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Teaching values in design: A case study about how teachers enable students to go from knowledge to action

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Teaching for Values in Design

Creating Conditions for Students to Go From Knowledge to Action

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Designers play an important role in shaping the society and should take responsibility for their actions and become responsible designers that can contribute to a sustainable and sound development of society on all levels. Thus, design education ought to create conditions for students to develop skills and competencies for designing with values in mind. This case study paper provides an example of how teaching activities made available via an online open educational resource that offers teaching resources for teaching for values in design, can be appropriated to a specific educational setting. A selection of teaching activities and how they were implemented in class are described. Results produced by the students were analysed to see in what way the teaching activities enabled the student to go from addressing values in their work, to actually designing with values in mind. The paper ends with a concluding discussion about the potentials of design teachers to become change agents through their pedagogical practices that enable students to go from knowledge to action.

Keywords: values; design education; responsible designers; open educational resource (OER)

Introduction

The design and implementation of products, systems and services impact society on many different levels, from the individual experience to large-scale societal effects (Nathan, Friedman, Klasnja, Kane, & Miller, 2008). Designers play an important role in shaping the society regardless of whether they have an explicit intention to do so, and thus ought to take responsibility for their actions. Also, as acknowledged by previous scholars, all designs embed and manifest certain values and ethics, and may – for good and for bad – support or undermine other people's values (Knobel & Bowker, 2011, Tromp, Hekkert & Verbeek, 2011). A design never derives from nowhere, and the designers are always biased by a particular way of seeing the world and by their sociocultural backgrounds (Haraway, 1988, Søndergaard & Kofoed, 2017). Previous researchers have addressed the importance of creating an increased awareness of the role that values play in design, including value sensitive design (Friedman & Hendry, 2019), values in design (Nissenbaum, 2005), values at play (Belman, Flanagan, & Nissenbaum, 2009), and values-led participatory design (Iversen, Halskov, & Leong, 2012). These approaches have mainly been developed for research and development purposes, offering methods for designers to intentionally and practically work with values in their design practices.

Not only professional designers, but also design students should learn how to work with values in order to become responsible designers that can contribute to a sustainable and sound development of society on all levels: social, economic and environmental. Thus, teachers at design education programmes ought to create conditions for students to develop skills and competencies for addressing and working with values – and in how to go from *knowledge* to *action*.

To address the topic of values in design education is currently gaining increased attention (Hendry, Eriksson, Thilini, Fernando, Shklovski, & Yoo, 2020) Still, many teachers at design programmes in higher education face the challenge of how to incorporate the values perspective in the classroom. To meet this challenge, we have together with a group of teachers and researchers at three European universities developed an online Open Educational Resource (OER) that supports design teachers who are interested in teaching values in design as part of their pedagogical practices.

An Open Educational Resource for Teaching Values in Design

The online OER (TViD, 2021) offers 28 teaching activities and 12 assessment activities, which may be appropriated by the teachers to make them fit with their various courses, across different levels and disciplines. The OER is designed to support a high degree of appropriation to accommodate a wide range of educational contexts. The pedagogical approach takes its point of departure in the claim that for educating responsible designers, teachers need to support the students in the process of "coming to know" (knowledge), "becoming able to act" (skills), as well as in the process of "obtaining an identity" (attitude) (Barnett, 2009) as responsible designers. The teaching activities included in the OER thus cover various levels of competency enable progression in learning from novice to advanced. The teaching activities range from activities such as a lecture on theoretical grounding of values and ethics, to an exercise in identifying one's own values as a designer, and further to envisioning the implications of designs.

