Expert knowledge and the unexpected: facilitating architecture students' design decision-making with expert interviews

Caroline Ting[1]

Department of Architecture, ETH Zurich
8093 Zurich, Switzerland

Abstract

This paper investigates architecture students' expectations of outcome and design relevance of findings from preparing and applying semi-structured expert interviews in order to facilitate individual design decision-making processes. To do so a closer investigation of a specifically devised and implemented teaching project with learning objectives and classroom assessment techniques (CATs) will be discussed. The evaluation of the teaching project shows that the CATs prove to be appropriate options to assess student learning in terms of the significant issue. Feasibility of expectation is expected to be relevant in order to learn and apply a new method in an appropriate and useful way. In this teaching project assessment shows that due to unfamiliarity with the proposed method students' expectations of outcome are quite wide-ranging but mostly feasible. Overall, students' expectations of interview findings could be grouped in two categories; ‹expert knowledge and facts› and ‹the unexpected and inspiration›. Most students stated that they found the interviews' outcome to be somewhat to very helpful regarding their individual design processes while initial expectations were also diverse.

1 Introduction

The architectural design process is characterized by a high complexity of design decision-making processes. During the design process various strategies and methods have to be applied in order to proceed. Their appropriateness and suitability vary depending on the problem that needs to be predominantly elaborated on in a given situation. Choice and application of suitable methods are therefore crucial skills that architecture students have to acquire and practice in design studios (Cross 2011, Kuhn 2001). Every design process is a unique process that is not predictable beforehand, revolving around something that does not yet exist – which is why designing could be compared to an «intense search» (Ammon 2013).

In their concluding master's design thesis students at the Department of Architecture (D-ARCH) of ETH Zürich are requested to devise a design proposal with a given design task to start off with. In the ancillary subject ‹Begleitfach Soziologie› architecture master's degree students are prompted to work with semi-structured expert interviews as one of multiple proposed qualitative methods that stem from empirical social research. One characteristic of this approach is that while potentially beneficial this method is relatively sparsely, if at all, known and previously applied by the students.

This paper investigates architecture students' expectations of outcome and design relevance of findings from preparing and applying semi-structured expert interviews in order to facilitate individual design decision-making processes. To do so a closer investigation of a specifically devised and implemented teaching project with learning objectives and classroom assessment techniques (CATs) will be discussed.

[1] ting@arch.ethz.ch

1.1 Overall premise

The Chair of Sociology at D-ARCH accompanies both bachelor's and master's degree programs in architecture with a variety of different courses. The goal of the ancillary subject ‹Begleitfach Soziologie› «[…] is to set the architectural or urban planning project in relation with the social environment and to further enhance the design approaches in accordance to the priorities of tasks to social aspects. For each master thesis one specific assignment concerning sociological topics is given.» (www.soziologie.arch.ethz.ch 2019).

The premise of the ‹Begleitfach Soziologie› with the application of a proposed set of methods is based on the proposition that specific urban qualities are highly contextual and time-bound and therefore only investigatable at the concrete site (Kretz & Küng 2016). Analysis and comparison of the actual site-specific urban qualities are one of the first steps to develop objectives for a design concept. Field research is therefore done on the actual site of the design task. In most cases students are prompted to apply these methods without or with only little specific prior knowledge or experience. One challenge then emerges especially with the proposition of semi-structured expert interviews, where preparation, application und analysis have to be accomplished in a highly self-reliant and focused way to be helpful for different design decision-making processes (for more insight into transdisciplinary practices in architecture: Flach & Kurath 2016, Ammon & Froschauer 2013).

Considering the objectives of the ‹Begleitfach Soziologie› one significant issue (Hutchings 2000) arises: By applying the proposed method – what outcome and design relevance do students expect from applying semi-structured expert interviews? This is important for a few reasons: assessing this issue helps teachers to review each students' starting point and prior knowledge to ensure appropriate teaching of the method. It also opens up a possibility to clarify which overall outcome is feasible and expectable by discussing students' expectations. At later stages it is helpful to reflect on the individual research process and align actual outcome with one's initial expectations to support student's learning process. The hypothesis is that when there is little to no experience with the application of different methods students' expectations should be feasible in order to learn and apply them in an appropriate and useful way, especially if students have to work in a self-reliant way.

