

## Necessary ingredients for the education of designers

Irene Visscher-Voerman

October 16th, 2014

We all know that the world is changing rapidly and fundamentally. Current graduates will come to work in jobs that do not even exist today, and will work on problems we are not able to predict now. They will need specific skills, often referred to as 21<sup>st</sup> century skills, such as teamwork, problem solving, interpersonal skills, oral communication, learning to learn<sup>1</sup>. Educational programs need to be redesigned in such a way that students are enabled, stimulated or even required to acquire those skills. Also, or maybe it is better to say –definitely, the educational programs for designers. Below are some ingredients for the programs of the future.

### Educating T-shaped professionals

Deep knowledge in a small number of disciplines is, and will stay very important; not just because expert knowledge in itself is valuable, but also because obtaining and functionally using knowledge on an abstract level is a crucial skill. Programs should also help students to develop a wider range of skills, that enable them to transpose expert knowledge to different domains, and to communicate and interact with people from other disciplines. Design programs should focus both on this discipline (deep), as well as for the boundary crossing competences (broad), thus creating so-called *T-shaped professionals*.

### Project led education as the educational model: Learning by doing and reflecting

It is essential that students get *involved in the process* of becoming a designer, rather than studying what it is to design. Therefore, from day one, they should work on design projects in practice, preferably for real clients. The learning is threefold. Firstly, through projects, students learn how to apply relevant design steps (*technical part*), such as analysis, design, evaluation, and implementation. Secondly, they learn how to communicate and deal with stakeholders (*socio-political part*) who might have different views of the process or the design to be made. In case of multidisciplinary projects, students thus also gather an understanding of different disciplines and learn how to create a 'common language'. Thirdly, through project work, students learn about the design content and materials (*substantive part*), such as the function of different materials in industrial design, the role of technology in the design of production processes, or the content of a learning program in educational design.

Projects can be designed in such a way that they invite students to *search* for relevant theories, to *study* those individually or with peers (instead of having lectures where they are taught theories selected by the teacher), and to *apply* those theories while designing; through projects, students can also *deepen* and *develop* new knowledge, by experimenting and by reflecting on existing knowledge (the vertical part of the T).

More-over, projects provide ample opportunities for students to learn how to work together, how to prioritize, apply time management, to communicate across disciplines, etc (the horizontal part of the T).

---

<sup>1</sup> (TED-x: Marc Chun, March 24<sup>th</sup>, 2013)

The projects, as well as its assessment, should be as authentic as possible from the beginning of the program.

### **Students as partners in the learning process**

From the beginning of their programs, students should be expected to take responsibility for their own learning process, in similar ways as professionals would take responsibility for their work process. This holds consequences on several levels.

On a *program* level, programs should be flexible enough to provide opportunities for students to choose their own learning route, related to their personal interests and goals. In this way, learning routes become more personalised, enabling learners to make unique profiles.

With respect to the *course* level, students (individually or in their design team) should take responsibility for e.g. formulating the project proposal or design question, choosing relevant theories for the specific context, conducting the design steps to follow, or applying the right activities to evaluate the quality of the design, both theoretically and in the eyes of the users. As such, they shape their learning in terms of content as well as skills.

On an *individual* level, students should set their own learning goals, and act to achieve them, for example by choosing specific program elements to study or by conducting specific projects or by undertaking specific roles in the project.

Seeing the student as a partner in learning also changes the role of the teacher. Student peers are good sources for learning. As partners in the learning process, students can help each other by providing feedback on assessing the quality of (parts of) their work, or on their professional attitude. The teacher nonetheless has a responsibility, e.g. in ensuring that the level of mastery of knowledge and skills (on both program and individual level) is enough to meet the standards of the degree, as well as that the amount of knowledge and skills mastered is sufficient for the degree. Also, teachers need to design the programs in such a way that it can maximize the learning of students, taking into account different learning preferences, rather than that they hold responsibility for their own instruction. Already in the mid-nineties, the needed paradigm shift from teaching to learning has been valuably summarized by Tagg & Barr (1995).

### **Scaffolded supervising**

I have increasingly come to realise that the way teachers operate, in the context of project work, is essential to the learning process of students. A lot of teachers are inclined to prestructure students' work and provide them with solutions on how to progress when students encounter a problem. Since they are experts in their field and are inspired to transfer their knowledge to students, teachers might become too overenthusiastic in helping students, with the effect that they actually decrease the learning opportunity for the students. Think of swimming as a metaphor: it is tempting to help children learn how to swim in an undep pool. The likely effect is they will take each opportunity to put their feet on the ground and thus hinder the development of their swimming skills. Instead, it is better to have them learn to swim in a deep pool with the swimming teacher next to them in the water to encourage them and to support them should they sink. Floating aids help when acquiring basic skills, but have to be taken out of the game as soon as possible. Also

in design education, teachers should set high expectations from day one and have students work on complex problems, but provide just enough support so that they will not drown. Thus, providing challenging assignments that are (far) outside the zones of proximal development, while at the same time establishing a safety net through supervision. This requires a lot of courage and guts of teachers.

### **The stage of the project should determine the scheduling of formal curriculum moments**

For their content and resources, students can rely on resources inside and outside their university, such as literature, experts, peers, teachers and their lectures, which are increasingly found through internet. Traditional programs tend to schedule parallel courses in rigid, weekly structures. For example, students would learn the ins and outs of qualitative interviewing in a 6 week course, with weekly lectures and practice sessions. For a design project however, students will need these skills in the beginning, in the analysis phase. It would be much better to plan one or two full days around the start of the project in which students can practice the basic skills, just in time when they need it in their project. Application and further practice of the skills can then be incorporated in the project. This asks for a far more open and flexible way of scheduling formal contact moments and lessons than we are inclined or used to do. Here, again, the criterion is how the formal curriculum moments foster learning.

And again, it should be stressed that the most powerful motor for learning is the project itself and all the challenging questions that come forth out of it. Rather than the traditional lectures we intend to give.

### **Research skills are as important as design skills**

Both in professional and academic settings, students should learn that research is the key to good designs. Research delivers knowledge on which new designs can be built (theory, and situational analysis data), and research provides information on the quality and functionality of the designed products (evaluation data). In an academic setting, a design research approach will provide designers with the opportunity to build upon theory by themselves. Rather than constantly providing them with new theory, students are better off when we help them develop skills to critically question and test existing theories, and to develop these further.

### **Assessment**

We are used to assess learning after each course, through standardized tests or paper work. When projects become the motor for learning, and when students set their own learning goals, this asks for a greater variety in assessment methods, as well as more personalised forms of assessment. Students should develop a portfolio in which they can include proof of their competences, through grades, but also through feedback from peers, through products and they can add their own reflections. Teachers should design assessments that focus on both the quality of the final design, the amount of theoretical knowledge, the amount of design and research skills, and on the progression of learning. Related to the learning goals the student attempted to achieve.

Since many projects are conducted in small groups, teachers need to develop group

exams, with enough opportunities to demonstrate individual learning; both to prevent free-riding as well as to safeguard overall quality.

A lot of exciting challenges lay ahead of us. The most exciting is that –although for now we think that we are on the right track in educating designers- in a few years, the rapid changes may have made us realize that we need to change our programs again ...

---

Note: My position paper comes forth out of my experience in three to five year programs at the University of Twente as a context. But in fact, I believe that these principles also hold for smaller programs on other educational levels.

References:

- Barr, R.B. & Tagg, (1995): From Teaching to Learning: A New Paradigm For Undergraduate Education. *Change: The Magazine of Higher Learning*, 27(6), 12-26.