

PERSONAL VALUES AS A CATALYST FOR MEANINGFUL INNOVATIONS: SUPPORTING YOUNG DESIGNERS IN COLLABORATIVE PRACTICE

Onselen, Lenny van; Valkenburg, Rianne
The Hague University of Applied Sciences, Netherlands

Abstract

The overall aim of this research is to assist junior designers in using their personal values and those of others for creating meaningful innovations. Studying the use of values in design is new to the design research field and there is a lack of a validated approach to cope with conflicts of values. In this paper we outline the theoretical framework and the view from practice as a foundation for our research approach. From the literature review can be concluded that values have an influence on behavior, decision making (Trimingham 2008), collaboration (Bergema et al, 2011; Kets de Vries et al, 1997), creativity (Rothkegel 2012) and the design result (Trimingham 2008). The use of values in practice was explored through semi-structured interviews with four design professionals and one design student. Additionally a semi-structured interview with Dr den Ouden was conducted to better understand the value framework (Ouden, 2012). Analyzing the interviews made us realize that conflicts are not uncommon and can result in abandonment of the project or termination of the collaboration. At the end of the paper we propose two research questions and research methodology.

Keywords: Collaborative design, Personal Values, Meaningful Innovation, Design theory, Design learning

Contact:

Lenny van Onselen
The Hague University of Applied Sciences
Designerly Innovation Research group
Netherlands, The
l.vanonselen@hhs.nl

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1 INTRODUCTION

Designers used to work on constrained design tasks assigned by their employers or clients. Nowadays designers are given the role of explorer of problems, thus bringing responsibility to the table going beyond the traditional designer roles of stylistic enhancement and solving engineering problems. From society comes the demand for more meaningful innovations “that improve quality of life, engage users and provide value for organisations and other stakeholders” (Ouden, 2012). Creating meaningful innovations cannot be done without considering values from different stakeholder perspectives as recognized by European Union (Hoven and Jacob, 2013).

As the responsibility of a designer is changing, the act of designing is changing as well. Designing today is more often about the embodiment of ideas, values and beliefs created with a multidisciplinary approach (Zelenko and Felton, 2013). Designers not only add economic value, they are also expected to design with ethics and values in mind. The term ‘values’ refers to what is important in someone’s life and guides that person’s behaviour¹. Trimmingham (2008) found that both internal and external values influence the designer’s decisions and if ignored this can lead to inappropriate designs.

Designers no longer act individually, but work in teams and co-create solutions with various stakeholders (e.g. suppliers and users). This adds a level of complexity. A study found that defining common values is a recurring issue in networked innovation (Bergema et al., 2011). A common goal can often easily be defined, but different values can lead to differing opinions and design decisions. Poor integration of values can impair the teams decision-making process and if ignored jeopardize the design process, and even result in termination of the collaboration.

Due to today’s complex design situations junior designers need to have a sound grasp of their personal values and those of others, to use them for creating meaningful innovations. Preferably they gain these competencies early on in their careers. It is however not uncommon for recent graduates to feel frustration when they experience differing value perspectives from their colleagues, employers or clients (from conversations with junior designers, 2013). When junior designers start working together with more senior co-workers or clients this struggle can become an obstacle for creativity. Peer pressure and values of the group can block creativity and innovation (Rothkegel, 2012). In multidisciplinary project teams the problem might be large and it grows even larger in teams from different collaboration partners in networked innovation, a commonly used form of open innovation (Maurer and Valkenburg, 2013).

Junior design professionals often deal with the dilemma of staying true to their personal values while collaborating with others. They struggle to fit their personal values with the values of the company, managers, clients, partners, other team members, etc. The struggles are possibly because their values are not yet very explicit or because they are insecure about their personal values. Simply copying the values of others is no ideal solution. There is a good chance this leads to frustration. Is there a way to make it easier for junior designers to use their personal values and those of others to create meaningful innovations?

The overall aim of this research is to assist junior designers in using their values and those of others for creating meaningful innovations. The central problem statement of the research is:

How can we have junior designers gain a better understanding of their personal values and provide them with a design approach to use these values effectively for creating meaningful innovations in collaboration with others?

