by drawing four models of learning pathways. The models all involve different forms and degrees of individualized study and place different demands on students' self-organization and self-regulation learning (SRL) skills. By talking to students within the scope of the SIDDATA project, it becomes clear that SRL is not only a competence of the students but must also be provided for as precondition in the organization of studies.

1 Introduction

It is not only the corona pandemic that has made it clear that the higher education system will undergo or is undergoing massive change. The research project AHEAD, funded by the Federal Ministry of Education and Research (Germany), took a glimpse into the future of the higher education landscape in 2030 (Orr et al. 2020). The AHEAD project was based on the assumption that higher education will change as a result of developments in the following areas:

- Knowledge and competence requirements from industry and social changes
- New developments in didactics
- Digital technologies and new uses of these technologies

As a result, four models of learning pathways through higher education were developed (see below). Questions arise: How are these models seen by the current student body? To what extent can a review of the models help to analyse the weaknesses of the current state of the higher education system and find improvements in the now? We will first briefly introduce the four models and then present the assessments of students that were carried out in the context of a requirements survey by SIDDATA (https://www.siddata.de/en/), another project funded by the Federal Ministry of Education and Research (Germany). SIDDATA stands for "Study individualization through digital, data-based assistants", and has the overall goal of supporting students in defining and pursuing individual educational goals.

[1] luebcke@his-he.de, +49 511 16992919
[2] seyfeli@his-he.de, +49 511 16992929
[3] wannemacher@his-he.de, +49 511 16992923

2 Learning pathways in higher education in 2030

In the future, in line with the AHEAD project, higher education will contribute to meeting the challenges posed by changes in the labor market due to digitization:

- Employees will require more frequent learning processes and experiences. To meet this need, opportunities to begin and leave degree programmes will be made more flexible to allow people to complete aspects of learning alongside their careers.
- Most learners need strong support, at least at the beginning of their studies. This is particularly true for learners who finished school many years earlier. Digital and attendance phases are both needed. They will be intertwined throughout the learning strategy or curriculum.
- Since informal learning (at least) takes place continuously throughout most people's lives, one way to activate further learning paths is to identify new ways of recognizing skills acquired informally. Universities could establish themselves as important actors by providing accreditation and learning support to the whole population.
- The impact of digital technology can be considered on two levels. On the one hand, traditional universities will increasingly integrate digital technology into existing educational processes. On the other hand, digital technology will be used to develop fundamentally new educational providers and programmes. This offers opportunities to provide individualized support for student learning paths. Learning can be independent of time and place; individual studies (the study of specialist or less popular subjects) could become the norm for many students.

Four learning pathways were developed in view of these results. The learning pathways are the following, named after games and toys which express relevant characteristics:

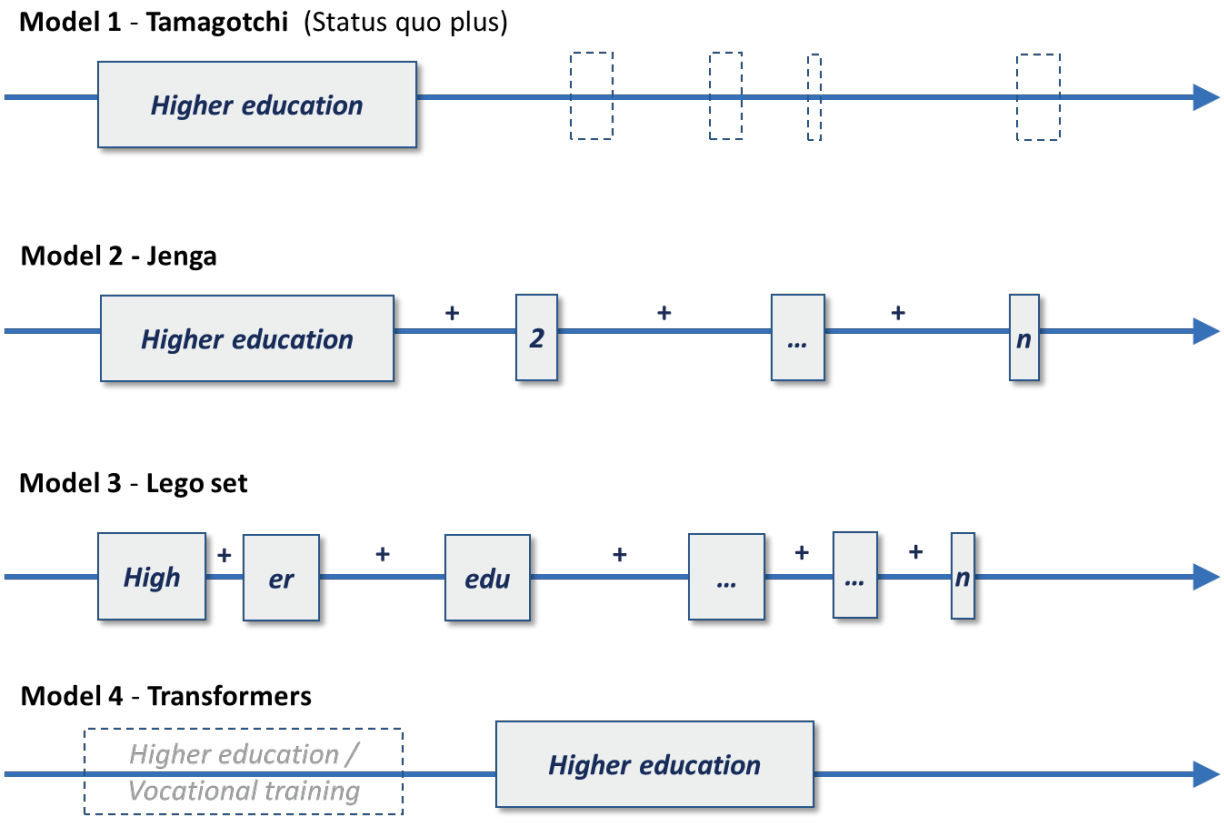

Figure 1: Learning pathways in 2030 (Orr et al. 2020, p. 26)

- "Tamagotchi": In this case the study program serves as a basic and comprehensive preparation for subsequent employment, as before. The university functions as a closed ecosystem that supports and guides students in their pursuit of a course of study.
- "Jenga": In this model, the "first degree" programme comprises a solid foundation of knowledge and competences and can take the form of a shortened study programme. This foundation is built on as the curriculum progresses and is constantly expanded by the learner (student) through new learning blocks. These additional blocks are made available by various training providers.
- "Lego": The course of study is no longer completed as a compact unit at a university or college but consists of individually combined modules of different sizes from different training providers. The learners themselves decide which learning phases or units they want to complete. In addition to providing the learning units, the university's task is also to recognise the learning phases completed through formal certificates.
- "Transformer": The students in this model do not transfer directly to higher education as school-leavers but have already acquired their own professional identities and life experiences. They come to the university or college later in their lives, and they also want to integrate thier life experiences into their studies. They need a flexible course of study that alternates between didactic control by teachers and advisors and their own self-determination.

The models all involve different forms and degrees of individual study and place different demands on students' self-organization and self-regulation learning (SRL) skills. Zimmermann defines SRL as follows:

> *Self-regulated learning theories of academic achievement are distinct from other accounts of learning and instruction by their emphasis (a) on how students select, organize, or create advantageous learning environments for themselves and (b) on how they plan and control the form and amount of their own instruction. (Zimmerman 1990, p. 13 f)*

While Tamagotchi represents the classical model of the university, Lego requires the highest degree of self-regulation. Here, the student her/himself takes responsibility for her/his own learning path and the curricular composition of the course of study. Jenga and Transformer also have higher requirements for SRL.

In this respect, these models are an answer to the demand for increasingly individualized courses of study. For example, within Jenga and Lego the curriculum can be designed in an increasingly modular way, while in Transformer the curriculum has to take into account the greater amount of individual previous experience. This is also accompanied by a higher demand for competence in the area of SRL, which has so far been required far too little in the current university system.

Many of the students surveyed for SIDDATA[4] criticize the strict (curricular) specifications, such as compulsory courses, prescribed topics and homework, and denounce in this context the fact that universities are often too school-based. The compulsion to study according to these guidelines, which goes hand in hand with a strongly guided study programme, makes it difficult to study in terms of SRL:

> *Well, because a lot of things were prescribed and said, do this then and that then, I simply relied on this plan a bit. I did one or two modules at a different time or slided some. … But basically I already relied on the module plan, I just worked through everything so nicely one after another. Exactly. So the master thesis was a bit more self-active [eigenaktiv], in terms of that I looked at how I could do it, so that it was not*

[4] All quotes are translated from German.

> *only a written work, but that it also helped me with practical work, but apart from that it wasn't quite so self-active [eigenaktiv], if I'm honest.*

Interestingly, SRL is intertwined with demand for increasingly individualized courses of study. Among the students surveyed, self-regulated learning is primarily seen as a possibility to arrange their studies more individually.

> *Yes, the more self-regulated [eigenaktiv] you make your studies, the more individualized they become, I think. So, if I actively choose what I really want, then it is simply something that is tailored to me. If you just do what others do or what would be normal, it's not very self-regulated [eigenaktiv].*

Students expect to develop individual interests during the course of their studies by having a broad choice of opportunities. Apparently, individual studies include not only the choice of certain content and modules, but also the form of the course of study, the examination and everything.

> *Well, I think it is important to have the greatest possible independence, for example in terms of time and place, but also in terms of learning methods...perhaps also in terms of the form of examination.*

The surveyed students draw a strong relation between SRL and individualized studies, probably more explicitly than in a majority of current research literature.

3 Conclusion

SRL is not only a competence of the students but must also be enabled as a condition in the organization of studies. Only then can individualized courses of study be realized. The four learning paths through the university landscape "Tamagotchi" "Jenga", "Lego" and "Transformer" can show universities ways of meeting the challenge of more individual studies. In the future, universities will have to adjust to different types of student, in line with the mindset that there is no "one size fits all".

Acknowledgement

We thank our SIDDATA colleagues, especially Dr Rüdiger Rhein for his support in conducting the interviews, and Martina Salm, Jeroen van Kempen and Sebastian Osada for the acquisition of students. In particular, we would like to thank the 36 students who agreed to participate in interviews.

