DEVELOPING A THEMATIC DESIGN CURRICULUM AS A BOLOGNA MASTER

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ABSTRACT

Design education is taking on new forms at many universities around the world, since many people see that a designer today works in many different contexts with many different materials. In Europe, the Bologna reform of higher education is therefore timely. It offers a possibility to reflect and restructure design curricula for the changing world of design. In this paper we outline the development of a Bologna style curriculum for a Master of Science (two years) with a Major in Design at Linköpings universitet in Sweden. The Master's Programme in Design is multidisciplinary, and the guiding principle is that a designer of tomorrow will work less with specific materials and more within differing design contexts. A problem we faced with the studio classes was how to define progression. In order to structure the progression we identified a set of core competences for designers. These competences are used to define areas within which learning outcomes can be defined. The competence fields are; Vision & concept, Design methods, Tools & materials, User & actor perspective, Versatility, Design theory & research and Continuous competency development. Our conclusion is progression in studio classes can be structured in relation to these fields.

Keywords: thematic, design context, multidisciplinary, curricula, progression

1 INTRODUCTION

At universities around the world design education is taking on new forms. For European universities the Bologna reform is timely. It provides a possibility to reflect and restructure design curricula for the changing world of design. One of the core activities underway in Sweden is to define competencies in terms of learning outcomes for the students. In this paper we outline the development of a Bologna style curriculum for a two-years Master's Programme in Design at Linköpings universitet. The master is multidisciplinary at its core, and the guiding principle is that a designer of tomorrow will work less with specific materials and more within differing design contexts.

Design can be viewed as a cross-, trans-, or interdisciplinary area. Traditionally, design programmes at universities have been rooted in an institutionalization of design disciplines during the 20th century. The disciplinary boundaries are mainly defined by stated differences between materials, methodologies, industries and design objects. One such delineation, between industrial design and interaction design, is described by Edeholt & Löwgren [1]. These boundaries are reflected in educations such as furniture design, graphic design and industrial design. Increasingly, we see signs that this strict division between materials and industries is starting to dissolve.

Buchanan [2] developed a framework describing design orders. Looking at the development of the larger field of design, designers have moved from designing symbols, over things and actions, to thoughts. The assumed corresponding design disciplines are graphic design, industrial design, interaction design and environment design. Buchanan describes this as a layered model where symbols are at the core and thoughts are at the rim. In classical Swedish design theory this kind of layered model finds support from Paulsson and Paulsson [3], as well as Hård af Segerstad [4].

The design consultancy Spirit of Creation, states that designers work with levels of design; at the level of form and detail, at the level of process and system, and at the level of policy and ideology. It has also been shown that companies that work with design as a conscious choice for strategic, process and aesthetic purposes are better off than companies that do not, or only do some of these (see e.g. the SVID analysis of design maturity [5]).

Our analysis is that some designers of the future, need to be able to coordinate multiple design materials and design objects, integrate across design orders, move between levels of design, and drive design maturity. Or, put differently, be able to apply skills as a designer in different contexts to drive successful and human-centred problem solving under the conditions of that context.

Interpreting this in terms of design education could point in several different directions. One possibility is to integrate design in many non-design programmes, in order to have a lot of students get at least a bit of design knowledge. Another is to define profiles for existing (non-design) programmes, so specialists in one field can complement their knowledge with new design knowledge. A third possibility is to invent new disciplinary programmes for new and emerging design material, objects or industries. Based on our experience from pioneering interaction design education in Sweden by using the first and the second possibilities [6], we chose another possibility when designing our master's programme.

The fourth possibility, which is the one suggested here, is innovative in two senses. The first sense is that it views design as one discipline. Viewing design as one discipline provides the possibility not to limit the students design work to one kind of design object. Instead it provides the opportunity to require the student to understand a range of design objects that combines into a solution to a design problem. In the end the student will have learned both to apply systematic design methods to formulate the design problems, and to apply systematic design methods to formulate the composite design object. The second way is that it views the success of design work as contextually framed. In doing so, it provides the possibility not to limit the students design work to one assumed context. Instead it requires of the students to work with several contexts that frames the design work. In the end, the student will have learned how to systematically, and with sensitivity, understand the conditions of a context under which a problem is to be solved.

The master's programme thus uses contexts as its main structuring principle. The contexts were identified based on assumed long term design needs within a context, the availability at the university of expert and research resources within a context, and a variation in challenges from working with design within a context. Examples of contexts in such a selection are; Children and design, Health and design, and Service and design.

In the initial planning of the programme seven contexts were identified, the contexts were allotted one half semester, and the students were required to do studio-work in at least five of these. The final semester would be a final project. This structure would

allow a student to choose any order of study between the contexts, thus providing groups of students from the first as well as the second year. While having been a successful system at KISD (Köln International School of Design), the small student group and the two-year time span give little room for such a structure of the programme, so it was abandoned.

In the final planning of the programme (see Figure 1) each half-semester is dedicated to one specified context, and there will be only five contexts. A student is required to take the studio-course during that half-semester connected to that context. Additionally, the student is required to participate in a seminar running the full length of the semester. Furthermore, the student is required to do course-work in parallel to the studio. The course-work should support the student's studio-work, or the development as a designer.