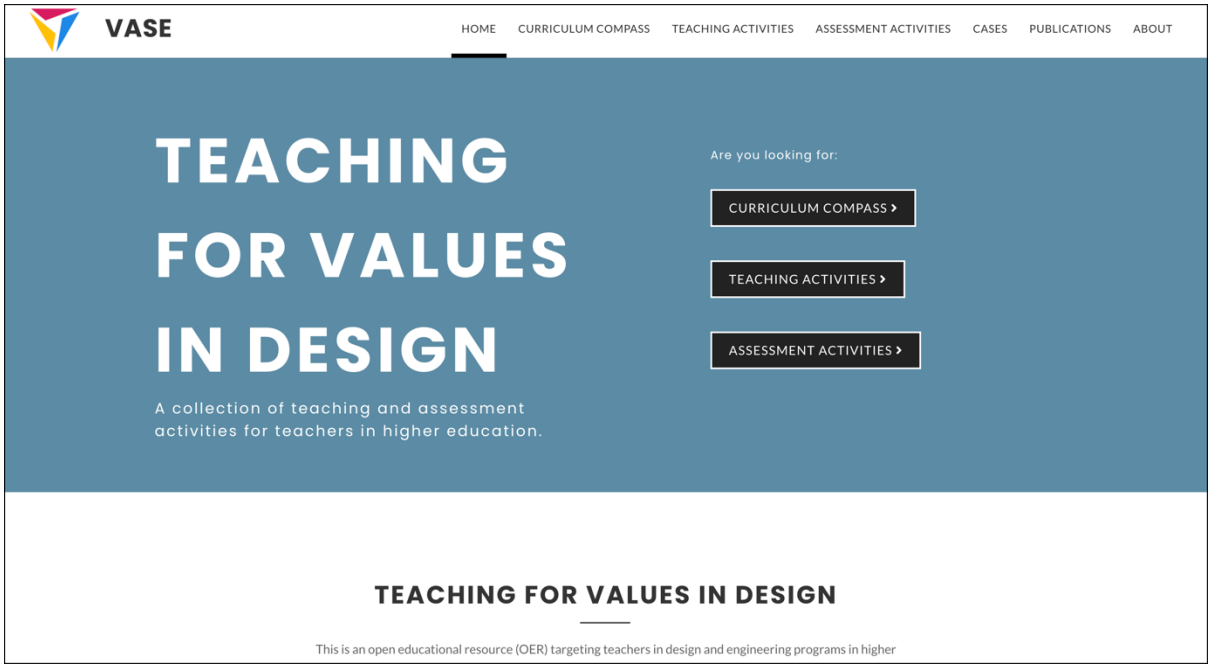

Figure 1. The entrance page to the online OER (TViD, 2021).

The Case Study

The aim of this paper is to provide a case study of how a selection of teaching activities offered by the OER can support design teachers' pedagogical practices, and especially in developing content to design education that puts an emphasis on the importance of addressing and working with values in design.
The research questions explored are:

4. How might teaching activities offered by an open educational resource for teaching values in design be implemented in a specific educational setting?
5. In what ways do the results produced from partaking in the teaching activities as well as the students' own reflections indicate that they have gained insights into how to go from knowledge to action by designing with values in mind?

The first question is answered by providing a description of how a selection of teaching activities were combined and implemented in the classroom. The second question is answered by presenting and analysing results and reports produced by the students. The final section includes a discussion about the potentials of design teachers to become change agents through their pedagogical practices and by creating conditions for students to develop the competencies and skills required to go from knowledge to action and act as responsible designers.

Research Setting

This section provides a description of the educational context, and presents the methods for gathering and analysing data.

The Educational Context

The teaching activities were implemented at an elective bachelor-level course: Interaction design and media, where the students learned to create and explore interaction design concepts that focused on social change themes. The students were divided into groups of 4-5 people and worked with cases, which all dealt with some sort of social issue including topics such as growing up, family life, good work, good health, ageing well, communication for eco-life, sharing or circular economy. Some of the topics were inspired from Cottam's capabilities approach and case studies on changes in the British welfare system (Cottam, 2018). The assignment was to come up with ideas for digital online communication systems or apps that could facilitate social change in relation to the cases they were working on.

The assessment activities consisted of students writing an individual report and a group report presenting and reflecting upon both their design processes and their designs. The specific topic of values in design were addressed in the reports by asking the students to reflect upon the following:

– Individual report, "In what ways (if) has your view on the importance of addressing values in design changed during the course?".

– Group report, "Present the different ideas that you had. Describe your considerations on which idea or combination of ideas that you decided to move on with, and how the identified values and empirical research about stakeholders influenced decision-making in your design process."

Due to the pandemic, the course was remotely conducted using video conferencing, and various collaborative online platforms. In total, 40 students participated in the course.