In this paper the literature on collaboration, values and professionalization is summarized, followed by an explorative study in practice. The paper ends with a discussion on the results and the vision on future research contributing to the field of using personal values as a catalyst for meaningful innovation.

¹ There is a slight difference with the singular version of the noun. ‘Value’ means importance or amount of money. The term ‘values’ gives a more comprehensive, holistic view (Ouden, 2012). In the Cambridge dictionary values are defined as “the beliefs people have about what is right and wrong and what is most important in life, which control their behaviour.”

2 THEORETICAL FRAMEWORK

In this chapter relevant subjects are discussed to dive deeper in the problem area. On the one hand it provides more background information on the problem and on the other hand it is a start towards a theoretical framework for the research project.

2.1 Design practice research

Literature on research of design practice dates back to the early sixties (Valkenburg, 2000). In the eighties researchers studied how individual designers work, as this was contemporary practice (Cross, 1982), but towards the end of the millennium designers started to work more in project teams on larger design projects (Cross and Clayburn Cross, 1995). The complexity of design projects increased due to faster time-to-market, non-linear processes and co-operation with other disciplines. Parallel to this development, studies shifted more towards designing in teams in which collaboration and knowledge transfer were points of interest (Kleinsmann, 2006; Dong, 2005; Stempfle and Badke-Schaub, 2002; Valkenburg, 2000). Design communication and knowledge transfer were also studied on the organizational level across team boundaries (Maier et al., 2006; Carlile, 2004).

In the new millennium the complexity of design increased when companies tried to tackle global competition and societal problems. These problems were solved beyond teams and organization and thus attention of research moved towards innovation networks and ecosystems (Curley et al., 2013; Maurer and Valkenburg, 2013; Bergema et al., 2011; Crilly et al., 2008). The last decade companies have started to open up and moved to a more open type of innovation. Open innovation is externally focussed collaborative innovation as opposed to the traditional way of innovation – closed innovation – a more central inward-looking type of innovation.

2.2 Collaboration

A multidisciplinary approach is needed for creating meaningful innovations. Scholars recognized design as a social activity (Le Dantec, 2010; Lloyd, 2009; Michlewski, 2008). In global project teams problems that surface technical issues are not uncommon, but they are often linked to social, psychological and organizational problems (Thamhain, 2013). In his article Thamhain (2013) concludes that to enable project success the project leader should emphasize on shared values and goals to unify the team. This is supported by Svihla (2010) who states that design is the intersection of different skills and values of the team and not the sum of it all.

One of the success factors of innovation is collaboration in true cross functional teams (Cooper, 1999). Collaboration happens when people ‘divide work effectively’, assist each other as much as possible with ‘joint contribution’ and sharing of ‘accurate information’ (Pei et al., 2010). Nowadays companies innovate with people from outside the company. This so called ‘open’ innovation approach makes collaboration even more complex. In innovation, four relationship types between businesses can be defined: collaborative, cooperative, competitive and adversarial (Hattori and Lapidus, 2004).

Research shows various factors contribute to the success of cross-functional teams. McDonough (2000) identified important context factors such as appropriate project goals, empowerment of the team, good human resources, and a productive climate. Also positive effects can be achieved by appropriate team behaviours, such as cooperation, commitment, ownership, respect and trust. The study by Thamhain (2013) shows that catalysts for unification of the team are personal interests of team members, pride and satisfaction.

McDonough (2000) states trust is important in collaboration. Trust in teams occurs when these criteria are met: 1) interactions between members have to be authentic, 2) members have to have a history of delivering promises, 3) everyone fulfils their responsibilities, 4) all participants have to be interested in the well-being of others (Hattori and Lapidus, 2004). Trust can be achieved by negotiating expectations, building positive relationships, encouraging shared commitment and formulating a clear team mission (Webber, 2002). Trust in a team might be increased by inclusion and seeing partners as insiders of the group (Jassawalla and Sashittal, 1998).

Different skills, language and views in cross-functional teams lead to contrasting outcomes which may create conflict between team members (Pei et al., 2010). Conflict is likely to play a significant role in decision making if problems or concerns need to be discussed by team members (Lovelace et al., 2001). Therefore it might be better to have “conflict openness norms” than no conflicts at all (Jehn, 1995).