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ICED 2020 proceedings:
Recognizing and assessing student entrepreneurship competences

Anna-Greta Nyström[1]

School of Business & Economics, Åbo Akademi University
Vänrikinkatu 3B
20100 Turku, Finland

Abstract

Students increasingly acquire competences and knowledge in non-formal and informal (extra-curricular) settings. While research on recognizing prior learning in relation to higher education institutions is quite extensive, the context where extra-curricular learning takes place is given less attention. This paper takes a stance in the entrepreneurial context and discusses how recognition of prior learning processes is perceived by students, and how such processes should be developed to allow for flexible study paths and the integration of entrepreneurial competences in the degree. In order for students to create unique profiles for future working life, higher education institutions should put more emphasis on recognizing learning that occurs outside the curriculum and creating a common language for assessing that knowledge.

1 Introduction

Across Europe, policies and recommendations for recognizing and assessing prior learning have become increasingly important for higher education institutions (HEI). The focus is shifting towards assessing activities that take place outside the classroom, i.e., extra-curricular activities. Such processes are often fueled by political pressure to shorten students' graduation times and introduce flexibility into the curriculum. Recognizing and assessing (prior) knowledge involves acknowledging individuals' competence and knowledge regardless of how and where it has been acquired and, consequently, integrating it into the degree (cf. Bohlinger, 2017; Stenlund, 2010).

Recognizing and assessing prior learning emphasize knowledge and capabilities acquired primarily through *experience* (Cooper et al., 2017). Students are encouraged to engage in entrepreneurial activities and endeavors, which not only provide them with experience of running businesses, but also of developing different kinds of skills, competences and know-how. Knowledge of how students perceive such processes and activities aids teachers in designing the curriculum in a more flexible way: even though the opportunity to recognize and assess knowledge exists, students do not necessarily seize it to build their unique profiles for employability. This study thus contributes to the discussion on recognizing and assessing knowledge acquired through extra-curricular activities.

2 Recognition of prior learning (RPL) [2]

Today, education emphasizes lifelong and lifewide learning (Edwards et al., 1996), focusing on learning and making knowledge visible. Cooper and Harris (2013) point out that this means

[1] anna-greta.nystrom@abo.fi
[2] Andersson and Fejes (2005) recognize parallel concepts in use, e.g., validation; prior learning assessment; recognition/accreditation of prior (experiental) learning.

identifying what you know rather than what courses you have attended, and that learning from experience may lead to the accumulation of the same knowledge as learning from studying. This has generated extensive research into, e.g., conceptualizing the adult learner (Andersson et al., 2013).

RPL is commonly associated with experiential learning (Kolb, 1984). Experience and reflection on experience (Boud et al., 1993) allow the learner to express knowledge gained in non-formal and informal contexts. In RPL, the adult learner is seen as possessing experiences that may be evaluated and formulated, and once this is made explicit the learner is made competent (Andersson & Fejes, 2005). In fact, research has focused to some degree on the process of assessment or evaluation, pointing out that the construction of knowledge (experience and/or ability) requires the learner to be or to become aware of his/her experience. In addition, it is the responsibility of the learner to seek guidance from study counsellors, teachers etc. to assess knowledge and competences. The RPL process thus holds an expectation of learners as self-regulated and able to make their own decisions as regards acquiring knowledge, experience and competences.

2.1 Student extra-curricular activities

The concept of extra-curricular activity has emerged to depict learning outside the classroom (cf. Foreman & Retallick, 2012). While extra-curricular activities are often associated with student clubs and organizations, they can also include competitions (Ridder and Van Der Sijde, 2003), summer schools (Collins & Robertson, 2003), mentoring (Perren, 2003), pre-incubators (Tötterman & Sten, 2005) and different kinds of business support programs (Jones et al., 2008). Recently, a strong link between RPL and entrepreneurial learning has been developed (cf. Pittaway et al., 2010).

Rubin et al. (2002) problematize extra-curricular activities by highlighting that if extra-curricular activities are regarded solely as increasing students' social and personal growth, they are then often seen as competing with academic work. Research is, however, unanimous as regards the positive effects of extra-curricular activities, e.g., leadership development (cf. Layfield et al. 2000), interpersonal skills (Ewing et al., 2009), academic achievement and persistence (Buckley & Lee, 2018), and faculty interactions (Retallick & Pate, 2009).

2.2 Entrepreneurial competences

Entrepreneurial competence is generally referred to as a particular group of competences enabling the practice of successful entrepreneurship (Mitchelmore & Rowley, 2010). The competence concept embraces the knowledge, skills, attitudes and abilities required to perform a specific job (cf. Baum et al., 2001). They are changeable, learnable and attainable through experience, learning and coaching (Volery et al., 2015).

While there are several frameworks for mapping and identifying entrepreneurial competences (cf. Bartram, 2005; Morris et al., 2013), the EntreComp framework (Bacigalupo et al., 2016) builds on three interrelated and interconnected competence areas, namely (a) ideas and opportunities (identifying, seizing and creating opportunities); (b) resources (entrepreneurial know-how, skills or knowledge); and (c) action (the ability to mobilize and inspire others, take initiatives, plan and manage, etc.) (see Figure 1). Each area consists of five competences and deploys an 8-level progression model. Some competences relate to personal development (self-awareness and self-efficacy, motivation, perseverance), material (production means, financial resources), or non-material (specific knowledge, skills, attitudes). The EntreComp framework has recently been linked to empirical data (cf. Cubico et al., 2017), but the discussion has yet to evolve towards RPL.

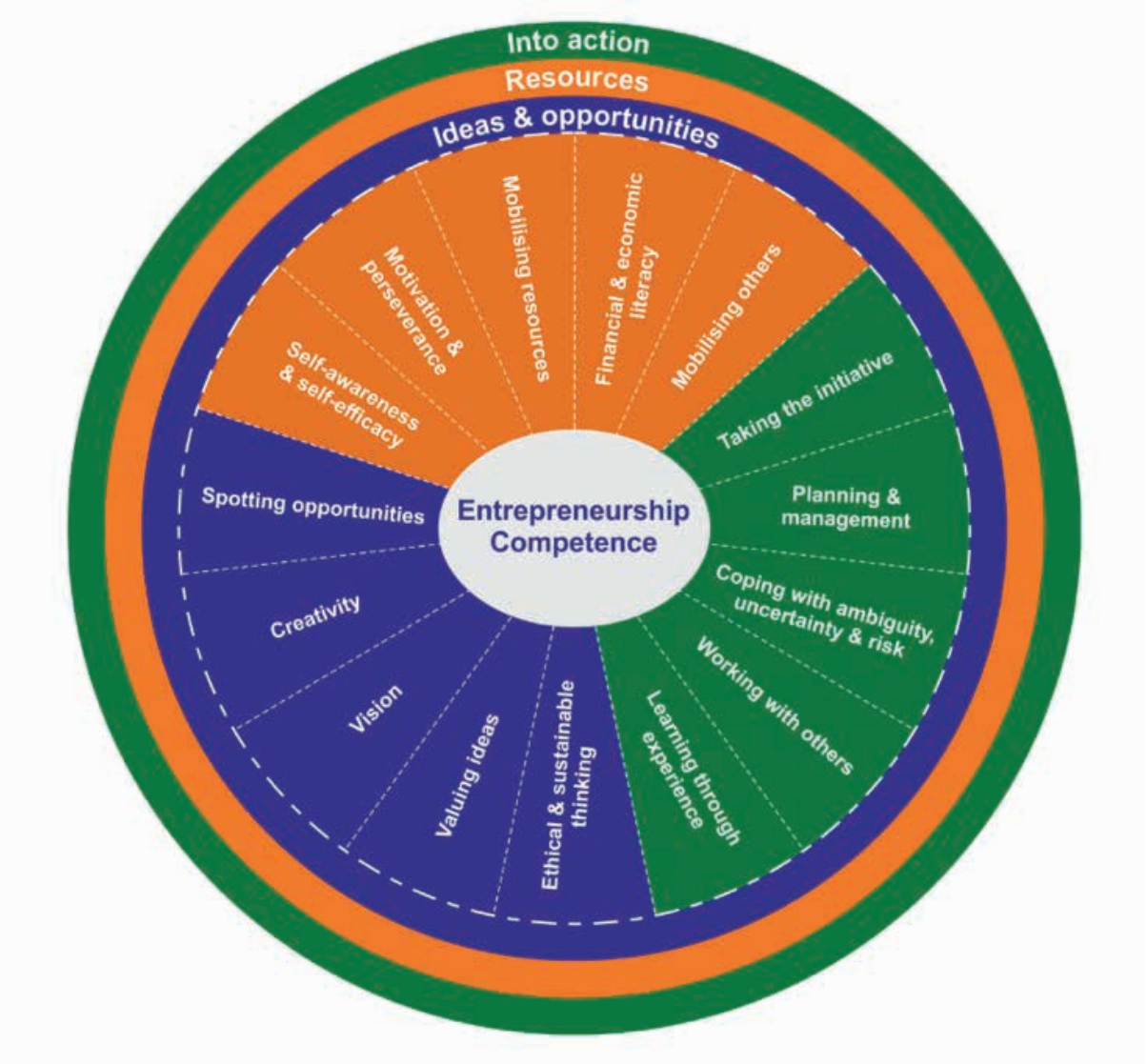

Figure 1: The EntreComp framework (Bacigalupo et al., 2016, 6)

3 Data and methods

In order to create an understanding of the student perspective on recognizing and assessing entrepreneurial skills, eight focus group interviews (cf. Bloor et al., 2001; Parker & Tritter, 2006) were conducted (November 2019). 62 third year business students at an HEI in Finland participated in the interviews[3] (see Table 1 for an overview of the informants). The focus group discussions lasted 1.5 hours on average and covered (a) the participant's perceptions of entrepreneurship and entrepreneurial skills, and (b) recognition and assessment of prior knowledge.

Informants	%	Experience of entrepreneurship	Previous work experience	Entrepreneur in close family	Interested in entrepreneurship	Extra-curricular activities[4]
Female	35%	5%	13%	13%	13%	34%
Male	65%	10%	19%	13%	39%	42%

Table 1: Overview of informants' experience of and interest in entrepreneurship

[3] 95% of third year students at the School of Business & Economics
[4] The percentage is a minimum estimate based on available data.

All focus group interviews were tape recorded, transcribed and analyzed using the Nvivo software program. In coding the data, the first round focused on categorizing the informants based on age, gender, study subject and entrepreneurship experience. The second round of coding focused on finding patterns related to (a) perceptions of the EntreComp framework, and (b) perceptions on recognizing and assessing entrepreneurial competences.