1.2 Setting and approach

The final semester to attain the master's degree at D-ARCH of ETH Zürich differs from prior design studios in that the design project has to be finished within a timeframe of only ten weeks as well as also having to be finished as an individual design project.

Every student chooses one out of three topics that are designed by chairs of the department, each topic with a set design task in the fields of constructive design, architectural or urban design (www.arch.ethz.ch 2019). Besides three provided topics students can also choose to prepare a self-defined topic which has however to be done well in advance and is not accompanied by regular ancillary subjects.

The ancillary subject ‹Begleitfach Soziologie› is one of several ancillary courses that can be chosen by each master's degree student to accompany the design process and proposal. Each student has to choose two ancillary subjects. With the offer of three topics, around twenty design chairs to choose from and a varying number of selectable ancillary subjects a multitudinous number of potential combinations are possible.
To construct a competent course for all these possible cases a teaching project was devised for the ‹Begleitfach Soziologie› which is an ancillary subject. The teaching project was implemented in two consecutive semesters, spring semester and fall semester of 2018.

As an ancillary subject the ‹Begleitfach Soziologie› was associated to one topic in the spring semester and two topics in the fall semester. The actual number of participants was quite disparate with three participants (spring semester) and four respectively thirteen students per topic (fall semester). This shows that the preparation of the teaching project had to be somewhat flexible since it was not known how many students would choose the subject until they enrolled after the introductory event in the first week. While devising the teaching project it was assumed that for each accompanied design topic three to twenty-five students might enroll. With the rather short timeframe of ten weeks for the students to finish their design projects the teaching project was targeted to finish the empirical work within the first four weeks.

2 Teaching concept

Overall teaching goals of the course comprise learning and applying qualitative methods in order to process findings that facilitate one's design decision-making processes while designing a comprehensible and appropriate design proposal. However, in order to design a teaching project these goals are broken down into smaller aspects and then transferred into three learning objectives. Learning objectives comprise specific competences that should be learned within a teaching class. The teaching project implements three CATs throughout the semester which help to plan and structure the course. They take place during the course to find out about student's learning processes and also to assess if the learning objectives were met (ETH Zürich, LET 2017).

In a typical semester the course starts as follows: in the introductory course of the ancillary subject students are presented with the program of the course as well as the recommended methods to progress in research and to facilitate their design processes. It is not uncommon that some of the participating students have not even heard of any of the proposed methods while others have already worked with some or all of them in a preceding semester. Especially regarding semi-structured expert interviews students' knowledge and experience differs very widely with most students not being familiar with this method at all. As implied before the significant issue of the teaching project is the assessment of students' expectations of outcome and design relevance of findings. Since one of the main tasks of the course is to prepare and conduct a semi-structured expert interview the learning objectives are directly related to this task. They refer to two stages in the semester: before and after conducting the interview.

2.1 Learning objectives and CATs used in class

Learning Objective 1 (before conducting the interview):
Students are able to describe and differentiate their individual starting point and prior knowledge regarding the proposed method semi-structured expert interview

CAT 1:
During the introductory course of the ancillary subject one question regarding the anticipation of semi-structured interviews' outcome was proposed to students (CAT: ‹Minute Paper› with individual response via e-mail).

Learning Objective 2 (before conducting the interview):
Students are able to discuss feasible and expectable outcome of semi-structured expert interviews.

CAT 2:
Responses from CAT 1 were analyzed and categorized in terms of students' background knowledge and expectations as well as anticipation of possible findings concerning design relevance. This analysis was then discussed with the students in a meeting that took place

shortly after the introductory course (CAT: ‹Background Knowledge Probe› via discussion in classroom).

Learning Objective 3 (after conducting the interview):
Students are able to assess and reflect their findings concerning relevance for their design process as well as their initial expectations.