2.3 Values

Only recently design researchers have started to investigate the role of values in design and innovation. Most studies on values in design focused on the values of individual designers (Kelly et al., 2011; Le Dantec and Do, 2009; Trimingham, 2008). Others make suggestions on how to integrate user values into the design process (Hernandez, 2013; Friedman et al., 2002). One study focused on the effect of organizational values in product design (Rothkegel, 2012). Various design fields have been used as a context for these studies, such as architecture and computer engineering. Only Rothkegel (2012) has focused on product design.

A few theoretical value models for design and innovation can be found in literature. These models mostly use one particular scientific perspective, for example sustainability as Boradkar (2010) and Bocken et al. (2013) have done. Trimingham (2008) and Ouden (2012) both integrate various perspectives of the social sciences relevant to innovation into one single framework. They give an interesting review of the literature on values and both can be used as a theoretical basis for this project. The model of Trimingham is more focused on the designer and designing (see Figure 1). She makes a useful distinction between external and internal values. The framework of Ouden encompasses more levels of value and is centred around the user (see Figure 2). This value framework was developed for use in open innovation.

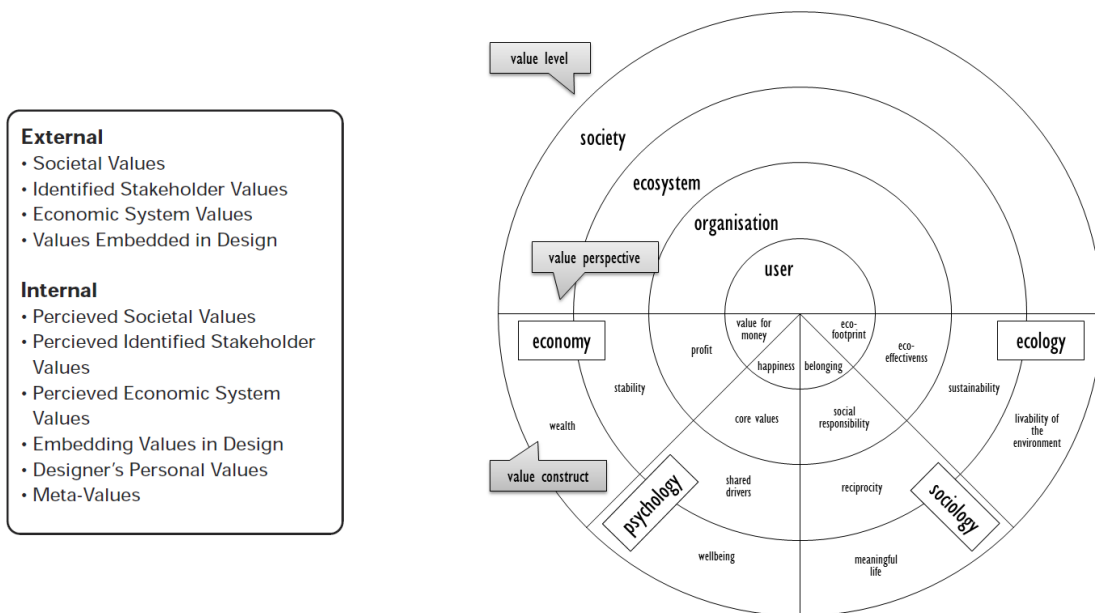


Figure 1. Internal & external values used in design by Trimingham (2008)

Figure 2. Value Framework adopted from Ouden (2012)

Personal values of the designers are important in design collaboration as they define attitudes and norms that guide team members' behaviour (Kets de Vries et al., 1997). In the fields of psychology and sociology a lot has been written on personal values (e.g. Rokeach, 1973; Schwartz, 2001). The list of values Rokeach (1973) has defined is not comprehensive and not based on theory (Braithwaite and Law, 1985; Schwartz, 2001).

According to Schwartz (2001) values can be ordered and grouped together in a set of value priorities. Value priorities can be influenced by location (e.g. education, culture, gender) as well as unique experiences (e.g. trauma, relations, immigration). Schwartz (2001) argues many survey items do not take the set of value priorities into account. Schwartz (2006) defines 10 basic human values plotted in a relation diagram (see Figure 3).



