



Improving Value-Awareness Through Storytelling in User Experience Design

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Abstract. Value has been one of the topics in HCI and design field with various definitions from perspectives. Values are in essence related to experience because they are personal perception and assessment on objects, products, or services. Hence, it makes sense to involve values in user experience design and make values as one of the design goals. However, values are usually easy to take for granted but hard to work with in design practices. This paper proposed a storytelling-value approach with the aim to improve awareness of values in user experience design. It was based on storytelling methodology that emphasizes scenario-based envisioning and the results from a focus group which involved user experience designer in to discuss values in UX design. A co-design workshop was conducted as a support for improvement of the approach. It is promising to optimize this storytelling-value approach in the future since most of the participants showed their positive attitudes not only to the necessity in methods development but also to the acceptance of this approach.

Keywords: Values · Value awareness · Storytelling · User experience

1 Introduction

Value has been long considered in HCI and design field, and many approaches or tools have been developed to explore and support value creation, especially in product and service innovation. It is generally defined and discussed from economic and moral perspectives, such as customer value, value proposition design [1] emphasising on creating product and service that customer wants, and value-sensitive design [2] focusing on designing to support moral values of human wellbeing. Researches in participatory design are paid attention to values-led inquiry in support of participants' values [3, 4]. As value is defined as one of the constructs of user experience [5] and value is also characterized as an experience [6], it makes sense to involve value in the consideration of user experience design and make value as one of the user experience design goals. The majority of the adoption in user experience design is the combination of user experience and business models to pursue value creation, for instance, the value design method [7]. However, though these approaches stress on values creation, there is a lack of research on awareness of values from designers' perspective. Meanwhile, the

design methodology for value in user experience design process has not been made explicit to be effectively and easily adopted. Practitioners in user experience design cannot yet fully appreciate the benefits and importance of value creation in early design stages since they mostly separate values from experience and forget to consider about values due to lacking value awareness. Hence, the lack of value awareness results in a lack of clear understanding of how to work with value. There is obviously a need for such practical or operational approaches. In this paper, we present a research on an approach based on storytelling which emphasize improving value awareness by understanding and foregrounding of value in storytelling process from designers' perspective. The goal of this research was to provide visions that enhance UX designers' awareness of values to bridge the gap between designers' intention and users' needs fulfilment, then to improve user experience design.

In this paper, we first reviewed relevant literature on value both within and outside design field. Next, a focus group was held by involving UX designers to collect their opinions on values in their user experience design practices to gain insights into the approach development. Then, we presented the storytelling-value approach and gathered feedback for improvement. Finally, we considered several specific aspects of future work.

This research is experimental yet grounds on a literature study and exemplary application. It provides a direction for user experience designers to take value into account in the design process. The value awareness also indicates that value in user experience design should be viewed as a holistic system, not only focusing value creation, but also laying equal emphasis on other aspects like value delivery, value perception and value realization.

2 Related Work

Values are wildly discussed in design from many different perspectives. What values are involved in design? Whose values are at issue? How to work with values? How to decide users' feedback of values? All the questions should be comprehended by designers. Values usually refer to wealth, loyalty, equality, justice etc. However, there is no common definition of value in HCI [8] as researchers pointed out. A value is a shared idea about people's beliefs of something in desirability, goodness [9] or worth. Generally speaking, there are three main perspectives in HCI and design field: economic values, human values and user values of products. From economic perspective, values are usually interpreted with money like return and investment, referring to the economic worth objects [10], products or services. Human values are another thread which include moral values such as right, autonomy, privacy, etc. and non-moral values pertinent to ownership, property, etc. User values of products, similar to customer values, usually focus on usability which indicates the desired benefits of a product [11].