CAT 3:
After the interviews were conducted the discussion was then referred back to the introductory question of CAT 1. Students were invited to reflect on their initial responses as well as outcome, relevance to their design process and the actual research process (CAT: ‹Process Analysis› in individual discussion).

2.2 Description of CATs and classroom implementation

Description of CAT 1
To assess students' anticipation of semi-structured interviews' outcomes the first CAT took place immediately after the introductory course of the ancillary subject, which was scheduled in the first week of the semester. The goal was to find out individual expectations as well as existing knowledge and relevant skills of the participants. Constituting the last method of a set semi-structured expert interviews were introduced only briefly in the first meeting but announced to be further explained in the next meeting. The format of the CAT ‹minute-paper› was chosen to, on the one hand collect students' answers for further investigation but also to not restrict students' approaches of answering the question due to worrying about giving a wrong or invalid answer in a setting of an open discussion in the classroom. Regarding the preparation of the next lecture by the teacher the outcome of this CAT was used to refine the content and points of discussion.

One Question («Was verspreche ich mir davon, ein Experteninterview zu führen?» [translation: «What do I expect from conducting an expert interview?»]) was proposed during the introductory course and subsequently sent to all participants via e-mail. Participants were requested to reply with a short answer (one to two sentences) also via e-mail addressed to the teacher until the next day. It was specifically explained that the answer to this question was not about being knowledgeable but about the individual response to assess baselines and topics for further progression of the course.

Description of CAT 2
Students' responses to the question were then investigated by the teacher regarding expectations of possible outcomes of the application of semi-structured expert interviews as well as existing individual familiarity with the method.

The second meeting aimed at teaching the necessary knowledge to enable students to proceed with the application of the method in order to generate findings that are helpful for the argument of their design concept. To make sure that crucial points were discussed the second CAT took place in the classroom. The CAT ‹background knowledge probe› was utilized to find out whether students' expectations of outcomes coincided with actual expectable outcomes. Participants were therefore presented with a general roundup and analysis of their replies, proceeding to consolidate the most frequent stated topics and employing a discussion in the classroom. The discussion was led by the teacher to make sure that decisive points were reviewed and that crucial questions were answered to eliminate inhibitory uncertainty in capacity of acting and application.

After the discussion it was announced that at a later stage of the semester the discussed points as well as the individual answers to the initially stated question would be taken up again in an individual discussion (via CAT 3).

Description of CAT 3
After all interviews were conducted by participants the third CAT was implemented. This was around week five to seven. In an individual discussion every student was invited to refer back to the introductory question about their expectations. Each dialogue was aimed at

1. finding out if expectations regarding the method's performance were or weren't met
2. giving feedback regarding the appraisal of the outcome and relevance for the design project.
3. discussing how the process of preparation and application of the method proceeded and how it was perceived by the student. This last aspect was also followed by a general estimation of a feeling of accomplishment or success.

3 Analysis of student learning

For the analysis and review of student learning the CATs showed to be especially helpful. The significant issue was addressed by reviewing students' statements and reflection regarding semi-structured expert interviews. Are students' expectations of findings from conducting interviews feasible? How do students perceive potential design relevance of interview findings?

3.1.1 Evaluation of CAT 1

In both semesters almost all students replied as requested within the given timeframe. Very few answers arrived slightly belated. Only very few students had conducted an expert interview at some time before. Most had no experience at all regarding any expert interview techniques. It was therefore easily possible to subsume a baseline of overall prior knowledge and experience. Analysis of the ‹minute-papers› was convenient and efficiently summarized students' expectations of outcome and design relevance. Since the responses were rather mixed it was helpful to find categories to organize replies as well as to structure succeeding arguments. Overall this CAT proved to be suitable for the preparation of the next meeting aiming at a discussion to support development of feasible expectations.

3.1.2 Evaluation of CAT 2

Findings that emerged from CAT 1 were incorporated into the discussion of CAT 2. In preparation of the next meeting the teacher categorized students' responses in terms of expectations and introduced the following topics; varying types of facts and findings that are learned from expert interviews, feasibility of individual interview intentions, possible design relevance. Along these topics and under the guidance of the teacher students shared questions and expectations. Although these were somewhat wide-ranging students were able to discuss and comprehend a more general understanding of feasible and expectable outcome.