Methods for Gathering and Analysing Data

Data about the students' results and progress were gathered in students' weekly assignments and their individual and group reports. Data was also gathered via an online collaborative whiteboarding platform where students were working with worksheets provided by the teacher to which they added their own project related materials. Field notes were taken by the teacher during supervision and milestone presentations, where students critiqued the value-based methods in relation to their projects. All of these data sets: weekly assignments, reports, and field notes were analysed in order to see whether the students showed an ability to go from knowledge to action, that is, designing with values in mind. In the analysis special attention was paid to how the students selected and interpreted values, and how they related these values to their projects and the involved stakeholders.

Ethical Procedure

The research is conducted according to the guidelines outlined in Good Research Practice (Swedish Research Council, 2017). The students were informed about the research and gave oral consent to contribute to the study.

Results

This section presents the answers to the two research questions addressed in this paper.

Research question 1: How might teaching activities offered by an open educational resource for teaching values in design be implemented in a specific educational setting?

The question is answered by providing a description of how a selection of teaching activities offered by the OER were combined and implemented in two workshops.

Through a user centred design process, the student groups partaking in the course Interaction design and media, were investigating the use context in dialogue with their stakeholders, representatives from their selected target groups. Based on the insights generated from the interaction with the stakeholders, design concepts were developed. To include the values perspective in their design processes, three workshops were organised where the students were introduced to methods for designing with values. In this paper we present the results from workshops one and two. When planning for the workshops, a collection of relevant teaching activities was selected from the OER and appropriated to fit this particular educational setting. In the following, the content of the workshops is described, and the specific teaching activities selected from the OER listed.

Workshop 1:

The first workshop was initiated by giving an introductory lecture about the importance of addressing values when designing. The first exercise dealt with their individual values. They were asked to develop a Designer's

values manifesto, which listed the values of greatest importance to them. Both from an individual perspective and in their professional practice. Based on the outcome, they gathered in the groups and developed a joint Design team's values manifesto that served as a leading star in their projects. They were also introduced to methods for mapping and identifying stakeholders' values, and for negotiating and agreeing upon a set of core project values that their design concepts should build upon. As homework until the next workshop, they were asked to get in contact with their stakeholders, map their values and develop such a values agreement.
Teaching activities from the OER:

- Introduction to values in design,
- Individual designer's values identification and hierarchy,
- Design team's values identification and hierarchy,
- Listing stakeholders and their values,
- Project values identification (the values agreement).

Workshop 2:
The second workshop started with the students presenting the values agreement consisting of a set of project values that they had identified in collaboration with their stakeholders. There was also a joint discussion about the process of mapping stakeholders' values and the challenges they faced. In the next step of the workshop, they were introduced to a method for constructing value-based design requirements. That is, a method for translating a general value word into actionable design requirements. The exercise consisted of developing a value hierarchy on three levels: 1) Project value, 2) Design objectives, 3) Design requirements. The students were sent off to work in their groups and developed value hierarchies that were then discussed in-class upon return.
Teaching activity from the OER:

- Constructing value-based design requirements.

Research question 2: In what ways do the results produced from partaking in the teaching activities as well as the students' own reflections indicate that they have gained insights into how to go from knowledge to action by designing with values in mind?
The question is answered by presenting and reflecting upon the outcome of the teaching activities:

- Project values identification,
- Constructing value-based design requirements,

and by introducing a series of key insights, which emerged from the analysis of the students' reflections on how the values-oriented teaching activities supported them in their learning and design processes.

Workshop 1: Developing values manifestos and values agreements
The results from Workshop 1 demonstrated that the students developed an awareness of the values that they would like to focus on in their professional practices, and how to communicate, prioritise and negotiate these. They contextualized their individual values in relation to members of their student groups, their design process and collaborations with stakeholders. In their Design team's manifestos, the students listed resources that denote creativity, respect, teamwork, competence development. Several groups mention values like efficiency, consistency, support and mutual respect, positivity, commitment, ambition, equality, community, freedom and honesty/openness. A few mentioned pleasure.
Based on empirical stakeholder research analysed in affinity diagrams, stakeholders' values were mapped. These insights formed the basis for formulating core project values, which were presented in the *centre* of a circle diagram (Figure 2). In the *middle* circle, arguments for the values coming from empirical stakeholder research were presented, and in the *outer* circle actual stakeholder situations were presented. The diagram below is developed by a student group who worked with a digital networking service for elderly women, aiming to combat loneliness.

