Design Competencies Futures

How do we REDO Design Education?

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Abstract: The REDO biannual Cumulus 2017 conference in Kolding describes "how designers struggle on many levels to gain influence on the decision-making processes" and that we need to "rethink design-doing." In our professional and didactic experience, designers not always have the language or terminology to convey the depth, value or validity of 'design-doing' contributions to these decision-making processes. This raises the question whether design education can do a better job in providing language that can help design students articulate what makes 'design doing' so special and relevant.

In order to better articulate the value, depth and validity of 'design doing' we have developed a framework of design competencies that maybe helpful to other design educators to define, organize and measure the value of 'design doing', and help future design practitioners to better understand and communicate the value of what they have learned. After a brief description of the pedagogical context from which the work originated, this paper presents a conference workshop proposal that aims to introduce participants to a framework of 'design doing' competencies that allows for diversity and scalability in usage, while appreciating the different cultural, national and regional backgrounds and variations for different design disciplines.

In the workshop, we will guide participants through a series of hands-on exercises and 'visual thinking' experiences that enable design educators and practitioners to define and detail dynamic, open design competencies in a playful, energizing way. The overarching aim of the workshop is to collaboratively develop a shared language and terminology that helps educators, practitioners and design students to understand, define and communicate the value of 'design doing'.

Keywords: Design Competencies, Curriculum Mapping, Design

Thinking, Design Doing.

1. Pedagogical Context

The increasing attention for design and design thinking in academic (Dorst, 2011) and business discourses (Martin, 2009) warrants a more introspective attitude on what learning exactly is being acquired by design students. It is our hypothesis that the humble, everyday activity of learning to 'make things' or 'design doing' provides the fertile ground for the acquisition of so called 21st century competencies like creativity, collaboration, self-directed learning (Pellegrino, 2012) and the 'creative confidence' (Kelley, 2013) needed to embark on open ended projects without defined outcomes. Yet as educators of 'design doing' we lack the language to explain students what competencies are being developed within the iterative, reflection-in-action cycles (Schön, 1983) that characterizes design education. As educators, we need to better articulate the learning outcomes of design curriculum, and in a holistic way clarify how 'design thinking' is acquired through 'design doing', which in turn is driven by intrinsic motivation, curiosity and a passion for learning design. In other words, the 'what' students are doing needs to be accompanied with a reflection on the 'why' this is important to their growth as a designer within the evolving context of the iterative design process. But do we have the language and terminology to name the many intrinsic, implicit characteristics of this deep learning process?

This need for clarifying the rich nature of learning design brought us to review the original three taxonomies of learning, developed by Bloom. Originally, Professor Benjamin Bloom and his colleagues at the University of Chicago identified three taxonomies of learning (1956) and then first detailed the cognitive domain, as this was closest to their own expertise and background. While the psychomotor domain and the affective domain were developed and detailed by other learning and learning-assessment researchers, they are rarely seen as related or integrated. For instance, you would either learn something in a cognitive sense at the university or master technical skill or manual operation in the psycho motor domain.

Yet as designers, we know that the act of design is a closely interwoven mix of thinking, doing, and feeling. In our educational practice, when we explain to new students what design is and how they can learn it, we stress that professional designers use their hands, heads, and hearts. You need to learn to make things by using your hands and you need to feel what you are doing. This hands on, engaged heart process ignites thinking and reflection capacity. While this may sound obvious to design practitioners, most regular universities place strong emphasis only on the knowledge side of things - the cognitive domain. In our view, this privileging of the cognitive domain alone is one of the shortcomings of traditional university education. Design education is unique in that it connects learning in thinking, doing, and feeling right from the beginning of a students education. We frame this connected, integrated and sensorial learning as competency in design.

2. Levels of Design Education

Further to our identification of competencies as the main 'currency' within design education, we have identified three levels of how learning design may be organized in a curriculum map, while providing flexibility to educators and administrators in responding to the fast changing

profession of design. The three levels are; design context, design competencies, and design meta competencies. Figure 1 below presents a graphical representation.