Figure 3. Relations among ten motivational types of values adopted from Schwartz (2006)

2.4 Professionalization

The dilemma of junior designers of staying true to their personal values while collaborating with others might partly be due to their professionalization process. Professionalization is a social process in which a person becomes competent and understands the norms of ‘the professional’ field.

Matters such as work engagement and job satisfaction are important in becoming a professional. In the field of vocational studies a lot is written on these matters. Sortheix et al. (2013) have found in their study among young adults that intrinsic values and value congruence with the organization contribute positively with work engagement. Alongside behaving proactively is important to build professional relationships and gaining full support of supervisors (Cooper-Thomas et al., 2014). These supervisors can have a strong effect on the well-being of the young, especially for a meaningful job experience (Monnot and Beehr, 2014).

The effect of calling on work engagement is strong as it also increases job satisfaction and life meaning (Duffy and Dik, 2013). Duffy and Dik (2013) also mention that students who make clear career plans and are confident in their career decisions have a stronger job commitment than others. A pre-entry fit perception is important for social integration in the organization leading to better commitment (Nägele and Neuenschwander, 2014). Emotional connection with the job leads to better performance of project teams and increase the intention to stay as an employee (Stumpf et al., 2013). Additionally, skill, competencies and expertise are essential aspects in the professionalization process. Dreyfus (2004) has listed levels of expertise for all professions. A similar list has been developed for design expertise by Lawson and Dorst (2013). In Table 1 a comparison is made between the two descriptions of levels of expertise. There is a debate if placing someone in these categories is preferred because gaining expertise is a more gradual and continuously changing development (Dall’Alba and Sandberg, 2006). However, it can help distinguish a junior from senior design professional. In collaborative practice expert designers often partner up with less experienced designers (Lawson and Dorst, 2013) bringing different levels of expertise to the table.

Table 1. Levels of expertise adopted from Dreyfus (2004) and Lawson and Dorst (2013)

Level of expertise	General expertise	Design expertise
Novice	No experience in task domain	Follows strict rules
Advanced beginner	Gains experience with real situations	General truths are used
Competent	Gets overloaded, needs to plan and choose a perspective	Problem solver, learning-reflection
Proficient	Intuitive behaviour replaces reasoned responses	
Expert	Immediate situational response	Responds intuitively
Master		Deeper involvement in professional field
Visionary		Strives to extend the domain and find new ways of doing

Kleinsmann et al. (2012) have studied how collaboration skills of designers develop from novice level towards expert level. Understandably, student designers at bachelor level are integrating knowledge on a shallow level. More experienced students are able to share detailed knowledge but have difficulties to reach their goals. Design professionals have effective and efficient knowledge integration processes. The groups in the study were very homogeneous and stages other than novice and expert level were not explored.

In the study by Deken et al. (2009) knowledge sharing between novice and expert designers was explored. They found that although experts have the upper hand, novice designers do contribute knowledge. Mostly the novices bring knowledge that is readily available in a company and experts contribute experience and knowledge from other sources (Deken et al., 2009). The novice designers in this study are junior staff members. Their level of expertise would correspond better with the advanced beginner or competent level than with the novice level (see Table 1).

2.5 Conclusions of the literature review

The literature review reveals the importance of values in design, collaboration and professional life. However, the field of design research still lacks a thorough understanding on using personal values for meaningful innovation in collaborative practice.

To summarise, values have an influence on behaviour, decision making (Trimingham, 2008), collaboration (Bergema et al., 2011; Kets de Vries et al., 1997), creativity (Rothkegel, 2012) and the design result (Trimingham, 2008). Differing values can lead to unapt design decisions and solutions. Poor overview of shared values may jeopardize the design process and collaboration in teams. Especially now the development of open and networked innovation has increased the complexity in collaboration. Insight into the use of values in design is available from different perspectives, but they are rather complex. To enable young designers to feel engaged and motivated, value congruence with the company and team is important. Emotional job engagement and a sense of calling can even lead to better team performances and results.

For a theoretical basis the value framework (Ouden, 2012) gives us a comprehensive overview of values contributing to meaningful innovation. However, next to the complex structure it is also not applied and validated as a tool for collaboration. It is debatable if it is useful for junior designers. The diagram of motivation values of Schwartz (2006) may be useful to map the designers' set of intrinsic motivational values. The connection between both value frameworks may be the model of Trimingham (2008) as she connected both internal and external use of values. Trimingham's model is focussed on the individual designer and not on collaboration in teams and networks. Linking these different models can be interesting for further exploration.

