TEACHING VALUES IN DESIGN IN HIGHER EDUCATION – TOWARDS THE NEW NORMAL

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EXTENDED ABSTRACT

We can see an uprising trend in various initiatives around the world in order to increase awareness of the role that values play in design (see e.g., Knobel & Bowker, 2011; Nathan et al., 2008). Although this has been a strong research tradition, e.g., initiatives such value sensitive design (Friedman, 1996; Friedman & Hendry, 2019), values in design (Nissenbaum, 2005), values at play (Belman et al., 2009; Flanegan & Nissenbaum, 2014), values-led participatory design (Iversen et al., 2012), we now also see this trend in higher education curricula (Hendry et al., 2020). Identifying ethical and social dilemmas is currently becoming a part of the explicit learning goals in a growing number of university courses aiming to contribute to sustainable and ethical development. However, there is still a lack of educational resources to support such teaching, and a clear articulation of what characterises progression towards becoming a responsible and ethical designer is largely missing.

In response to this, we have initiated a project[1] aiming to develop open educational resources made available online targeting teachers in higher education who wish to teach their students about the role values play in design, and through that create conditions for students to become responsible and ethical designers of future technologies. Our approach to this is *not* to design a full curriculum or course on ethics and values in design, but rather an inspirational repository of different educational resources. The resources may be incorporated at various stages in existing courses and curricula and are designed to easily be appropriated to fit the specific educational context and subject in question. However, although the main aim of teaching values in design is to educate responsible and ethical designers of tomorrow, one question remains – *how do you know when your students have become responsible and ethical designers?*

In order to answer that question, we have developed a research-based model for understanding and articulating progression in teaching values in design (see Figure 1). By combining efforts from previous research, we have identified three core pillars of teaching values in design: I) Ethics and Human Values, II) Designers and Stakeholders, and III) Technology and Design, each pillar containing developed teaching and assessment activities aimed at nurturing responsible and ethical designers. The teaching activities are connected with the levels of competency as described in the SOLO taxonomy (Biggs & Collis, 1982) to enable progression in learning from novice to advanced. Furthermore, the model is structured according to the different phases in a design process in order to indicate when teaching activities for fulfilling particular learning goals preferably could be implemented. The model is a further development of ideas presented in a previous paper (Barendregt et al., 2020), and is here presented in a more elaborated version building on results from piloting activities. We propose this model as a common language for discussing, developing and determining learning goals and educational resources focused on values in design.

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[1] See the project website: vase.mau.se, 2021-03-02.

Figure 1. A model for understanding and articulating progression in teaching values in design in higher education (Teaching values in design, 2021).

Pillars	Design Phase	Solo Taxonomy Level			
		Unistructural ●	**Multistructural** ●●	**Relational** ●●●	**Extended Abstract** ●●●●
Ethics & Human Values	**Values Theory**	**Identify** values and **name** approaches to ethics (e.g., consequentialism) and values in design (e.g., Value-Sensitive Design).	**List**, **describe**, and **combine** different approaches to ethics and values in design.	**Analyze**, **compare**, and **argue** for how values are manifested in design.	**Interpret**, **evaluate**, and **critically reflect on** values and their manifestations in design.
Designers & Stakeholders	**Research**	**Recognize** and **define** the notions around researching designers' and stakeholders' roles and values (e.g., indirect & direct stakeholders).	**List**, **characterize**, and **report** on designers' and stakeholders' roles and values.	**Elicit**, **interpret** and **contrast** designers' and stakeholders' roles and values.	**Judge**, **reason about**, and **critically reflect on** designers' and stakeholders' roles and values.
	Synthesis	**Recognize** and **define** the notions around interpreting and combining different designer and stakeholder values into a design direction (e.g., value manifesto).	**List**, **characterize**, and **report** on notions around interpreting and combining different designer and stakeholder values into a design direction.	**Interpret**, **adapt**, and **plan** one's design direction based on the identified designer and stakeholder values.	**Reason about**, **reflect on**, and **criticize** the newly developed design direction based on the identified designer and stakeholder values.
Technology & Design	**Ideation**	**Identify** methods for ideating with values (e.g., envisioning).	**List** and **describe** methods for ideating with values.	**Adapt** and **apply** methods for ideating with values.	**Critically reflect on** the results of the ideation with values.
	Evaluation	**Identify** methods for evaluating designs in terms of values (e.g., public evaluation).	**List** and **describe** methods for evaluating designs in terms of values.	**Adapt** and **apply** methods for evaluating designs in terms of values.	**Critically reflect on** the evaluation of the designs in terms of values.

The model has been applied in the development of a collection of teaching and assessment activities, which have been piloted in various national and educational contexts. The teaching activities range from lectures on theoretical grounding of values and ethics to exercises in identifying one's own values as a designer to those of stakeholders, how values are manifested in products and further how to envision the implications and long-term effects of designs. The assessment activities support summative, formative, ipsative and authentic assessment forms, and range from identifying real world examples of values in products, to students creating value manifestos. The model has been crucial in the iterative development work of both teaching and assessment activities. Piloting is still underway, but so far 1,563 students have tried one or more activities within 38 courses during 2018-2021.

Through the application of the model, we conclude that becoming a responsible and ethical designer is a matter of reaching a high competency level regarding paying attention to ethics and human values, people and stakeholders, and technology and design, before, during and after the design process. By formulating examples of concrete learning goals, we illustrate how the model can be used by teachers to articulate, determine and compare learning goals, so that learning goals are aligned and complement each other from one competency level to the next.

Furthermore, by combining attitudes and values with knowledge and skills in line with the OECD Learning compass 2030 (OECD, n.d.), we argue that in order to be a responsible and ethical designer of tomorrow's technologies, students need to reach the relational and extended abstract levels as described in the SOLO taxonomy (Biggs & Collis, 1982). Therefore, when teaching for educating responsible and ethical designers, teachers need to support the students in the process of "coming to know", "becoming able to act", as well as in the process of "obtaining an identity" (Barnett, 2005; Barnett 2009). This approach acknowledges that principles and beliefs influencing one's design choices, judgements, behaviours and actions in regard to the individual, society and environment, and is vital for an autonomous critical reflective engagement in the development of technologies.

It is the hope of the authors that this emerging model of progression in teaching values in design can serve as a guidance for teachers across different educational and cultural contexts in regard to what to expect from students at different levels of competency. We also hope that the model and the hands-on teaching activities that have been developed may potentially encourage and create initiatives for teachers to better incorporate and address values in design at their courses aiming to contribute to

sustainable and ethical development – and that this is a path towards a *new normal*. Looking ahead, we invite other teachers, researchers and practitioners to critique, revise and discuss the model.

KEYWORDS: values in design, assessment, responsible design, ethics, higher education

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