- *Design Context:* This level defines the current and future context in which a designer operates. The term 'Design Context' levels introduces students to three granular structures in which the field of design is often understood, namely; 'design process', 'design typology' and 'design themes'. The Design Context level is the most specific to the program, the design discipline being taught and the regional/national and cultural backgrounds, and is most easily adaptable to changing circumstances, something we aim to explore in the workshop. While themes like 'Sustainability are nearly universal in its validity, each Design Program needs to assess within its specific cultural, economic and political context which themes are most strategic to the future professional design landscape, an exercise that needs repeating every five years or so to be able to respond and resonate with ever-evolving changes in society.
- *Design Competency*: In our view, one of the hallmarks of higher level cognitive skills in diverse learning environment is that they are intricately part of hands-on, collaborative, integrated and iterative cycles of feeling, thinking and doing. Following Bloom, we have framed these cycles of feeling (affective domain), doing (psycho motor domain) and thinking (cognitive) as competencies. (definition: behaviors, knowledge and skills in a certain content domain). In our workshop we aim to share, compare and develop up to twenty identified design competencies that may be of relevance to design schools depending on their program, region, discipline. In the workshop we aim to share, compare, develop and identify design doing competencies that may be of relevance to design schools depending on their program, region, discipline.
- *Design Meta Competency:* 'Overarching', higher order competencies, which facilitate adaptation of what students have learned and help them to become more flexible and resourceful when dealing with new, unknown challenges (Overbeeke, 2004). It is the so called higher level Design Meta Competencies (like creativity, originality, self directed learning and creative confidence) that have gained so much attention within the discourse on design thinking, that are hardest to acquire and to embed in a meaningful way in curricula. In general, embedding meta competencies requires the biggest overhaul of the curricular structure. In our workshop, we will share an international perspective and a short list on Design Meta Competencies, discuss strategies for how to embed these in a granular, meaningful and effective way into design curricula, and to empower students with the tools to understand and communicate.

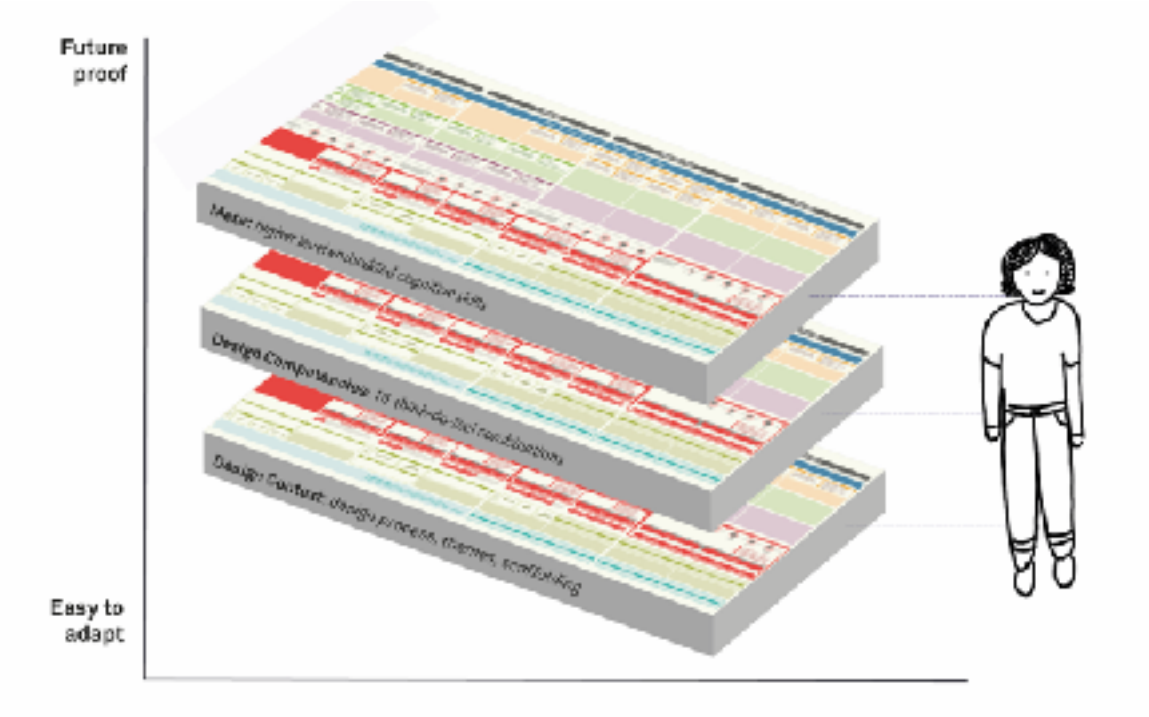

Figure 1. The Three Layer of curriculum mapping

3. Student Learning Example

To illustrate how Design Context, Design Competencies and Design Meta Competencies interplay at any given moment throughout a students' education, the example below describes a moment in the project of one of our fourth-year Industrial Design students designing furniture for a palliative care environment. The picture presents the student laying on a table. She is role-playing in order to empathize with being a palliative care patient. She tries to imagine what it is to be lying on a bed knowing he or she will die in. While she is engaged in this immersion activity, she is sketching different functions patients and caregivers would need the furniture to fulfill. Previously, she has reviewed the available literature and spoken to a series of health-care practitioners; now, in the moment captured by the camera, she is identifying requirements for her project.