The literatures concerning value in design are the methodologies of value-centric design [12, 13] and value-driven design [14]. Value-centric design has been popular based on the background of Donald Norman's proposition of considering users in design [15] which lays the foundation for user-centred design methodology. It requires

designers not only to know what values should be considered but also to understand whose values are at issue. Friedman et al. made a notable contribution to understanding and accounting for values by introducing value-sensitive design (VSD) [2, 11]. She defines value with an extended meaning as “what a person or group of people consider important in life” [10]. Value-sensitive design as a theoretically grounded approach supports designers to keep an eye toward values in design process from three aspects: conceptual investigation, empirical investigation and technical investigations [2]. Conceptual investigation helps to answer some basic questions, such as what values and whose values should be taken into account. Empirical investigation focus on human context and technical investigations involves consideration of technologies. Friedman and her colleagues also developed value scenarios as “a technique to envisioning systemic effect of new technologies” [16] and the envisioning cards as “a toolkit for catalysing humanistic and technical imaginations” [17] to make value-sensitive design method more operational by envisioning techniques. Because value-sensitive design approach roots in social-technical analysis, it takes account of the human values with attention to importance in human life such as right, privacy, and autonomy, which seems separating value from user experience. However, it is worth mentioning that its envisioning section implies the possible directions of talking about values in an imaginal style which is in accord with our proposed storytelling method.

Values are much studied in participatory design (PD) since PD which involves end-users as participants into design process has an inherent focus on values. Value-led inquiry [3, 4] proposed by Iversen et al. is used in participatory design (PD) for designers to engage with human values. It has been proved positively to promotes the value awareness of the participants in PD. Though it highlights the emergent and dynamic properties of value in dialogical process, it regards values separately from experience, while experience as proposed by Hassenzahl as dynamic, subjective and context-dependent [18] shares the some of the same properties with values. Others about value in design are mostly from design management perspectives which combine business value and customer value into design, for instance, Bussracumpakorn, C studied different values perceived by customers to demonstrate the significant role of design is value creation [19]; the proposition of emotional value creation through co-prototyping [20]; a model quantifies and visualises design values within service design industry from customers’ perspective [21]; the value design method was proposed by Gultekin et al. to assist designers to integrate user insights, business insights and stakeholder expectations in design process [7]. It seems that attention is paid to value creation in most of the current researches.

Literatures of user values also indicate that values sometimes be confused with universal usability. Usability mostly refers to the product’s characteristics especially in performance, including utility, ease of use, easy to learn, easy to recover from errors, etc. [22]. While user values not only depend on users’ perception of the performance and quality of a product, but also are influenced by the goals and contexts, etc. Through the interaction between users and the product, experience changes over time, and values do the same.

Values in design are substantially users' measures of products' worth in particular contexts. Users engage in value-seeking by interaction with products based on their expectations. They would experience values through the mental process including value expectation—value perception—value realization. Values are generic experience and work as one construct of user experience [5]. Helkkula et al. characterized values as an experience [6] from the perspective of phenomenology. Values are always connected to values experience or experience of values. Though values differ individually and culturally, the temporal, dynamic and contextual features of values in accordance with other ordinary user experiences makes it reasonable to be discussed by storytelling which potentially helps people to interpret and make sense of experience as well. Storytelling is a narrative methodology offering illustrations of past and current experience and imagination of future through stories. It supports to explore user experience and values in various contexts. Hence, it makes sense to involve values in user experience design and make values as one of the design goals.

3 Research Methods

In order to facilitate UX designers to work with value in user experience design process, a focus group was conducted to collect their opinions on value in the context of user experience design including definitions of values, what values they take into account when designing, and how they involve values in design activities. The whole process was recorded into audio documents and analysed. The results of the focus group provided insights to develop our storytelling method to support UX designers think about values. The framework of the storytelling-value approach was proposed and developed through co-design with designer in a workshop.

4 A Focus Group

In the focus group, 15 designers (60% male and 40% female) were involved in to share their viewpoints about values. The participants including Ph.D.'s (46.7%), master students (40%) and undergraduate students (13.3%) were working or ever worked for user experience design. Their experience in UX design (60% of them have experience more than three years, 6.7% less than one year, and 33.3% between one year to three years) was reported by themselves in an information sheet before the starting the focus group discussion. All of them believed that they had the experience working with value (here we indicated the working with value by not only involving values but also just thinking about them based on their own definitions). During the focus group, participants discussed and shared their opinions of values based on user experience design context. The audio record of the focus group was transcribed verbatim and individual quotes were extracted and labelled. Three researchers involved in the analysis of the quotes and coding process.