4 Results

After discussing the context of entrepreneurship and entrepreneurial skills in general, the EntreComp framework was introduced (printed handout, Figure 1) to the focus groups. The main insights from the discussion on the EntreComp framework are as follows:

The framework provides a common language
After introducing the framework, insecurity was replaced by confirmation of the already listed competences. The informants questioned how entrepreneurial competences differ from generic competences, which led to some informants initiating a reflection process on their own competences which utilized the keywords given in the EntreComp framework. In the focus group setting, their thoughts were then shared and compared with those of other informants. The framework thus functioned as a tool for creating a common language among learners.

The framework facilitates awareness of one's own entrepreneurial competences
Taking into consideration that 14 percent of the informants were entrepreneurs, none had contemplated initializing a process of recognizing and assessing knowledge based on the entrepreneurial competences gained. This observation goes beyond those informants with specific experience of entrepreneurship; most informants were, after time spent discussing examples, able to link those competences to specific activities or experiences in their pasts or in relation to on-going extra-curricular activities. The framework thus increased students' awareness of their own entrepreneurial competences.

The framework bridges academic and working life
The framework was viewed as a bridge between academia and working life: in fulfilling parts of the framework, the learner is able to match competences sought in working life. This facilitates deliberate planning and profile building.

5 Conclusions

HEI students need a common language and information about competences frameworks in order to successfully initiate processes of recognizing and assessing entrepreneurial learning. While many informants actively participate in what they define as extra-curricular activities, they lack knowledge of the possibility to initiate RPL processes. In addition, they do not actively reflect on the accumulation of knowledge relevant to their degree. The data indicates that students lack the metacognitive ability to assess knowledge and link it to their degrees without the aid of a visual tool or representation of what entrepreneurial competences are. In order to initialize RPL processes, learners must be aware of their own entrepreneurial competences and the experiences that have constructed their knowledge. Faculty and tutors should thus be open to supporting learners in becoming aware of experiences that develop entrepreneurial competences. RPL highlights that once experiences are made explicit, the learner is made competent (Andersson & Fejes, 2005).

In summary, attention should be directed towards extra-curricular activities especially in entrepreneurial contexts, and towards designing flexible study paths for students, incorporating reflection on experience and learning. Reflection supports learning from experience (Boud et al., 1993), allows learners to express themselves (Cooper & Harris, 2013), and provides a common language for recognizing the knowledge gained in extra-curricular settings. While there is increased pressure on HEIs to incorporate entrepreneurship in the

curriculum and support the development of both entrepreneurial competences and lifelong learning, PRL processes must be carefully developed within the HEI context.

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ICED 2020 proceedings:

Collaboration in curriculum design: Embedding employability for future graduate success

Rebecca Scriven

Centre for Learning and Teaching, Edith Cowan University
270 Joondalup Drive, Joondalup, Western Australia, 6027

Katrina Strampel

Centre for Learning and Teaching, Edith Cowan University
270 Joondalup Drive, Joondalup, Western Australia, 6027

Abstract

This paper describes the implementation of a model of employability in a school of nursing and midwifery at an Australian university. The model was developed collaboratively with staff from various centres of the university, academic leadership, and academic staff, in response to decreasing employment figures and student satisfaction with graduate outcomes.

1 Introduction

Integrating career development learning (CDL) into an already full curriculum to enhance graduate employability can be a significant challenge for universities (Yorke, 2010), and it remains a complex process, often requiring a larger organisational change (Bridgstock, Grant-Imaru, & McAlpine, 2019). In the Australian higher education sector, where a newly released government performance-based funding model has been released (Department of Education, 2019), it is becoming increasingly important for collaboration between faculty leaders, academic staff, learning designers and careers advisers to support the development of successful future-ready graduates.

Universities across Australia are integrating career development learning into curricula to enhance graduate employability it a variety of ways. A recent study by Bridgstock et al. (2019) found variation in the ways careers services were positioned in organisations, their functionality and in the ways they and academic units were collaborating. This paper shares how one university is changing the way it has traditionally approached curriculum design. By expanding on the Bridgstock et al. model, the university is including greater collaboration. It draws on the expertise of careers advisers, learning designers, librarians and learning advisers working with faculty leadership and academic staff to embed digital literacy, communication skills and CDL to transform the curriculum for student success.

2 Collaboration and need for employability strategy

In 2019, the school of nursing and midwifery undertook an internal major course review and reaccreditation process for the nursing degree. Employment data indicated there had been a decline in employment since 2016. One recommendation and action from the major course review was the revitalisation of the school's employability strategy with the intention to embed CDL throughout the course to enhance graduate outcomes.

An Embedding Employability Working Group was established, including members of the school executive, course leaders, and the school's Senior Learning Designer and Careers

Adviser. The Careers Adviser had previously collected feedback from industry regarding the performance of ECU's nursing students compared to other applicants. In order to gather more feedback, members from industry and representatives from the Western Australian Nursing Graduate Recruitment Agency were invited to attend a discussion with the employability working group. A former student who had been unsuccessful in obtaining a nursing graduate position was also invited to meet with the working party, to determine if they had taken advantage of career support before graduation. After these discussions the working party established that graduating students struggled to articulate their skills and knowledge in both written selection criteria and when applying and/or interviewing for a position.

The working group used this information along with an evaluation of the available career support within the course, to consider scaffolded activities that could be introduced to enhance employability across the course from the first year and throughout the course. By carrying out a mapping exercise of current CDL, the working group discovered that the timing of the capstone unit of study dedicated to career learning came too late for some students when applying for graduate employment. The mapping exercise also highlighted the need for a more holistic approach to embedding CDL, rather than focusing on one point in the later part of the course.

3 Employability strategy development

A school employability strategy was developed using a "steps" analogy to convey to students the staged approach to developing employment skills. The strategy diagram (Figure 1) illustrates the specific points in the course where these skills are addressed and the skills that are developed across the entire strategy. The steps of the strategy illustrate the stages of introduction of employability, the development and enhancement of employability skills and the transition stage to and beyond employment. The end goal of employability success identifies lifelong learning and continued professional development to achieve career aspirations.

Figure 1: Employability strategy diagram (Embedding Employability Working Group)

A list of the essential nursing skills developed over the duration of the course was compiled from the mapping exercise and added to the employability strategy. A circular diagram (Figure 2) is used to illustrate the continuing development of these skills. A star shape at the centre of the skills diagram is used to illustrate the importance of the STAR model (Cook, 2009) of

situation, task, action and result when addressing these skills in written reflections. The STAR model is recommended to students by the West Australian Health Department graduate recruitment system when applying for a graduate position.

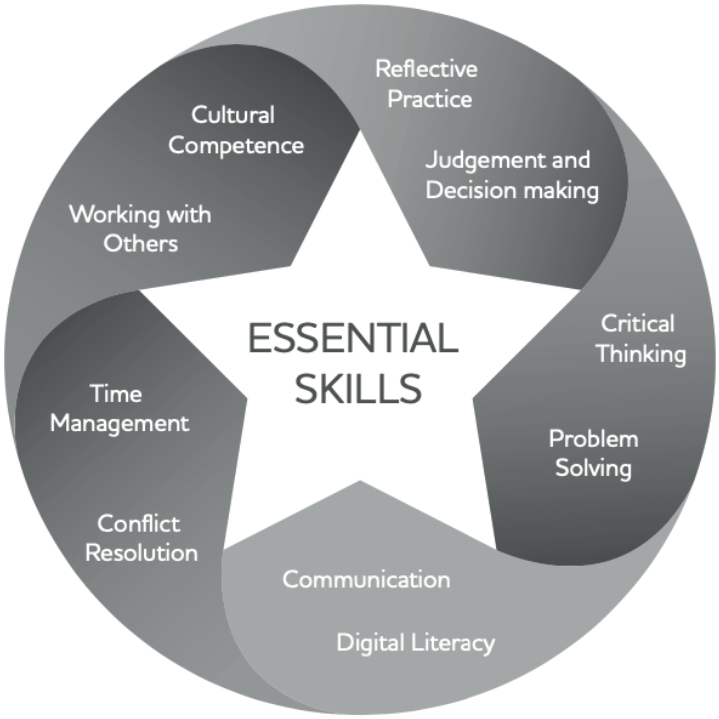

Figure 2: Essential skills diagram (Embedding Employability Working Group)

4 Reflective practice

Another action resulting from the major course review required the school to review the assessments within the clinical practice units to ensure consistency in assessment load and weighting with the intention of removing theory examinations and replacing them with more appropriate authentic assessments. This provided a unique opportunity to embed CDL into these units and assess the students' ability to reflect on their practice. To improve students' ability to articulate their skills and knowledge confidently, the assessments are designed to include both written and oral assessment formats. An additional requirement of the assessments includes using the STAR model to address an identified selection criteria statement. The redesigned assessments now align directly with the employability strategy and allow students to gain the skills required for writing successful graduate employment applications.

5 Evaluation of knowledge and skills

In order to support employability development, an Employability Action Plan workbook was developed and introduced to students in the first semester of their course. Based on both the DOTs model (Law & Watts, 1977, 1996) and the CareerEDGE model (Dacre Pool & Sewell, 2007), the action plan takes elements from both models and presents students with a series of exercises and reflections. These allow students to understand their skills and values in order to develop self-awareness. The students evaluate their current employment skills and identify any areas in which they need to improve and develop a plan to address these areas. The action plan was included as an assessment in an early stage unit. As part of this assessment, students were asked to complete a reflective writing piece about themselves, outlining their reasons for choosing to study nursing and summarising their skills and values. The workbook is completed in three stages during the course, and revisited in the later stages of the course as part of a final capstone unit.

6 Portfolio – Evidence of knowledge and skills

To help students make, understand and articulate connections between their learning, experience and work, an ePortfolio is included as part of the employability strategy. EPortfolios provide an electronic space to collect evidence of learning and experience whilst allowing the curation and critical reflection of this evidence. A professional portfolio detailing nursing experience, qualifications and work placements is a registration requirement for Australian nurses. Nursing students are introduced to the concept of using an ePortfolio in their first semester of study. Students are encouraged to collect evidence of their knowledge and skills and align these with the Nursing and Midwifery Board of Australia (NMBA) Registered Nurse Standards for Practice throughout their course. Course learning outcomes are aligned with these standards and assessments within the course, and students are made aware of these alignments. Throughout the course, learning activities and assessments are identified as recommended elements to add to the ePortfolio. By the end of the course, students have accumulated a collection of evidence pieces which they can draw from when applying for employment (Figure 3). In this way, the ePortfolio activities are designed to enhance students' understanding of their achievements and their ability to articulate these achievements in written employment applications and verbal interviews (Peet et.al, 2011).