Three of the course-work courses are mandatory courses. The first is a course used to align students with different backgrounds. The first semester of the final year the two courses prepare the student for the final project, which is assumed to hold research standards. Thus, the student is required to take a design research course, and a design writing course. Furthermore, in the final studio course, the student will define the context within which the final project will be performed.

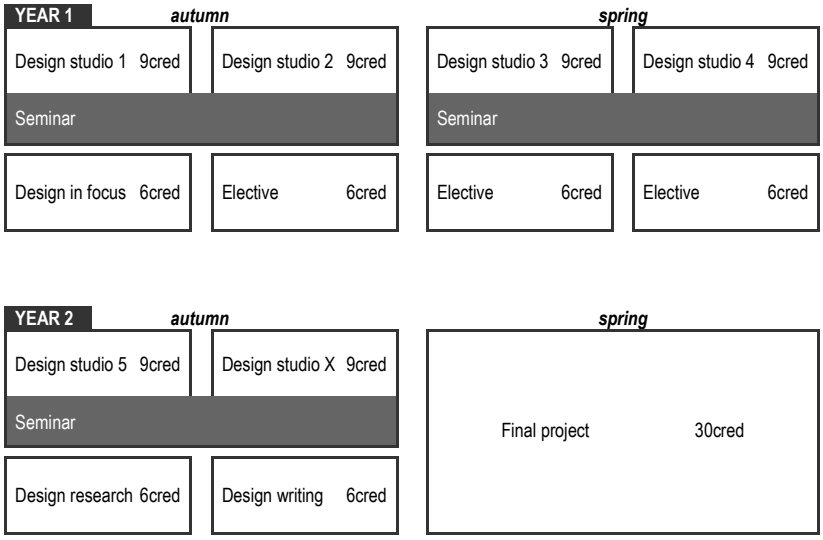

Figure 1. The programme plan

2 PROBLEM STATEMENT

While answering a need to educate designers for their future challenges, the thematic structure does not bring a clear-cut idea of the progression in the programme. For the traditional courses the ordinary system will be in place, so the progression will be based on that. However, for the studio courses, with generic names, it is not so obvious. Our concern has been how to plan for, model and create such a progression.

3 COMPETENCE FRAMEWORK

We need some kind of model of competences in design to be able to discuss progression in studio courses. Looking at previous literature there are many descriptions of designers' competence that we can draw upon. We will not attempt to give a full account of that literature here but instead present the competence framework we use for the Master in Design at Linköpings universitet, and some of the related literature it draws upon. We have also had inspiration from the competence map for industrial design at TU/Eindhoven [7]. In practice all of these competencies obviously interact and for every designer it creates a holistic competence [8]. However, to analyze the design of a curriculum, an analytical distinction between competences can be beneficial.

3.1 Visions and concepts

Design work is about constructive intelligence where originality and creativity are important. Obvious skills and knowledge include colour, form and aesthetic judgement, but also the ability to make syntheses and integration to compose. In order to develop original ideas a solid repertoire of exemplars to draw upon are important. Exemplars must also be analyzed with some rigor at which a professional design language is necessary. Product semantics also play a role in this. Visions and design concepts are worth nothing if the designer cannot communicate and express them, both in informal critique sessions with colleagues as well as in formal presentations for clients [9, 11].

3.2 Design methods

Design methods are tools for thought and action, and a competent designer has appropriated a number of methods, and can decide if a method if applicable, what effects it will have, and adapt it to the current situation [9]. They may help the designer in central aspects of the design work such as the ones described by Cross [12]. He argues that designers need to cope with ill-defined problems, problem structuring, managing goals and constraints, generating solution concepts, thinking by drawing, and intuitive reasoning. Systematic inquiries, design work, evaluations and thorough sketching may be of great assistance in this [13].

3.3 Tools and materials

A design is always realized and conceived in some materials: it may be plastic, ceramics, glass, metals, textiles, print, screen, information technology etc. The materials used will have a large impact on the qualities and character of the designed product. A designer will accordingly need to understand materials and know the tools that can be used to mould it. It is also in the work with the material that the designer gets further ideas and appreciates the constraints and possibilities [13, 14, 15]. Other important aspects of knowing the materials are sustainability and conditions for production.

3.4 User and actor perspectives

A designer has to constantly relate the product to its purpose, the product to the user, and the product to the user to the environment where it is used. Users may however involve multiple roles and different actors, especially for complex products and services. It is therefore important to be able to change perspective in the appreciation, judgment and assessment of the product. Communication and empathy with different actors is pivotal for success in this process. The designer is like a synthesizer in appositional thinking, putting together many factors (including business, diversity, and

sustainability) and relationships to a coherent whole. Design is about making sense of relationships, always seeking for new relationships and new associations. [3, 10, 12]

3.5 Versatility

Managing perspectives points to the need for our thematic approach where the designers have the ability to work across multiple contexts. In order to do so he or she must be familiar to, or be able to adapt to various conditions for production, using different materials to deliver desirable user experiences. No designer can of course be a specialist on everything and multidisciplinary teamwork is therefore important. Once again this points towards the ability synthesize, integrate and constantly learn new things [2].