Figure 2: Fourth Year Industrial Design student role playing in order to elicit design requirements for furniture in a palliative care environment.

From a 'Design Context' point of view, the student in the example above is in the research stage of the Design Process, aiming to create furniture within the Design for Health domain (one of the Strategic Themes). Within the example presented above, the student is applying three Design Competencies, and one Design Meta Competency at the very moment of doing the exercise:

- *Understanding people Competency:* The student is able to use qualitative design research methods to iteratively evaluate design results). She can reframe her own project based on emerging user insights and is able to iteratively engage with users in all stages of the design process.
- *Visual Thinking Competency:* The Student can fluently use drawings, diagrams, thumbnails, charts to understand the world around her and is able to visually analyze, conceptualize and articulate product requirements, processes and interactions. She is able to use this competency individually, collaborative and in sessions with her clients.
- *Form Development Competency:* The Student can develop meaningful and aesthetic form solutions. She develops her own voice in form development while working within the constraints of structure, context and materials and apply role of semiotics within the development of a project.
- The meta competency at work here is that of having '*Creative Confidence'*. The student displays intrinsic motivation and courage (to do the role playing exercise in public), which drives her to experiment, iterate, and take ongoing risks. The student is able to reflect on what she learns throughout this process and redirect when necessary.

We hope that this brief example illustrates the usefulness of identifying Design (Meta) Competencies and Design Context in order for students to find language and terminology to better express the value and depth of design ‘doing’ in decision making processes. Please note that the current overview of identified competencies is by no means complete. In the next section, we present a workshop outline for the Design Conversation section of the Conference.

4. Workshop proposal

Design competencies Futures Research group. Four design schools from Europe and Canada have teamed up to initiate a discourse on the use of the Design (Meta) Competencies as a language to define, measure and communicate the value of design ‘doing’ education. Some of the current questions we are exploring in our curriculum design are: How does having access to a competency model affect how students see their own learning development? How can the design competencies be used for more effective learning outcomes assessment? How can we use the competency framework in hybrid courses like ‘Design Management’? While we are exploring these questions in our universities, we hope to ignite a collaboration and platform on a larger scale, to create a ‘movement’ or a ‘community’ on design competencies, a shared platform through which we can elevate design education and curriculum design to a higher plane.

Workshop outline. In an interactive, hands on session, we hope to gather fellow educators and administrators in a working group, brainstorming and design thinking through a series of hands on exercises that aim to have very concrete results. The format is more of a participatory design session or co-design activity than a traditional academic workshop (of sharing case studies and methodology). Assuming a half day period with approximate 20 to 25 participants, we envision the following three exercises:

- *Exercise 1: Understanding differences and similarities in design education competencies.* In this first exercise, we propose to use a mapping of different design undergraduate programs (e.g. graphic design, interaction design, design management, and environmental design) and charting out a students’ capstone project, identify which Design Competencies are program specific, which Design Competencies are shared amongst different programs, identify Design Competencies not yet mapped and what Design Meta Competencies programs have in common.

- *Exercise 2: How Meta Competencies can be embedded in curriculum.* In most research and discussions around education, Meta Competencies like ‘creative confidence’, ’self learning’, ‘communication’, ‘being creative or original’ are highly valued, but it is less clear how to embed these Design Meta Competencies in the day to day curriculum, and be tracked or measured over

time. In this exercise we aim to use a series of curriculum mapping and visualization methods in order to articulate how Design Meta Competencies and their respective development could be engrained in (typical four-year duration) design program structures.

- *Exercise3: developing a Design Competency movement.* Based on the definition of the Meta, Design and Program competencies, the workshop will offer plenary discussion on how a shared and evolving language of Design Competencies can be instrumental in fostering collaboration, furthering the discourse on design thinking vs. design doing, initiate shared design research topics and in general; help develop a language in which we can better express the value of design 'doing' education within the larger context of 21st century skills and the overall creative economy.

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Author 1 add an author bio that describes research interests and main achievements in a maximum of 40 words. [_REDO Author Bio and Acknowledgements]

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