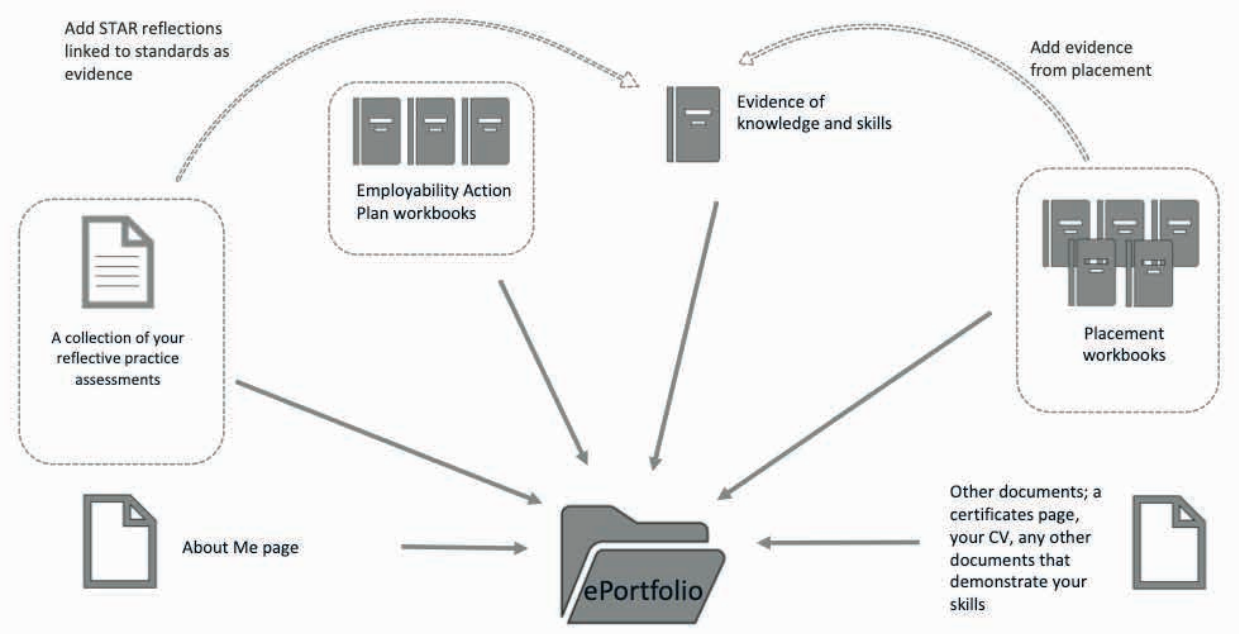

Figure 3: ePortfolio contents diagram (R.Scriven)

7 Conclusion – Evaluating employability skills

In summary, this paper has described the implementation of a model of employability developed collaboratively with staff from various centres of the university, academic leadership and academic staff in response to decreasing satisfaction with graduate outcomes. Initial reaction to implementation has been positive, with staff reporting a more structured, cohesive and consistent approach to embedding CDL in the curriculum. Further research into the practice of embedding employability skills development will include surveys and focus groups involving students, staff and industry partners. Evaluation of student outcomes and industry feedback over the study will determine the effectiveness of this strategy: the research will use CDL and reflective practice to measure and examine success and allow students to rate their own progress against goals (Pelletier, 2019), and industry panels will be asked to provide feedback on their experience with graduates.

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ICED 2020 proceedings:

A future-ready model for cooperation in curriculum development

Elke Tomforde[1], Benno Volk[2], Philip Barth[3]

Educational Development and Technology (LET), ETH Zurich
8092 Zurich, Switzerland

Andreas Vaterlaus[4]

Department of Physics, Laboratory for Solid State Physics,
Vice Rector Curriculum Development, ETH Zurich
8093 Zurich, Switzerland

Abstract

In the last few years new fields of activity have emerged around the interface of science and administration at universities. These activities require new forms of cooperation. At the Swiss Federal Institute of Technology (ETH) Zurich, a new collaborative process has been developed over the last eight years to react efficiently and sustainably to new demands on degree programme curricula. This contribution describes the structures, processes and cultures of this curriculum development endeavour, and its future potential.

1 Introduction

The last two decades have seen fundamental changes in the interplay of research, teaching and administration at universities (Nickel & Ziegele, 2010; Schneijderberg & Merkator, 2013). These changes are a reaction to new demands on universities such as increased accountability in the areas of quality, performance and cost. They have engendered new functional areas situated at the interface of established university science and administration. Whitchurch (2008) calls the specialists who operate there “third space professionals”. New forms of cooperation associated with this change have expressed themselves in new structures, processes and cultures via which universities hope to achieve both externally imposed and internal goals (Wildt & Wildt, 2015). This paper describes how ETH Zurich faculty, study programme administration staff and curriculum development specialists have cooperated in new ways to address curriculum development challenges in this context, and presents perspectives on the way forward.

2 Established curriculum development structures, processes and cultures

In the structural sense, collaboration on curriculum development began in 2012 with the naming of a Vice Rector for Curriculum Development and the launch of regular “curriculum development” meetings where curriculum development projects are evaluated, support measures are established and curriculum development issues are discussed. These meetings

[1] elke.tomforde@let.ethz.ch
[2] benno.volk@let.ethz.ch
[3] philip.barth@let.ethz.ch
[4] vaterlau@phys.ethz.ch

are attended by the Vice Rector, representatives of the Curriculum & Faculty Development group[5], advisors on legal matters related to teaching, and degree programme representatives.

A timetable and processes governing curriculum development projects were set out in a Rector's directive[6]. To render cooperation more binding, curriculum development policies[7] were formulated. These drew on ETH teaching policy[8] and the quality criteria for teaching at ETH Zurich[9]. Funding was also made available. This enabled departments to apply for financial support for complex curriculum development projects (Innovedum Fund[10]).

Standard curriculum development processes involve various project types, sequences of steps and responsibilities (see Figure 1). The variants in Figure 1 differ in their levels of complexity and the extent to which programme regulations have to be revised.

The lead in curriculum development projects always lies with the respective department. Collaboration in this context features a culture of dialogue among participating partners. If the plan is to revise a degree programme or develop a new one, the objectives and content of the project are discussed, critical points are identified (e.g. degree programme coherence or student workload), a timeline is set, and forms of cooperation and support are considered.

The Curriculum & Faculty Development group offers help with project planning and organisation, the planning and conducting of workshops, qualification profiles, and alignment issues; it also provides documentation of good practice and guidance on didactic questions.

ETH's curriculum development standards were determined using a participative approach involving workshops and consultation with those involved in teaching.

3 Stimuli for enhanced cooperation

The following issues have intensified the need for cooperation on curriculum development over the last few years.

3.1 Support of curriculum development projects

While departments who wish to revise a degree programme or develop a new one must follow mandatory steps (see Figure 1), they have much autonomy in how they shape the associated project. A dialogue at the curriculum development meetings (see Section 2) determines how much support the process requires; this can vary widely and involve anything from sporadic project management advice to intensive process supervision.

However, any guidance must stay up-to-date, and the curriculum development team is therefore dependent on continued cooperative relationships with project participants. Here the question arises as to how cooperation might be intensified. This is the more crucial because binding decisions regarding certain aspects of the process have to be made at meetings with the Vice Rector.

[5] One of four groups in ETH Zurich's Educational Development & Technology (LET) unit (www.let.ethz.ch)
[6] https://ethz.ch/content/dam/ethz/common/docs/weisungssammlung/files-de/curriculumsentwicklung-rechtsetzung-lehre.pdf (retrieved 1 July 2020)
[7] https://ethz.ch/content/dam/ethz/main/eth-zurich/education/policy/policies-curriculum-development-and-curricula-of-degree-programmes.pdf (retrieved 1 July 2020)
[8] https://ethz.ch/content/dam/ethz/main/eth-zurich/education/policy/lehrpolicy-quality EN/lehrpolicy-en.pdf (retrieved 1 July 2020)
[9] https://ethz.ch/content/dam/ethz/main/eth-zurich/education/policy/lehrpolicy-quality%20EN/qualit%C3%A4t-lehre-en.pdf (retrieved 1 July 2020)
[10] https://ethz.ch/de/die-eth-zuerich/lehre/innovedum/innovedum-fund.html (retrieved 1 July 2020)