3.6 Design theory and research

One of the reasons for studying for a Master in Design is a desire to learn systematic work, and scientific methods and cross-disciplinary research. Design theory and design research are tools for reflection and thought that help designers take a step back, change perspectives, and break free from taken for granted ideas about design processes, design ideas, and problem framing. It also has the potential for creating new conditions for design, creating novel and different exemplars, and creating understanding for the nature of design [9]. A Master in Design should be able to take a critical stance to design work, and relate it to design history. Research methods for making inquiries, evaluations, problem solving and problem identifications will also contribute.

3.7 Continuous competency development

A designer must be able to take responsibility for his or her own learning processes and competency development, given that designers will have to work in a multitude of contexts [2, 7, 10]. This requires independence, self-insight, and ability to reflect on one's own work and take a critical stance towards it. Most of all, it requires humility.

4 DISCUSSION

Given the problem of defining progression in studio classes, the competence framework may be used to highlight a focus for each and every studio class. First of all, the basic idea of having different contexts for the studio classes promotes a progression in Versatility as well as User & actor perspectives. We also assume that studio classes in general promote an incentive to learn what the design brief requires from the students, and also promote Continuous competency development. Furthermore, the students need to early on become familiar with different Tools & materials, to promote progression beyond their previous speciality developed in their Bachelor degree. Further focuses need to include the other competences: creating Visions and concepts with different forms of expression, using and adapting Design methods, analysis using Design theory and research. This line of reasoning point us towards highlighting the following focuses in the six studio classes:

1. Tools and materials
2. Forms of expressions
3. Design methods
4. Research and inquiries
5. Exemplars and design critique

x. Project planning and context setting

These focuses define the progression in the studio classes. The order of them is important since students over time move from focusing their learning effort on the craft

of doing design and handling tools and materials to more systematic inquiries, research, analysis, critique and planning. The future evaluations of the programme will tell us how well we succeeded in our ambitions. Finally, we believe that our approach to deciding the progression may generalize to other study programmes.

5 REFERENCES

[1] Edeholt, H. and Löwgren, J. Industrial design in a post-industrial society: A framework for understanding the relationship between industrial design and interaction design. In *Proc 5th Conf. European Academy of Design* (Barcelona, 2003).

[2] Buchanan, R. Design research and the new learning. *Design Issues,* 2001, 17(4), 3-23.

[3] Paulsson, G., and Paulsson, N. *Tingens bruk och prägel*. (Kooperativa förbundets bokförlag, Stockholm, 1957). [The use and qualities of things]

[4] Hård af Segerstad, U., *Tingen och vi*. (Nordisk rotogravyr, Stockholm, 1957). [The things and us]

[5] SVID. *Design ladder*. http://www.svid.se/wlt/7FFF9336-1086-4965-8C4F-0CD72E90700B.wlt [Accessed on 2007, 15 May]

[6] Holmlid, S. and Ericsson, M. (1998). Designstudion som läromiljö - erfarenheter från interaktionsdesign. In proceedings from *Högskoleverkets conference on Quality in higher education* (Luleå, 1998 10-11 June). [The studio as a learning environment - experiences from interaction design, In Swedish].

[7] Overbeeke, C.J., Appleby, R., Janssen Reinen, I. and Vinke, D. Nine competencies, six units: Industrial Design Education at TU/e. In P. Loyd, N. Roozenburg, C. McMahon, L. Brodhurst , *The changing face of design education : proceedings of the 2nd international engineering and product design education conference* (TU Delft, The Netherlands, 2004, 2-3 September).

[8] Horváth, I. (2006). Design competence development in an academic virtual enterprise. In *Proceedings of IDETC/CIE 2006 ASME 2006 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference.* (Philadelphia, Pennsylvania, USA, 2006, 10-13 September).

[9] Löwgren J., and Stolterman, E. *Design av informationsteknik – materialet utan egenskaper*. (Studentlitteratur, Lund, 1998). [Available in English under the title "Thoughtful interaction design" (The MIT Press, 2005).]

[11] Bernstein, D. The design mind. In P. Gorb and E. Schneider (Eds.), *Design Talks!.* (The Design Council, London Business School, Design Management Seminars, London, 1988).

[12] Cross, N. (1995). Discovering design ability. In Buchanan, R. and Margolin, V., eds. *Discovering Design: Explorations in Design Studies.* (The University of Chicago Press, Chicago, Il., 1995).

[13] Schön, D. A. *The Reflective Practitioner: How Professionals Think in Action*. (Basic Books, 1995).

[14] Schön, D. A. Designing as reflective conversation with the materials of a design situation. *Knowledge-Based Systems*, 1992, 5(1), 3–14.

[15] Bennet, J.. Reflective conversation with materials. In T. Winograd (Ed.), *Bringing Design to Software*. (Addison-Wesley, Reading, Mass., 1996).

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