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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:

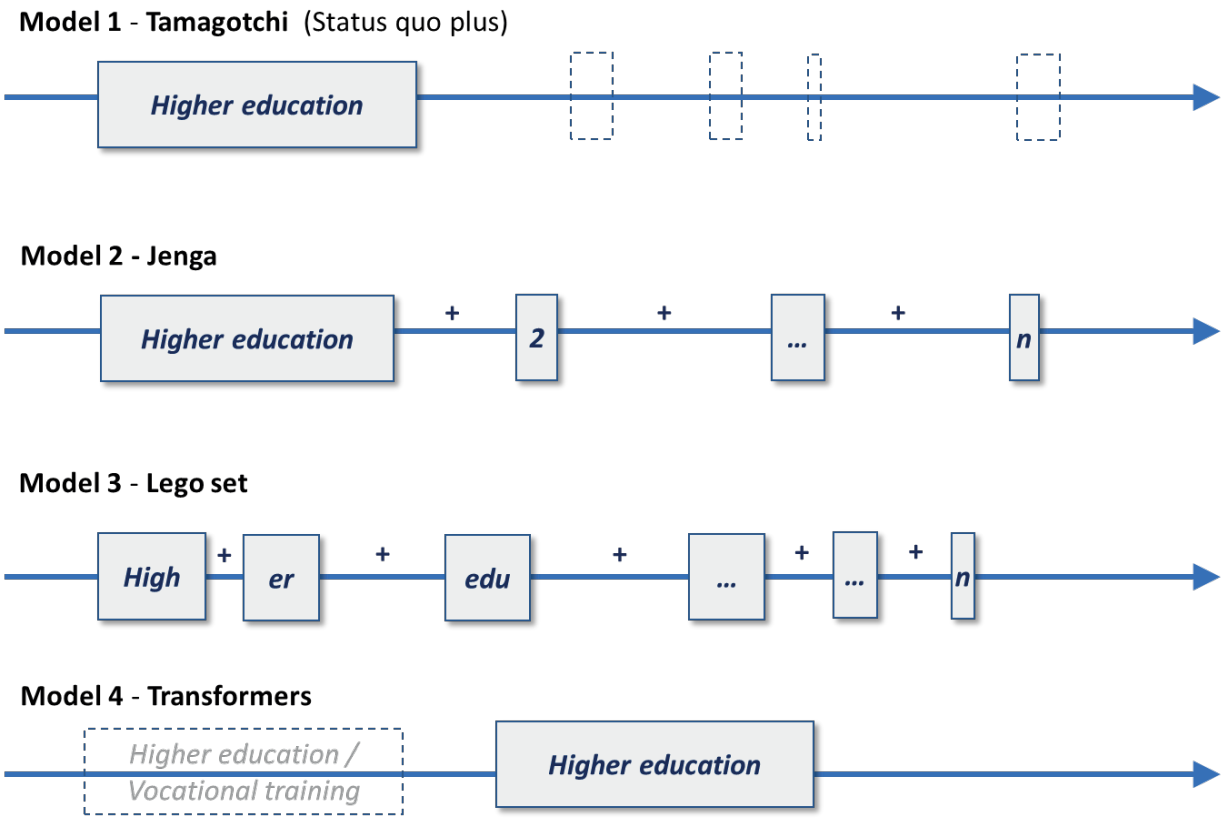

Figure 1: Learning pathways in 2030 (Orr et al. 2020, p. 26)

- "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".

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