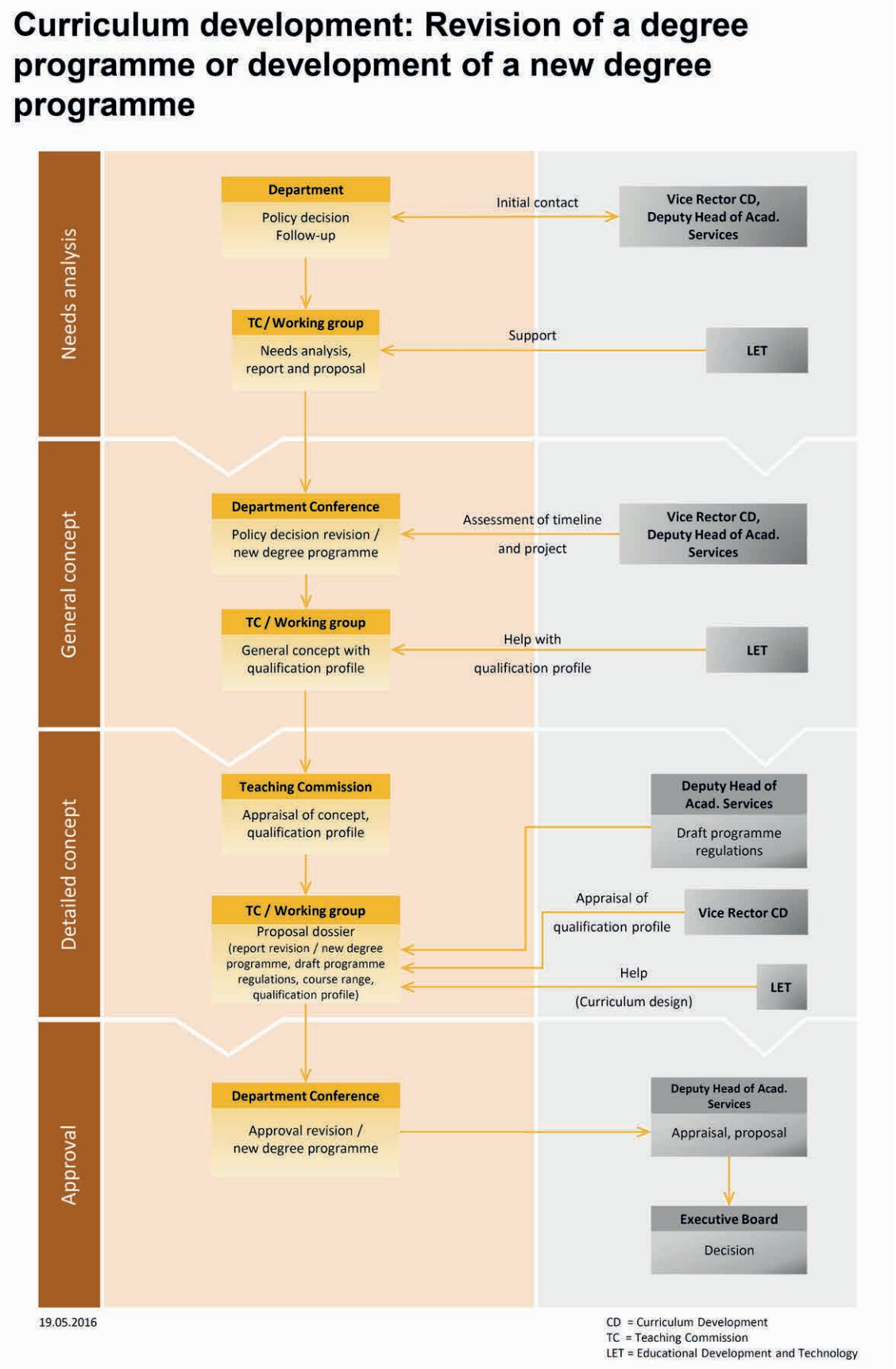

Figure 1.1: Two types of curriculum development process.[11]
Revision of a degree programme or development of a new degree programme

[11] https://ethz.ch/en/the-eth-zurich/education/educational-development/curriculum-development/procedure-concepts.html (retrieved 1 July 2020)

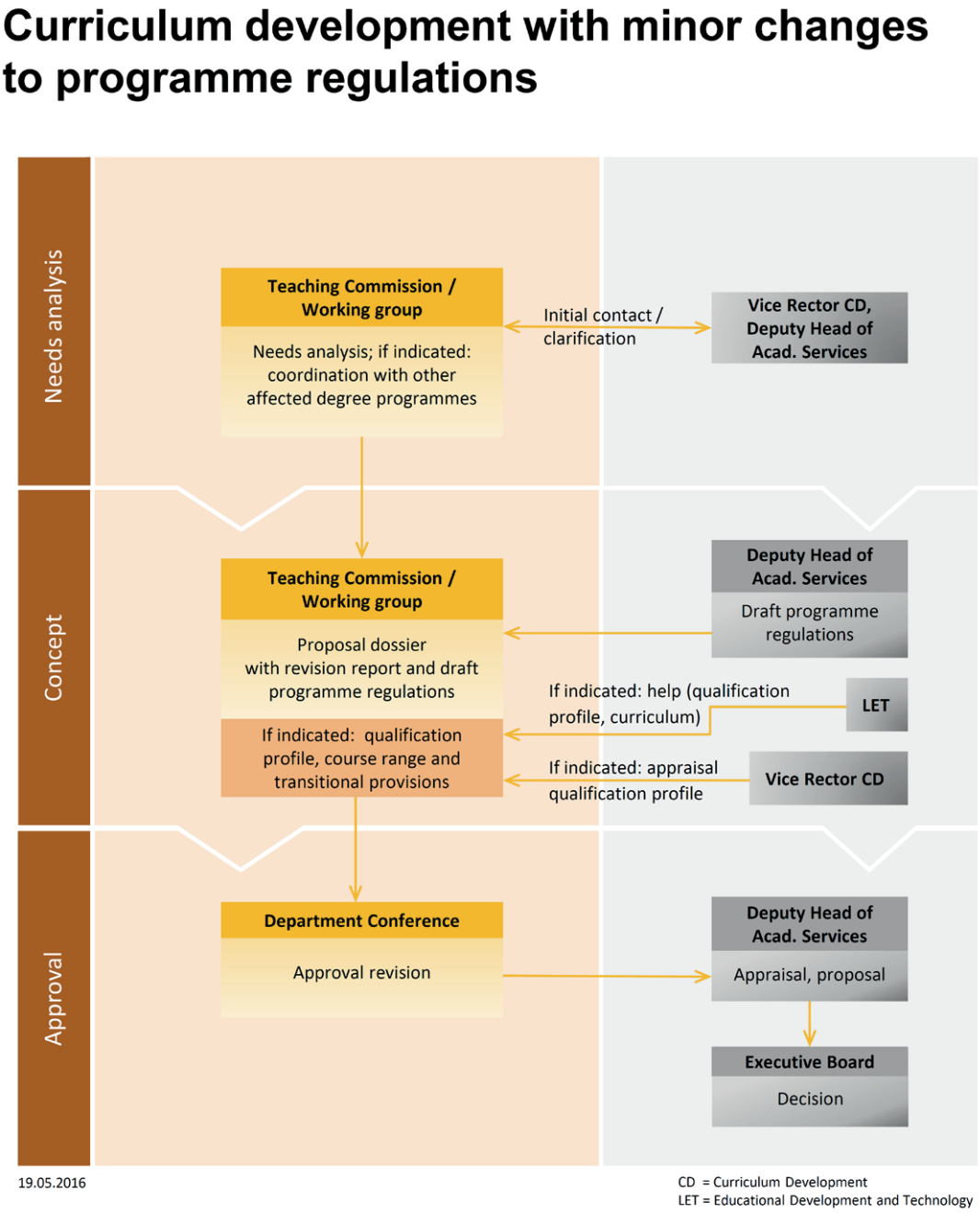

Figure 1.2: Two types of curriculum development process
Curriculum development with minor changes to programme regulations

3.2 Evaluation of curricula

Currently, evaluation of curricula draws primarily on departmental peer evaluation, assessment of individual courses, graduate surveys and data from controlling. However, such evaluations emphasise procedures implemented and academic results rather than the features of a curriculum as a whole. There is no defined process for evaluating revised and new curricula, and no obligation to conduct evaluation. However, some projects have been evaluated using specific methods such as the “rating conference”[12].

[12] https://ethz.ch/de/die-eth-zuerich/lehre/lehrentwicklung/curriculumsentwicklung/evaluation-von-curricula.html (retrieved 1 July 2020)

If curriculum development is to be evidence-based, systematic data collection regarding the progression and effects of projects is urgently required. Here topics of discussion would be which indicators to scrutinise in the context of evidence-based curriculum development (Knight, 2001), and how to foster more commitment in evaluating curriculum development processes.

3.3 Compliance with curriculum development policy

The above-mentioned policies regarding curriculum development[7] are considered binding in meetings with the Vice Rector. In cases where central points have not been adhered to, however, it can be difficult to enforce compliance. Project requirements can be formulated if projects receive funding (through the Innovedum Fund[10]), but otherwise not.

The challenge is how to go about gaining broad support for mandatory curriculum development processes according to established policies regarding curriculum development[7].

4 Potential scope

The issues referred to in Section 3 cannot be overcome via point-by-point intervention, but must consider the interplay of curriculum development structures, processes and cultures. Specifically, structures which support curriculum development processes could be extended and made more attractive by

- making the standards imposed upon funded curriculum development projects[10] contractual and taking them into account in monitoring and the final report;
- addressing strategically important themes such as diversity, digitisation and cross-disciplinary competences;
- offering customised didactic support for faculty of new or revised degree programmes, e.g. in the form of lunchtime events, guidance sessions etc.

Processes can be improved by

- systematically documenting and regularly evaluating project experiences on a digital platform and making this information accessible;
- defining evaluation of curricula as a quality management process, such that it can become a standard which is accepted university-wide;
- amalgamating the evaluation experiences in the degree programmes with those of the central units;
- making a spectrum of evaluation methods available;
- having ETH curriculum development activities evaluated outside ETH.

To develop a culture of cooperation it is essential to include all actors in the above discussion, so that changes may be owned by all. This includes discussion of the curriculum development policies[7] themselves where the inclusion of all stakeholders facilitates wider commitment.

Cooperation will also be deeper if support options and curriculum development findings are highly visible. This can be achieved by

- internal marketing of options, e.g. via a video on the website or articles in university publications with examples of curriculum development projects;
- publication of findings in the form of specialist articles, reports, blogs, conference presentations etc.

5 Conclusions

This article reflects on the curriculum development structures, processes and cultures at ETH Zurich, in the context of the fundamental changes affecting research, teaching and administration at universities today. The ETH Zurich curriculum development team believes its experiences to be relevant not only to curriculum development, but also to other areas of university-wide cooperation. Its main conclusions are:

- Cooperation at the university level is a complex field which cannot be sustainably modified via point-by-point interventions based upon monocausal ideas.
- To institute change processes at universities, especially those which involve teaching, the respective actors must be won over because universities are not constructively steered by hierarchies of command.
- In line with a participative approach, expertise within the university organisation must be aggregated and made useful to all.

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The future is now

What educational developments are already underway which can take us forward into the future?

ICED 2020 proceedings:

Translating lifelong learning policies in Flanders: A case study

Charlotte Cailliau[1]

Department of Educational Affairs
Ghent University
Sint-Pietersnieuwstraat 33
9000 Ghent, Belgium

Abstract

Over the last couple of years lifelong learning has been put forward strongly in policy documents drawn up at global and European level. Despite this attention to the importance of lifelong learning internationally, the participation rate in Flanders is low compared to the European average. This paper explores the actions the Flemish government takes to reinforce lifelong learning and to increase the number of people who engage in it. In a second step it analyzes how Ghent University is responding to the initiatives of the government and how lifelong learning policies are translated into concrete actions. To increase the number of participants, the university will undertake three key actions: (1) make it easier for professors to organize lifelong learning initiatives; (2) design the lifelong learning initiatives as flexibly as possible, starting from the educational needs of the target audience; and (3) discuss and co-create the content of the associated training with external stakeholders such as alumni and industry professionals.