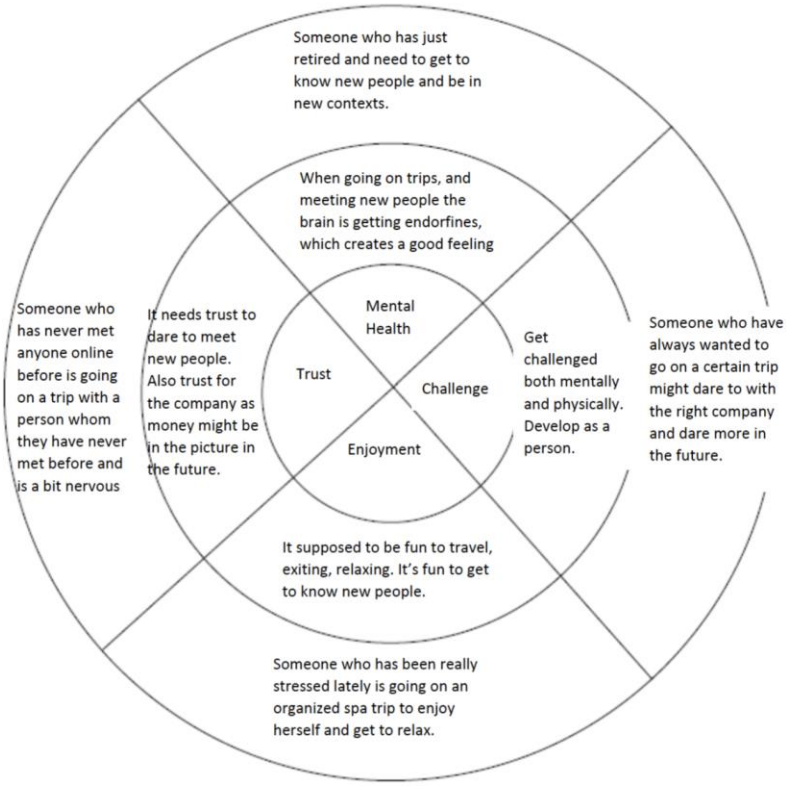

Figure 2. A diagram presenting Value/Arguments/Situations used for developing a digital networking service for elderly.

The diagram was used when presenting and discussing the project values to the stakeholders and formed the basis for an agreement on which values that their design should build upon. The diagram also enabled a discussion around whether the project values were in tension with or how/if they complemented each other. The identification of project values followed by the development of the circle diagram enabled the students to go from *knowing* to *action* by contextualising the project values and for creating an understanding of how specific values could serve as a way to frame their designs and potentially be manifested in their final designs.

Workshop 2: Constructing value-based design requirements

After having identified and agreed upon the project values, the next step for the students was to construct value-based design requirements. This was done by developing a three-layers value hierarchy (Figure 3) (Van de Poel, 2013). In the top layer the project value was added, in the middle layer design objectives were formulated in relation to the value. Based on the objectives, design requirements, that is, actual features and components of their design, were formulated and added to the bottom layer. By constructing such values hierarchies, the project values were systematically translated into design requirements. The student groups' value judgments, that is, their opinions about whether something is good or bad, right or wrong, became explicit, debatable and transparent.