The open discussion proved to be a good format, in the smaller classrooms even more so than in the larger one. This might be attributed to the fact that the discussions with only a few students quickly concentrated on specific issues that arose and on topics that were most likely of interest for all students. In addition to explanations of the proposed method by the teacher this was also helpful in terms of methodological issues and questions that students had voiced in the meeting before. During the second meeting students overall mostly expressed the feeling of sufficient readiness to prepare and conduct an expert interview by themselves. Motivation was stated to be quite high but also associated with a slight feeling of nervousness due to never having applied the method before.

3.1.3 Evaluation of CAT 3

All individual dialogues addressed three topics that were specified earlier in the teaching project. Depending on participants' requirements topics were discussed to varying degrees. This proved to be helpful in respect of being able to react to scheduled meetings' timeframes. The aforementioned topics showed to be of relevance for all students.

1. Students' expectations of outcome
While almost all students expressed that their expectations were mostly met the overall picture was somewhat diverse which showed that not all students had fully feasible expectations of interview findings. Beginning with a rather wide spectrum of expectations for possible outcome this was an aspect that could indeed be narrowed down but not completely be resolved by the teacher's explanations and classroom discussion alone (see also CAT 2). For few it was not until completion of the actual interview to realize that their initial expectations were not feasible.

2. Appraisal and design relevance
Overall almost all said that they found the outcome to be somewhat to very helpful with regards to the development of a specific design proposal. Depending on the analysis and evaluation of other own findings and issues the outcome of the interview and its influence on the design concept varied greatly from student to student. For some the interviews' conclusions surpassed their expectations while others felt a bit underwhelmed by a lack of applicable findings and interpretations. Quite a few attested the evaluation of the interview a possibility to gain new insights that proved to be beneficial for the design proposal. A few students expressed a slight disappointment about the outcome of the interviews since it was not easy for them to realize the facilitation of their design proposal. Overall all students felt content to discuss the effect of interview findings concerning facilitation of their design proposal in the final report for the ancillary subject.

3. Preparation and application of method
The application of the method was practicable for all students. All managed to organize and conduct their interviews, mostly as planned and some with minor issues in execution. While some found it hard to choose and approach an expert, others struggled with the preparation of the structure. Not being able to anticipate unexpected turns or digressive statements confidently was stated by some students but not to render the overall method as problematic. The majority expressed contentedness with the preparation and application of the interviews. Those who began the ancillary subject with a high motivation stated the most contentedness with the overall outcome and also relevance for their design process.

Taking the time for individual feedback as CAT 3 demonstrated to be of significant importance. Since the meetings took place to mainly discuss individual design concepts and proposals it seemed obvious to also review the outcome of the expert interviews. This was particularly helpful for those students that struggled with conducting and/or evaluating their interviews. Aligning unfeasible expectations with reality and reviewing actual outcomes to clarify decisive issues proved to be helpful, even at the later stages of the semester. Having an individual discussion enabled the teacher and the student to assess the findings of the analysis to make sure that the argument of the design concept was conclusive and comprehensible.

The implementation of the three CATs was appreciated by almost all students. The execution of the CATs was not reviewed to be bothersome or of a noteworthy inconvenience. On an organizational level this was to be expected since all three CATs were part of regular scheduled meetings and no separate appointments had to be arranged.

Students showed motivation and interest in further application of the newly acquired method. The realization that the application of the learned method might be a chance to enrich analyses of concrete spaces in a rather timesaving and efficient way was voiced by some to be of prospective convenience.

4 Lessons learnt

4.1 Expectations of outcome and design relevance

The evaluation of the teaching project has shown that students' expectations of the outcome after application of the method were mostly met. However, they also tended to have diverged estimations of the impact of the anticipated outcome of a semi-structured expert interview regarding their individual design processes. Awareness of the importance of a thorough and methodical preparation of the interview was remarked to be experienced during different stages of the semester. While not all students expressed the individually anticipated contentedness with the outcome most approved of a potential significance of the application within the design process.