1 Introduction

The fourth Sustainable Development Goal of the United Nations is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations General Assembly, 2015, 14). Lifelong learning is considered an important way to stay ahead in a technologically fast changing society, and to strive for social inclusion through access to employment (Valiente, Capsada-Munsech, de Otero, 2020). This is also taken up at the European level in various policy documents, general projects and initiatives (Rambla & Millana, 2020).

In Flanders[2] the proportion of 25 to 64 year olds participating in lifelong learning is currently 8.7%, which is far below the European average of 11%. In Europe the top performers are the Nordic countries and neighbouring countries such as the Netherlands, France and Luxembourg, with a participation rate of about 18% (*De lerende samenleving*, 2020, 1). It is noteworthy that in the participation rate in Flanders no evolution can be detected; the rate has been stable at 7-9% since 2000 (*De lerende samenleving*, 2020, 1).

In 2017 the Flemish government presented its long-term strategy for 2050, and this strategy included plans for the reinforcement of lifelong learning (*Visie 2050*, 2016). The strategy was repeated and emphasized in the coalition agreement of the Flemish government, approved in 2019. In the agreement it is stipulated that a switch towards a culture of learning is necessary.

[1] Charlotte.Cailliau@ugent.be

[2] In this paper I do not take into account the Belgian point of view, since education is a competence of the regions. In Belgium there are three regions: the Flemish community, the French-speaking community and the German-speaking community. Since Ghent University is a university in Flanders, the situation in the Flemish community is considered.

"The transition to an open, flexible and mobile talent market requires the shift to lifelong learning, to a real learning culture of education, re-education and further education throughout the career" (*Regeerakkoord*, 2019, 58). To achieve this goal the government will take steps to encourage lifelong learning in society, such as the development of a platform to improve synergies and cooperation between the policy domains work, education and economics (*Regeerakkoord*, 2019, 22). Next to that, an expertise centre for the innovative learning paths lifelong learning and dual learning will be founded (*Regeerakkoord,* 2019, 60).

2 Ghent University: a case study

If governments issue policy orientations it is up to the parties involved to translate these into concrete initiatives and actions (Valiente, Capsada-Munsech, de Otero, 2020). Ghent University, as one of the five universities in Flanders, has responded to the call of the government and has recently approved a strategic plan with concrete policy proposals and priorities for the next couple of years with regard to the reinforcement of lifelong learning. In this paper three key actions of this plan are discussed.

These actions are focused mainly on the reduction of so-called institutional barriers, as defined in research on participation to lifelong learning. "Institutional barriers are commonly understood as being created by workplace factors or by policy in general, such as lack of relevant programmes or that programmes are offered at an inconvenient time/place" (Hovdhaugen & Opheim, 2018, 563). To make an inventory of the institutional barriers, the eleven faculties of Ghent University were questioned. The key actions mentioned below are answers to the concerns raised in the surveys.

Of course, as mentioned by Hovdhaugen & Opheim (2020), other barriers such as lack of motivation and other forms of emotional barriers will also have to be dealt with in order to increase the interest in lifelong learning among individuals. This paper is only a starting point. More comparative research is needed about why there is not a culture of learning in Flanders compared to the countries mentioned earlier.

2.1 Towards a clear framework for lifelong learning promoters

Broadly speaking, professors at Ghent University and other Flemish universities have three main duties: research, education/teaching and service to society. With regard to educational activities, the primary focus is on teaching in the Bachelor's and Master's programmes. Professors are interested in being involved in post-initial education, but only when the framework for this type of education is clear and not time-consuming.

This is why the first action of Ghent University will be to lower the threshold for professors to offer parts of their research and/or education in basic courses as lifelong learning initiatives. For this, templates and straightforward models will be provided. In this way, updates of the latest insights are made available for graduates with only little effort. Participants will have the possibility to follow each module separately, but combinations of modules will also be promoted. By doing so, the university can offer perspective to participants and give them a reason to never stop learning.

2.2 Towards a flexible course offer of lifelong learning initiatives

For the lifelong learning initiatives Ghent University will construct a flexible course offer based on high-quality and blended teaching. On the basis of the goals of the target audience and the learning outcomes of the training courses a well-considered and well-balanced mix of on-campus and online teaching will be suggested. The purpose is so that participants will actively engage with the learning content, individually and in interaction with other participants and the lecturers.

This means that participants will come to campus for activities which have an added value, for instance active lectures, discussions, interaction and building a network. When the lifelong learning initiative is focused on professionals, these on-campus moments will be organized in such a way that they can be combined with work. For the online activities educational technologies such as livestreaming, video conferences and recordings will be used.

In the design of the programme particular attention will also be given to the location of the lifelong learning initiatives. Ghent University will ensure easily accessible locations, well-equipped rooms and welcoming waiting areas.

2.3 Towards a strong network of stakeholders

Ghent University cannot determine alone which courses are useful and respond to the needs of the different target audiences. Dialogue with representatives of industry, society and the public sector is necessary in order to co-create content together. Only under this precondition can lifelong learning be organized in a sustainable manner.

One specific group of stakeholders are alumni from Ghent University. The lifelong learning initiatives will be initially developed for this group. It is the intention of the university to engage alumni more and to keep them informed of the lifelong learning course offer. In the initial study programmes greater emphasis will also be placed on the importance of a culture of learning.

In this respect, the qualification system of lifelong learning initiatives will also be fine-tuned. For professionals, for instance, it is important to have a correct certification system. Ghent University will look into formal and non-formal education and the provision of microcredentials.

3 Conclusions

For lifelong learning the future is now, and for higher education institutions lifelong learning is the future. It is time to translate policy orientations into real and concrete actions. Three key actions which Ghent University will carry out have been discussed in this paper. They can serve as an inspiration for other higher education institutions planning to focus more on lifelong learning.

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ICED 2020 proceedings:

Interdisciplinary learning in industry and community projects

Leela Cejnar[1]

Office of the Deputy Vice Chancellor (Education), The University of Sydney
Sydney 2000, Australia

Melanie J. Hayes[2]

Faculty of Medicine and Health, The University of Sydney
Sydney 2000, Australia

Abstract

The world is increasingly facing complex problems which cannot be solved by one discipline alone (Brassler et al, 2017). University graduates need to develop skills to tackle these challenges, including problem-solving, inventiveness and collaboration. Designing a course which embraces interdisciplinary learning is one way to equip students with the skills they need to overcome challenges they will face in the future. Interdisciplinary learning draws on and synthesises concepts, theories and/or methodologies from different disciplines and gives a more complete, multi-perspective and holistic analysis of a complex problem, in ways that may not be achievable through a single disciplinary lens (Spelt et al, 2009).

In this paper, we share our experiences of working on industry and community projects. As interdisciplinary educators, we developed these units in collaboration with industry partners, to engage students from various disciplinary backgrounds in creating innovative solutions to "real-world" problems such as the future of healthcare, the war on waste, social housing, open data disruption, and climate change. We observed the different ways of thinking students brought with them from their respective disciplines, and how they used their discipline-centric knowledge, varied backgrounds, experiences and abilities to construct "new" interdisciplinary knowledge and work effectively together with their peers (Markauskaite & Goodyear, 2014). We also discuss how, as interdisciplinary educators, we perceive our role to be different in an interdisciplinary context from what we are used to in discipline-focused contexts (Healey, 2005). Based on our own reflections, we apply an interdisciplinary framework that demonstrates how these units prepare students for the changing world of work using interdisicipilinary learning.

1 Introduction

The world is facing a growing number of complex social, political, health, economic, digital and environmental problems, which cannot be solved by a single discipline (Brassler et al, 2017). Acknowledging that university graduates will need to develop the skills to tackle these challenges, higher education institutions have increasingly turned to different pedagogical and experiential learning approaches (National Academy of Sciences, National Academy of Engineering, & Institute of Medicine, 2005) that include synthesising disciplinary skills to

[1] leela.cejnar@sydney.edu.au
[2] melanie.hayes@sydney.edu.au

enable students to develop competencies for 21st century "work-readiness". The most prominent skills have been identified as inventiveness, critical thinking, problem-solving, metacognition, communication, collaboration, information/digital literacies and social responsibility (Binkley et al, 2012).

One approach adopted has involved including "mixed" discipline learning in curriculum design, through the adoption of multidisciplinary, cross-disciplinary, or interdisciplinary approaches to learning. Although these terms have been used interchangeably, there are key differences between the different approaches (Klein, 2017; Kidron & Kali, 2015) which warrant brief explanation. Multidisciplinary learning involves combining disciplinary perspectives but without integration (Klein, 2017), so the identity of each discipline and its knowledge structures are preserved. Cross-disciplinary learning focuses on an issue that is germane to one discipline through the eyes of another discipline (Klein, 2010). Interdisciplinary learning, however, entails some kind of "integration" (Holbrook, 2013), through the transfer and sharing of knowledge across disciplinary boundaries (Kidron & Kali, 2015; Boix-Mansilla, 2017).

2 Industry and community projects

This paper focuses on how industry and community projects create interdisciplinary learning opportunities in an undergraduate unit of study. This unit involves the co-development (by academics, students and industry/community partners) of projects based on authentic, complex problems. These projects have focused on real-world issues such as the future of healthcare, the war on waste, disruptive technologies, and social housing. Enrolment is open to students from all disciplines, and students may preference their interest in specific complex problems. Students are allocated to groups which are created to ensure diversity of thought through consideration of their discipline and identified skills. In addition to groupwork, students also attend "all of class" sessions where they learn how to build successful groups; identify and work with different ways of thinking; unpack complex problems using systems thinking and design thinking; and (as they would in the real world) manage their projects.

Assessments in this unit are aligned to authentic workplace outputs including a project plan, presentation and report. The plan is pitched to the industry partner in the early stages of the project and is followed by regular touchpoints. In the final stages of the project, student groups formally present their findings and recommendations to the partner and provide a written report that explains their project objectives, approach, methods, findings, analysis and recommendations for future work. The assessments also require students to reflect and explain how they have drawn on and used relevant concepts, theories and/or methodologies from their different disciplines to co-develop a holistic analysis of the problem, in ways that would not have been achievable through a single disciplinary lens (Spelt et al, 2009).