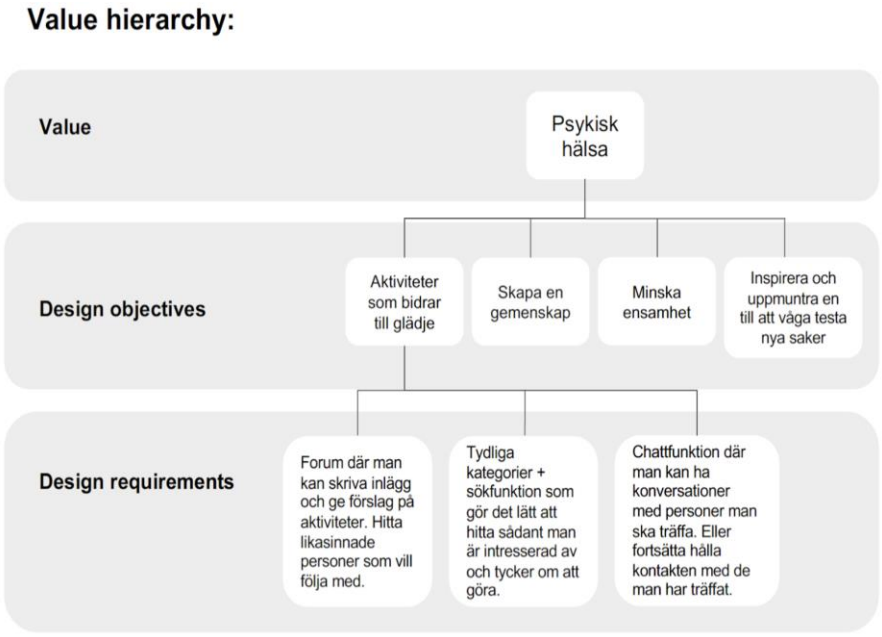

Figure 3. Value hierarchy developed on the value "mental health". The content is written in the original language that the course was taught in. For a translation see the following sections.

The value hierarchy (Figure 3) describes how the student group working on the topic "ageing well" translated their project value "mental health" [psykisk hälsa] into actionable design requirements. In the middle layer they formulated design objectives related to the value, which were:

- "Activities that contribute to joy",
- "Community building",
- "Reduce loneliness",
- "Inspire and encourage members to dare trying new things".

The bottom layer addressed one of these design objectives "Activities that contribute to joy" and three design requirements were formulated:

- "A forum where members can write posts and give suggestions for activities. Find like-minded people who would like to join",
- "Clear categories and a search function that make it easy to find what the members are interested in",
- "Chat function where members can have conversations with other members who they will meet. Or continue to maintain contact with the ones they met".

In the process of developing the value hierarchies the students went from *knowing* about which value to address in their design, to specific design requirements that they could take *action* on, that is, they went from the abstract to something concrete. However, the students did not follow through on all the design objectives. This might indicate that it was a difficult exercise and that students needed in-class support by a teacher to complete the worksheet.

Students' Reflections

In both the individual and group reports, the students were asked to reflect upon how the values-oriented teaching activities supported them in their learning and design processes. The analysis of their reflections resulted in the following key insights:

- *Values guided their design processes*
  Developing a clear and shared understanding of their project values guided their design choices, e.g., when coming up with features in their designs, choosing visual elements, colours, typography, layout, but also for maintaining the goal of their projects.
- *Evaluating ideas at an early stage*
  Identifying values at an early stage in their design process forced the students to evaluate ideas and think of how to market their product to specific audiences already at start.

- *Identifying potential tensions*
  In the process of negotiating and agreeing upon project values, potential value tensions were identified, and conflicts avoided.
- *Balancing, prioritizing and negotiating multiple viewpoints and perspectives*
  In the activities the students got access to a variation of viewpoints. They got insights into how to design through an interplay with individual, design teams and stakeholders' values, and they became aware of the importance of agreeing upon project values both within the design team, and with stakeholders.
- *Going from abstract values to actionable requirements*
  Students reported that they learned how to break down abstract values into design requirements that they can build a design upon.
- *The importance of making responsible choices*
  Students gained an awareness of how products, systems and services based on certain values may impact society and user experiences. They learned that designers can greatly benefit from paying attention to values when designing.
- *Increased self-confidence*
  Students reported that they learned to be critical in a constructive and "positive" way, and had gained tools for achieving more sustainable results, which made them feel more confident as designers.

Conclusion

This case study reports upon how teachers by using a repertoire of values-oriented teaching activities can stimulate a sense of responsibility and professional identity in design students. Design teachers have the potential of becoming agents of change through their pedagogical practices by making the students feel confident to go from *knowledge* to *action* by incorporating the values perspective into the students' design processes through actionable design methods.
To summarise, the teachers created conditions for the students to develop competencies and skills to design with values in mind by:

- Framing the course activities through cases related to topics of social change.
- Engaging students in values- and user centred design processes where students became aware of multiple stakeholders' values, including the design team.
- Enabling students to engage in a transparent and shared process related to identification of project values that were based on empirical research of stakeholders and their values.
- Students engaging in a systematic procedure to discuss design objectives and formulate design requirements that were informed by the project values.

As indicated by the results, working with values gave the students a direction in their design projects, and gave them insights into the importance of taking responsibility for their actions as designers. They also became aware of the importance of identifying stakeholders' values in order to understand how a design might target and affect a specific stakeholder group. As also indicated, some of the students developed an increased confidence, which may foster a professional identity of being a designer that can contribute to a sustainable and sound development of society.

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