To further investigate possible connections between outcome and design relevance it is worthwhile to examine stated expectations. Almost all students mentioned that they hoped to receive new information and knowledge directly by conducting the interviews. The expectations were to simplify design decisions when an expert commented on concrete requirements or procedures concerning the design task. Students expressed the prospect of gaining this kind of factual knowledge by carefully choosing potential experts as well as preparing the interview structures. On the other hand, students also communicated anticipation and hope of being surprised by findings they had not thought of themselves. Some expressed it as an opportunity to change one's point of view by hearing something unexpected that they did not anticipate during the preparation phase of the interview. Surprising findings were associated with a newfound inspiration to make sensible design-decisions or to turn one's interest towards formerly unheeded problems. After the evaluation of the three CATs findings concerning students' expectations could be separated into two categories:

1. Expert knowledge and facts
2. The unexpected and inspiration

Referring back to the findings of CAT 1 it is of interest to assess which categories were again addressed in the individual meetings of CAT 3. While the expectations in the first category (expert knowledge and facts) were in some cases more likely to be not quite met, students often expressed a surpassing of their expectation in the second category (the unexpected and inspiration).

Even though a few students found the application of the interview technique a bit disappointing in terms of findings in one or both categories almost all students continued to work with their interviews' findings in their design processes. Using these results in design decision-making was even more so the case when expectations were expressed that fit into the second category. The ‹unexpected› was by a few described as particularly relevant for the design process as a light-bulb-moment in comprehension.

4.2 Assessment and possible adaptation of approach

The definition of learning objectives helped to structure the teaching project and to define Classroom Assessment Techniques to assess certain stages within the semester. They were also a contributing part of the overall goals of the course. However, during preparation of the teaching project it became clear that in the beginning the learning objectives were far too wide-ranging. Trying to cover overly complex learning objectives would not be feasible with just a few CATs and sparse time. Anticipating the definition of adequate learning objectives is something to care about in the early stages. A certain range of flexibility was indispensable while devising the teaching project since the number of participants could only be assumed

beforehand. While this didn't affect the learning objectives it did have implications for the choice of applicable CATs. The CATs that were chosen to implement proved to be appropriate and will be used in ongoing courses.

Identifying the preparation of an expert interview as one of the more problematic steps might make one more CAT expedient. Not surprisingly this also coincided somewhat with the feasibility of students' expectations. Knowing that an ill-prepared interview structure will most likely result in subpar interview outcomes this CAT could be implemented to assess students' work progress. This CAT could take place after CAT 2 (and before conducting the interview) and could be introduced even on rather short notice if necessary.

Especially in the later stages of a semester the discussion of topics of individual specificity proved to be productive. While each student operates with specific hypotheses and design problems quite a lot of issues as well as interview findings are of general interest and importance for all participants. Compilation of these results would ideally take place in another meeting with all participants. To address this within the teaching project a sub-objective could be added to learning objective 3 and assessed with a fourth CAT; selection of collective findings to promote evaluation of decisive factors.

5 Conclusion and outlook

Progression and evolution of any design progress is not fully plannable – countless variables affect the interdepending design operations. However, the architecture master's degree final semester's set timeframe of ten weeks is the one definite variable that determines the end of the design process, further predetermined and formalized by specific standards regarding form, content and presentation of the finished design proposal. Self-reliant work and organization of the design process are two of the key points students have to master and present to successfully obtain their degree.

Prompting students to apply an unfamiliar method that stems from a different academic discipline has to be anticipated by them with feasible expectations and benefit. Equally, potential outcome can be utilized to boost motivation and preparation.

Regarding architectural design as transdisciplinary practice the teaching project could also be useful in earlier design studios. This would reflect the significance of reasoning a variety of data in order to learn design decision-making. To support and accomplish this, implemented assessments of students' progress in form of Classroom Assessment Techniques showed to be a convenient and efficient way to investigate and carry out a teaching project with learning objectives of increasing degrees of difficulty.

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