3 Framework for interdisciplinary teaching and learning

We have chosen to draw on Burch et al's (2016) Lotus conceptual framework (pp. 241-242) to explain how industry and community projects can develop and create interdisciplinary learning through multiple layers of learning: the foundations, catalysts, drivers and pillars of practice. Setting the foundation, learning objectives focus on the attributes that all graduates are encouraged to develop during the course of their studies: communication; critical thinking; information/digital literacy; cultural competence; interdisciplinary effectiveness; and influence. These learning outcomes set this unit apart from discipline-focused units which often focus on the development of content knowledge. The catalyst for students' interdisciplinary learning is the experiential and collaborative model, whereby students come together in interdisciplinary teams to battle the uncertainties of complex problems in partnership with industry. This collaboration drives their interdisciplinary learning by empowering and challenging them to think differently and to recognise and respect the ideas of others. Interdisciplinary learning is promoted as student groups are actively engaged in applying knowledge, rather than acquiring or memorising content (Manathunga, Lant, & Mellick, 2006). Finally, the learning activities and

assessment items (as described earlier) refer back to the learning outcomes and foster critical pillars of practice, offering students the opportunity to have agency in their learning, engage in meaningful reflection and co-create new knowledge. All layers of the framework are facilitated by educators and integrated across the unit to create an environment where interdisciplinary learning can grow and thrive, much like the Lotus flower.

4 Role of interdisciplinary educators

An important aspect of this interdisciplinary learning approach is the role of the interdisciplinary educator. Unlike in traditional academic roles, disciplinary content expertise is not required; in these units, the educator's role is to facilitate the inquiry, research and problem-solving process. Collaboration is essential between the educator and the industry partner, whose role is to act as a mentor by offering feedback and direction throughout the process. The partner provides the context to the complex problem, while the educator fulfils the role of a project supervisor by supporting and guiding learning to enable the integration of disciplinary knowledge, methodologies, tools and language, facilitating the co-creation of new interdisciplinary knowledge across disciplinary boundaries (Kidron & Kali, 2015; Boix-Mansilla, 2017).

Supervising industry and community projects that are outside our areas of disciplinary expertise can be uncomfortable, but serves an important purpose. Firstly, it normalises the discomfort for students, who also cannot rely solely on their disciplinary expertise. This shared discomfort, combined with team-building activities, creates a safe space for learning. It also helps the supervisor facilitate interdisciplinary discussions by challenging ideas and assumptions and encouraging students to share the reasoning behind their thoughts. We observed how students brought their disciplinary perspectives, experiences and abilities together to construct interdisciplinary project methods and solutions. For example, in a project focused on the future of health, students drew on their disciplinary backgrounds to investigate unintentional medication non-adherence among independent, older adults. The group comprised students from science, business, arts and law, and together they used their diverse backgrounds to design an interdisciplinary strategy for considering the economic, social, legal and technological implications of this problem. They drew on their science and business backgrounds to collect and analyse large data sets and validate assumptions about their problem, and used their expertise in business, arts and law to research the addressable market trends, evaluate the economic and social burdens of the problem, and examine the feasibility of technological-enabled solutions. One student offered a background in machine learning, which enabled the group to examine how artificial intelligence algorithms can provide a real-time reflection and analysis of patients' medication history. Using their collective experiences, all students also contemplated the impact of COVID-19 on the future of healthcare and how it could potentially affect medication adherence. Their recommendations were therefore grounded in an integrated and holistic, interdisciplinary approach that considered both the external, lesser-known impacts of non-adherence and the more obvious economic factors.

5 Conclusions

This paper describes how industry and community projects have been designed to support interdisciplinary learning through the use of real-world, complex problems and collaboration with industry partners. Using the Lotus conceptual framework, it is evident how educators used the drivers, catalysts and pillars of practice within industry and community projects to encourage students to think differently and work effectively with their peers. Our observations confirm that students constructed new interdisciplinary knowledge by integrating their different perspectives, experiences and abilities.

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Lesson study (*jugyou kenkyuu*) as an educational development practice for faculty members at the University of Barcelona

Gabriel Hervas[1]

Department of Teaching and Learning and Educational Organization,
University of Barcelona
Passeig de la Vall d'Hebron 171
08031 Barcelona, Spain

Abstract

Lesson study (LS) is a practice that has received international credit as a useful process for teachers' professional development; nevertheless, it is rarely practiced among higher education faculty members. This article provides a brief analysis of how an academic development initiative using LS and carried out at the University of Barcelona (Spain) was perceived and experienced by its participants and of its potential for their educational development. Data was gathered through observation, reflective journals, video-recordings, and interviews, and was content-analysed. Overall, the initiative provided a valuable learning space to enhance the participants' educational competences. However, its results raised concerns regarding its sustainability and argue in favour of complementing LS with further educational training to increase the participants' pedagogical knowledge and awareness.

1 Introduction

Lesson study (LS) is a practice originating in Japan that since the end of the 1990s (Stigler & Hiebert, 1999) has become well-known internationally and is now present in over 30 countries (Lewis & Lee, 2017). LS has been spread globally by schoolteachers, with only a few examples in higher education (HE) among faculty members (e.g., Dotger, 2011; Lampley et al., 2017). Hence, we still lack enough studies in HE to know its possibilities and potential in HE for academic development (AD) and to compare them to what earlier studies tell us about its impact in other contexts.

This article contributes to reducing the underrepresentation of studies on LS among HE faculty members. The associated study was conducted in 2018 at the University of Barcelona (UB). Data – collected using five different instruments and techniques – was content-analysed using a qualitative approach. This paper aims to provide, in brief, data and results on how an AD initiative using LS was perceived and experienced by its participants, and on its potential for educational development within that context. The data and results address the following goals: (1) describe and analyse LS participants' perceptions and experiences of LS and its adjustments; and (2) analyse what participants' conversations reveal in relation to the learning paths that LS opens for HE faculty members and their approach to teaching and learning.

[1] ghervas@ub.edu,

2 Lesson study

LS is an iterative process in which a group of teachers collaborate to design a research lesson based on a set of student-centred goals; teach and observe that lesson; reflect, discuss and review the lesson and its instruction in order to enhance thinking on a potential reimplementation; and finally, disseminate the lesson and its rationale so that others can learn from it (Akiba et al., 2019; Fujii, 2018).

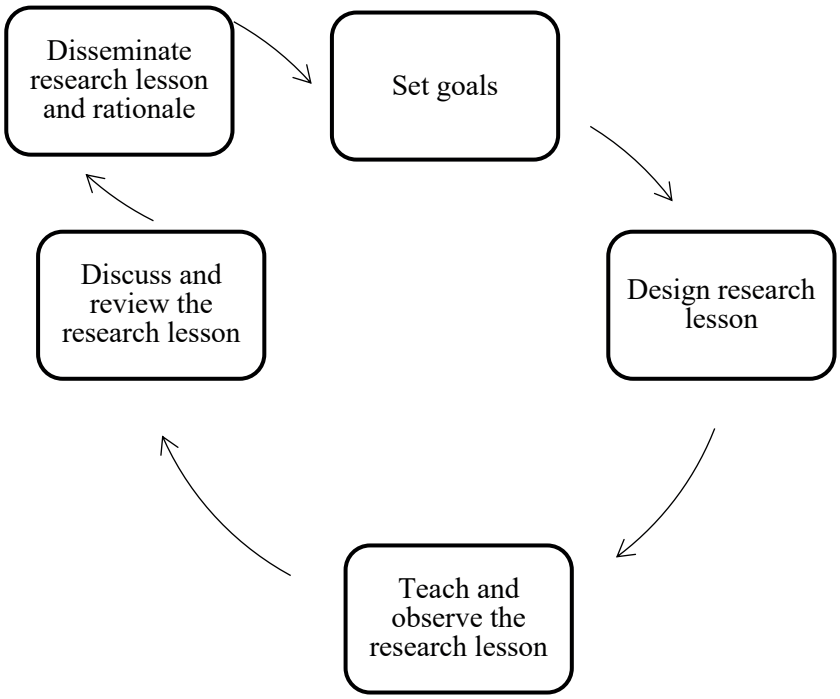

Figure 1: LS cycle.

As mentioned earlier, LS is spread all over the world, mainly due to the positive results that research keeps reporting in relation to its impact on teachers' professional development. Among other findings, previous studies reveal that LS contributes to teachers' active learning (Bocala, 2015); that it is an effective practice for teaching enhancement (Hiebert & Stigler, 2017); that it supports teachers' efficacy (Chong & Kong, 2012); that it promotes the development of teachers pedagogical content knowledge (Coenders & Verhoef, 2019); and, very specially, that it helps to increase teachers' insight into students and their learning (Chassels & Melville, 2009).

3 Methods

3.1 Context and participants

This research took place in 2018 at the UB, within the framework of an AD program based on LS among health professions educators. The participants were 12 faculty members from three different health sciences disciplines: medicine, nursing and podiatry. The participants were accompanied by two facilitators who also played the role of knowledgeable others given their background and expertise both in educational sciences and LS and in health sciences education. The participants formed three interdisciplinary groups, which each conducted an LS cycle.

3.2 Method, data collection and analysis

For this research I carried out a multiple case study, a method that contributes to gathering data robust enough to support the transfer of results to other contexts (Yin, 2009). I took a phenomenological stance to approaching and analysing data, and a sociocultural and sociocognitive perspective (van Dijk, 2014), especially when analysing participants' professional conversations.

To ensure the consistency of the findings, I used and triangulated different data collection strategies – participant observation, audio- and video-recordings, pre- and post- semi-structured qualitative interviews, reflective journals, and document analysis – and gathered data until analysis reached saturation (Glaser & Strauss, 1965).

The data was then content-analysed (Hsieh & Shannon, 2005) inductively and microanalytically, following various theoretical comparison techniques arising from the analytical principles of grounded theory (Strauss & Corbin, 2015). This helped to increase the sensitivity and validity of the findings.

4 Findings

In relation to the first goal, which was to describe and analyse LS participants' perceptions and experiences of LS and its adjustments to the context of the UB, the data showed that the practice of LS as an AD initiative and as carried out at the UB

- improved the participants' ability to review their in-class discourses;
- allowed them to address more teaching situations with more accuracy and in more detail;
- contributed to a gain of perspective in relation to the lessons;
- enhanced the organization of participants' ideas and of their lessons;
- helped the participants to engage in greater reflection in relation to teaching and learning;
- improved the participants' chances of offering opinions when discussing;
- was considered highly time-consuming;
- required participants and students to firstly get used to being video-recorded.