3 VIEW FROM PRACTICE

The literature review gave us a theoretical framework for the research project. In order to verify the use of values we did an explorative study in practice. The aim of this study was to find out what value perspectives practitioners find important and if value conflicts occur.

3.1 Methodology

Five semi-structured interviews were conducted between April and November 2014. Additionally a unstructured interview with Dr den Ouden was executed to gain a better understanding of her value framework and its perspectives. A topic list was developed to gather general insights into collaboration and specific insights into what values play a role and how they do so in networked innovation. Over the course of the interviews the topic list slightly adapted to new insights from the interviews and the literature review. The main topics discussed were: (1) role interviewee, (2) approach of innovation projects, (3) collaboration in innovation projects, (4) value perspectives used (economic, psychological, sociological, or ecological), (5) value conflicts that occurred, and (6) value levels used (user, organisation, ecosystem and society).

The respondents were selected based on their experience with an innovation project with two or more (external) parties, such as companies, institutions, and consumers (see Table 2). All respondents have a background in Industrial Design Engineering, from two different Dutch universities. We selected five interviewees based on the diversity of roles and organization types. Afterwards we checked

diversity based on their innovation type (Curley et al., 2013), relationship type (Hattori and Lapidus, 2004), and expertise level (Lawson and Dorst, 2013).

Table 2. The characteristics of the interviewees

Characteristics	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5
Role	Project lead	Design manager	Researcher	Consultant	Design student
Organization size	Multinational >10.000	SME >100	University	Freelancer	Start-up company
Innovation type	Closed Innovation (semi open)	Open innovation	Networked innovation	Consultancy in open innovation	Open innovation
Relationship type	Cooperative	Competitive	Collaborative	Collaborative	Cooperative
Expertise level	Master exp. >10 yrs	Expert exp. >10 yrs	Competent exp. 2 yrs	Master exp. >10 yrs	Advanced beginner

The interviews were audio recorded. Detailed expanded notes were analysed in a sequence of coding rounds. The data was coded in the first round following the descriptive coding procedure by describing the basic topic of a passage of text (Saldana, 2009). Two codes were examined in detail ‘values’ (as a discussion topic) and ‘conflict’ (the activity and process). In the category ‘values’ more rounds of coding were applied to connect the values with the value framework (Ouden, 2012). In the category of ‘conflicts’ one round of coding was added. The codes described the reason of conflict: ‘fit’, ‘approach’, ‘price’, and ‘value level’. The data of the interview with Dr den Ouden was used to cross-check the data of the five other interviews.

3.2 Results

The results were summarized in three categories: (1) value perspectives, (2) value levels, and (3) value conflicts.

Value perspectives: The data gave insight into what designers find important. For example, respondent 4 said about designing a new product for a bicycle manufacturer: “There was a lot of ambition to do something good for society and that was closely connected to the ecological perspective”. In this fragment one can recognize the importance of the sociological and ecological perspective.

Respondent 1 mentioned neither the ecological nor the sociological perspective, but the economic and psychological aspects were brought up mainly on user and organizational level. Respondent 2 seemed to find the ecological perspective of less importance as “it comes automatically. You see the change in the supply base already.” This respondent seemed most enthused about the sociological perspective, but the values he mentioned were mostly economic and psychological. Respondent 3 noted that the economical perspective is most important for companies and the ecological perspective always comes last. The main driver of respondent 5 was sustainability – thus representing the ecological perspective. Even he found it hard to completely stay in line with his values when working for his start-up.

Dr den Ouden explained that the economic perspective is the most concrete and easy to understand. The psychological and sociological are more abstract and seemed more unconsciously identified by the participants. Words used to describe these values were for example ‘brand values’, ‘product features’, and ‘personality’. The ecological perspective is the most abstract perspective according Dr den Ouden. This means there is a gap between the abstraction level of the economic and ecological perspective. This might be an explanation for what respondent 4 said: “There is a lot of tension between the economic and ecological perspective.” The ecological perspective is not often considered important and sometimes even neglected.