In relation to the second goal, which was to analyse what participants' conversations revealed in relation to the learning paths that LS opens for HE faculty members and their approach to teaching and learning, the data showed that

- participants' learning and discussions were more focused on their lessons (design process, structure, materials, etc.) than on their instruction or their students' learning;
- participants learned during LS through descriptive learning processes rather than through interpretative ones;
- participants' learning and discussions had room to become more student-centred;
- LS makes it possible to evince different conflicting and contradictory pedagogical notions among the participants;
- participants' discussions during LS showed that participants had a narrow view of their role as teachers.

5 Discussion and conclusions

The results show that the participants noted and experienced the potential of LS for stimulating reflection and improving their lessons; through LS, participants gained perspective on their lessons and their own knowledge and could see and analyse their own pedagogical viewpoints. In this manner, LS – as implemented at the UB – worked as a practice that, as in other strategies analysed in Borko et al. (2008), increased participants' educational awareness and became a collaborative space for going beyond individual knowledge.

LS also helped to scaffold teachers' designs and reflections on their lessons, and showed potential for their educational development: as suggested by Dudley (2013), by making explicit what was implicit, LS offered the participants greater chances to analyse their own pedagogical content knowledge. In this sense, participants shared and problematized their knowledge and their work, which in turn helped them to make informed decisions and influenced their approach to teaching.

The findings also demonstrate that the participants granted more importance to the product they designed (the lesson) than to how it was taught, and – more importantly – than to their students and their learning. Their approach reflected their commitment to gaining clarity on what they cooperated to create, but their descriptive approach, as also found by Chassels and Melville (2009), reflected their lack of habit commenting and discussing educational actions. In this sense, even if descriptive talks can contribute to learning (Vrikki et al., 2017), the quality of reflection has an impact on learning (Loughran, 2010); hence, if talks are too superficial, as seen in Kvam (2018), learning might not happen.

It was evident that participants' discussions and learning had room to become more student-centred. This result differs from what the literature states in relation to the goal of LS (Fernández & Zilliox, 2011; Lewis et al., 2012) and from what most previous studies suggest (i.e., Suzuki, 2012; Lee Bae et al., 2016), and shows that participants struggled to shift their attention towards their students – and how important facilitators and knowledgeable others were when they noticed (Amador & Carter, 2016). Given this, if we assume that the goal of LS is to enhance student learning, the results suggest that this AD did not make full use of LS potential.

The results also revealed conflicting pedagogical notions in the participants' discourse. They recognized it as part of their role to go beyond theory and to bring their professional experience (as health professionals) to their lessons, but they did not engage their students in critical reflection as Benbassat (2014) suggests for a student-centred approach. Also, they demanded that their students take a more active role in class, but they also argued in favour of lectures in which students listen to experts.

Finally, consistent with earlier results in HE (Dotger, 2011; Demir et al., 2012), the data shows that the main drawbacks of conducting LS as an AD initiative involve logistical issues and how time consuming it is.

Hopefully these brief findings will shed light on the learning opportunities presented by LS as an AD practice and be of assistance to faculty developers seeking to implement it or similar practices.

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Nudging self-regulation as a means of study assistance and educational development

Maren Lübcke[1], Funda Seyfeli[2], Klaus Wannemacher[3]

HIS-Institut für Hochschulentwicklung e. V. (HIS-HE), Hanover
Goseriede 13A
30159 Hanover, Germany

Rüdiger Rhein[4]

Gottfried Wilhelm Leibniz Universität (LUH), Hanover
Welfengarten 1
30167 Hanover, Germany

Abstract

The growing need to support students in defining and pursuing individual educational goals is reflected in the data-based student assistance system SIDDATA. For its development and evaluation, 36 semi-structured interviews with students at three German universities focusing on the subject of self-regulated learning were carried out. The paper presents the results of the interviews and their impact on SIDDATA. In particular, the interview results show the different dimensions and requirements of self-regulated learning, by which means the study assistant can nudge and encourage students' ability towards self-regulated learning and the contribution such a tool can make to future educational development at universities.

1 Introduction

The research project "Study individualization through digital, data-based assistants" (SIDDATA), funded by the Federal Ministry of Education and Research (Germany), has the overall goal of supporting students in defining and pursuing individual educational goals. This objective is of particular relevance because the shift to the Bachelor/Master system in Germany due to the Bologna reforms has often led to criticism of school-style university learning approaches with reduced degrees of freedom and individual choice.

This aspect of the individualization of learning is mainly discussed under the concept of self-regulated learning (SRL). Zimmermann defines SRL as follows:

> *Self-regulated learning theories of academic achievement are distinctive from other accounts of learning and instruction by their emphasis (a) on how students select, organize, or create advantageous learning environments for themselves and (b) on how they plan and control the form and amount of their own instruction. (Zimmerman 1990, p. 13 f)*

In this definition of SRL the cognitive psychological background of the theory is clearly evident. SRL implies a regulatory understanding where students bring their inner and outer states into

[1] luebcke@his-he.de, +49 511 16992919
[2] seyfeli@his-he.de, +49 511 16992929
[3] wannemacher@his-he.de, +49 511 16992923
[4] rhein@zqs.uni-hannover.de, +49 511 762 5793

congruence with each other in order to achieve their own learning goals individually and effectively. An extension of this understanding, however, is achieved if students exercise and understand "agency". This concept of agency – which is then integrated into the SRL concept as an extension – also describes a central competence of students in the future world.

> *Future-ready students need to exercise agency, in their own education and throughout life. Agency implies a sense of responsibility to participate in the world and, in so doing, to influence people, events and circumstances for the better. Agency requires the ability to frame a guiding purpose and identify actions to achieve a goal. (OECD, p. 4)*

The question arises as to how SRL can be supported in a data-based manner and thus contribute to the individualization of studies. In order to ascertain requirements for the development of the SIDDATA application, in-depth interviews were conducted with students which provided interesting insights into the students' view of self-regulated learning. In the following, the results of these interviews are presented and the implications for the development of the SIDDATA assistant are discussed.

2 Methodology

The interdisciplinary project "SIDDATA" involves the Universities of Osnabrück, Hanover and Bremen. Within the 36 semi-structured interviews, students from all three universities were interviewed. The interviews were conducted in German in a semi-structured manner. The quotations were translated into English[5]. The aim was to investigate the motivation to study, the students' situation and expectations of a digital student assistant. The interview material was transcribed and prepared for analysis with MAXQDA.

3 Results and discussion

3.1 Four dimensions of self-regulation in studies

The analysis initially focused on the conceptual dimensions of SRL and presents inductively created categories (see Table 1). In addition, the challenges students face in this context, and also the extent to which the assistant can currently support students with regard to self-regulation were analyzed.

Interest and Motivation	Self-management & Organization of Learning
Organization of Study	Freedom & Compulsion

Table 1: Inductively developed categories of self-regulation.

In the category *Interest and Motivation*, the interest in studying was the main focus. The students report that they feel more responsible and are more engaged in their own learning process if they are allowed to choose the topics of their studies themselves. This results in a reinforced motivation to study. The following quote from a student interview sums up the respective category:

[5] Note: We used the German term "*eigenaktives Studieren*" within the interviews, which means literally "self-active studying".

> *Well, so motivation is definitely a big point. Or just that you're interested in what you're studying. That you then simply sit down actively to learn, to choose your internship. To organize yourself (…). So it's important that you have that interest (…).*

The aspect of actively deciding to learn is also subject of the next category. In most of the interviews, terms such as self-discipline, time management and general activities related to learning were mentioned in connection with self-activity and its challenges. Consequently, the category *Self-management & Organization of Learning* was created and is well illustrated by the following quotation:

> *That at a certain time you get a grip on yourself and do your tasks. So that you look at it from your own judgment: Okay. I would have to do that. Then I'll simply do it. That means that you set yourself a schedule or make a list in your head: I have to do this and that.*

The quote illustrates aspects of one's own responsibilities with regard to studies as well, and is ultimately part of the category *Organization of Study,* which is represented by the following quotation:

> *Well, I would perhaps also simply relate that to the fact that you look at things in a self-responsible way again, how am I studying right now? How many modules have I taken now anyway? And do I go to the lectures or do I NOT go to the lectures. For me, that is such an activity in my studies. And that you can decide for yourself.*

The above mentioned aspect of being able to decide for oneself is a good transition to the last category *Freedom & Compulsion* in which the idea of freedom is expressed:

> *(…) at school (…) you are taught how to do this: The teacher says what has to be done and then it's done. And this happens within a self-active study approach, when it aims even more at personal responsibility, of course much less. And if people have never learned what it means to pursue one's own interests, to engage themselves, then it will be difficult in any case. Yes.*

The idea of compulsion is expressed in this quotation to the effect that the freedom to choose freely is the basis for one's own motivation. It is closely associated with the compulsion to adhere to the guidelines in order to succeed in university structures.

3.2 Implication for SIDDATA

With a view to SIDDATA's overall objectives of supporting students in defining and pursuing individual educational goals and individualizing learning, the following four central lines of development result from these four categories.

- Dimension "Interest": A recommender module which selects literature, classes and events according to the specified professional interests is developed and designed. At the same time, this module should also contain a developmental aspect that supports the development of professional interests, especially at the beginning of the course or in the transition of the study phases.
- Dimension "Self-learning organization": There will be a recommender module that helps the student to organize his or her learning process, e.g. in terms of time and task planning. This can be based on cognitive science indicators such as attention measurements to support the student in self-reflecting on his or her own learning process.

- Dimension “Study Design”: This module refers to the overall study design by showing support for the planning of the course of study and, for example, giving advice on how to bring one’s own professional interests into line with the curriculum.
- Dimension “Freedom”: The development of a corresponding module is probably the greatest challenge for SIDDATA. The respective goal is to show the students degrees of freedom, to give them room to shape their studies and to enable them to provide “agency” (see above).

4 Conclusion

The findings of this study have shown on the one hand that students understand SRL as a whole range of aspects which are also represented in the scientific discussion on SRL. This includes aspects of both metacognition and agency. On the other hand, the study also shows that the approach to developing an assistance system for SRL should be broadly based. The different aspects of SRL revealed by the interviews show that it may be considered promising to use nudging approaches to let students find their own paths in studies. Higher education institutions must therefore adapt to the different forms of SRL. Clearly, a need for a broader perspective on various aspects of being or becoming a student arises, including the organization of study, the development of professional and individual interests and an “agency” competence.

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