Value levels: All respondents addressed the importance of the user, which might originate from their profession. They all mentioned that designers often bring in this standpoint as others seem to forget about this value level. This was subscribed to by Dr den Ouden, explaining that companies place themselves in the centre of a value network, but she stressed that the user should be the central figure.

Value conflicts: The data also gave us insight into what value conflicts emerge (see Table 3). Conflicts arose about issues such as value level (e.g. user versus organization), differences on the approach to a project (e.g. funnel versus iterative), and the fit of a project with personal or brand

values of involved parties. One case resulted in an improved design and three cases ended with a compromise. Four respondents had experience with the abandonment of the project because of the conflict situation, three of which were due to the fit of the project with values of the parties involved and one in which different value levels were considered most important (user vs organization).

Table 3. Value conflicts experienced by respondents

Respondent	Project	Conflicts on	Result
1	-	-	-
2	Various Cooling elements	Fit brand values Price	Abandonment project Improvement of design
3	Lamp for elderly Various	Value level Project approach	Abandonment project Compromise
4	Bike & scooter factory Human resource project	Project approach Fit personal values	Compromise Abandonment project
5	Ceramic watch	Fit personal values	Abandonment project

4 CONCLUSION AND FURTHER RESEARCH

Studying the use of values in design is new to the design research field, as most studies have been published after 2008 and mostly in conference proceedings. Both the literature review and explorative study have shown us the importance of values in the design process. However, there is a lack of studies on the use of personal values in meaningful innovation in collaborative practice.

In the exploratory study all four perspectives and levels of the value framework (Ouden, 2012) have been addressed by the respondents. This tallies with the opinion of Dr den Ouden that an innovation can be considered valuable if it addresses each perspective at all levels. Other scholars subscribe the importance of integrating competing values (Hoven and Jacob, 2013; Svihla, 2010; Lloyd, 2009).

Another outcome of the explorative study has been that integrating different value perspectives in networked innovation is a complex task. Keeping one's own basic values in collaboration with all parties is hard especially for junior design professionals. Additionally, these designers felt the urge to represent value perspectives beyond their personal perspective (e.g. social or ecological values) thus increasing the complexity.

The interviews taught us that senior design professionals are better at using personal values purposefully in innovation projects. Experience with frustrations of unsatisfying compromises and maddening collaborations gives designers insight in their own values. We can also conclude that conflicts are not uncommon and can result in abandonment of the project or termination of the collaboration.

The value framework of Ouden (2012) can be used as a foundation for the approach. However, the framework has never been validated and is rather complex, thus further research is required. Adapting the value framework might help (junior) designers to apply it in collaborative practice more easily. Integration with the motivational values of Schwartz (2006) can be useful to bring both internal and external use of values together. The model of Trimmingham (2008) could be a starting point where internal and external use of values is combined. However Trimmingham's model needs to be adapted to a collaborative perspective. Further development of the theoretical body is necessary.

Studying how senior designers work with ethics and values in mind while designing in teams could be an interesting direction for future research. Our aim is to gain knowledge of value conflicts experienced by junior design professionals. First we need to understand what complications or conflicts junior designers face if they want to stay true to their own values while working in design teams. This leads to our first research question: What conflict(s) of values do junior design professionals experience?

To support junior design professionals it is crucial to not only discover what conflicts are experienced, but also to identify how designers can cope with these conflicts. In combination with theoretical insights this can lead to an approach of coping with value conflicts in collaboration. This leads to our second research question: How can junior design professionals cope with conflicts of values?

We will interview expert and junior designers on their experiences to find the answers to the proposed research questions. The results of the interviews could be used to build narratives around conflicts of

values situated in collaborative design. The study intends to deliver an overview of coping strategies and an approach to cope with friction caused by differing value perspectives.

The value of this research lies in supporting junior designers in applying their values and of those of their co-workers for creating meaningful innovations. Difficulties in using values to create meaningful innovations are recognized in the field as showed by the results of the explorative study. The lack of a validated approach indicates the significance of this study for science, design education and practice. The empirical insights about conflicts of values of junior designers in collaborative design can contribute to the design research field. Ultimately it could lead to scientific knowledge about the use of values in meaningful innovation.

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