The results of the focus group can be summarized into three aspects: First, all of the participants believed that a need for the methodology or tools to support value in user experience design probably exists, because it seems not as expected to involve values in

design practice. The examples of their opinions like: “I think about values of my design from my own perspective and I am not quite sure whether the users will get it.” “I worked with value mostly by giving functionalities to the products or improving usability”. “The values depend on the feedback of the users and I can only confirm them after the testing. How can I know that earlier?” Secondly, their discussion about values in UX design mostly referred to users’ assessment of owning, using and experience products. For instance, more than half of the participants believed values mean goals achievement or needs fulfilment after using the products. Thirdly, though the participants have their own definitions on values which are quite different, some similar key words were selected such as “quality”, “functionality”, “useful”, “good usability”, “good experience”, etc. The mentioned values in user experience design mainly focused on the topics such as user, experience, using, products and the related quotes were categorized into two main clusters (shown in Table 1): product-inherent values which refers to opinions about the products as the output of user experience design including functional and aesthetic ones, and personal values that were related to values

Table 1. The clustering of the quotes about values in user experience design

Category	Sub-category	Quote no.	Examples
Product-inherent values	Functional values	38	Good performance Use advanced technology Usefulness Good usability Achieve goals Meet needs ...
	Aesthetic values	27	Beautiful Nice look Nice colours Good interface design ...
Personal values	Emotional values	36	Satisfied Happy after using Enjoy myself when using Simple to use Interesting Flow ...
	Social values	8	Get respect More socially connected Get recognition Helpfulness ...
	Cultural values	6	Culture symbolic Cultural colours and icons Expressing cultural features ...

endorsed by individuals about personal aspects. The product-inherent values are the ones that more focus on product itself, generated and perceived by users directly from encountering and interacting with products. While the personal values include both moral values and non-moral values, as categorized into three sub-categories: emotional values, social values and cultural values. The clustering helped us to get a sense of the values that are involved in user experience design. We used these identified values in the development of the storytelling-value approach.

5 Storytelling-Value Approach Introduction

Based on the literature and the results of the focus group, we proposed that user experience designers can work with value in storytelling followed by the two sections: Analyse by storytelling and Envision by storytelling (shown in Fig. 1). For UX designers, what to design and how to design are the two important questions needed to be considered even before starting design. We made design for the future based on past and current situations or problems, and storytelling facilitate us to figure out the problems, analyse the design opportunities and envision the design. However, Values can be taken into account from different perspectives and purposes in different stages of UX design. They are not designed directed, but embedded inherently in the designed products and experienced by users through perception by encountering and interaction, and ex post realization. Hence, UX designers should think about and deal with values from a holistic point of view by taking users into consideration. There are three phases in the relationship between users and products: before using—in using—after using. Before using, users possibly have already got the expected values, while from designers' perspectives, these values are related to users' needs and should be considered as the intended values and the delivered values when designing. In the analysis phase of the storytelling, they can analyse what values that users need and can be converted into the intended values, then they can decide what to design and how to involve values in to deliver the intended values based on their design assumptions, like improving human welfare by the products or services, or just simply design to solve a problem in the daily life. In envisioning phase, UX designers can envision in storytelling and these future scenarios in storytelling offer designers vivid illustrations about the value perception and realization by users.

The proposed Storytelling-Value Approach is based on the story construction part (see Fig. 2) of the Integrated Storytelling Method [23] we introduced before. The Integrated storytelling method provides a framework of storytelling methodology to support user experience design. This storytelling-value approach is an extension which more focuses on value awareness. Based on the same five stages: Setting—Development 1—Climax—Development 2—Ending, more attention is paid to the later three stages. In climax in the storytelling process, the problems emerging and developing into conflicts are analysed under the same conflict analysis principle, which stresses the comparison of the basic needs of users and reality. Values are usually indicated by these needs. The analysing and envision phases are highlighted and detailed in the stages from climax to ending as Fig. 3 shows.

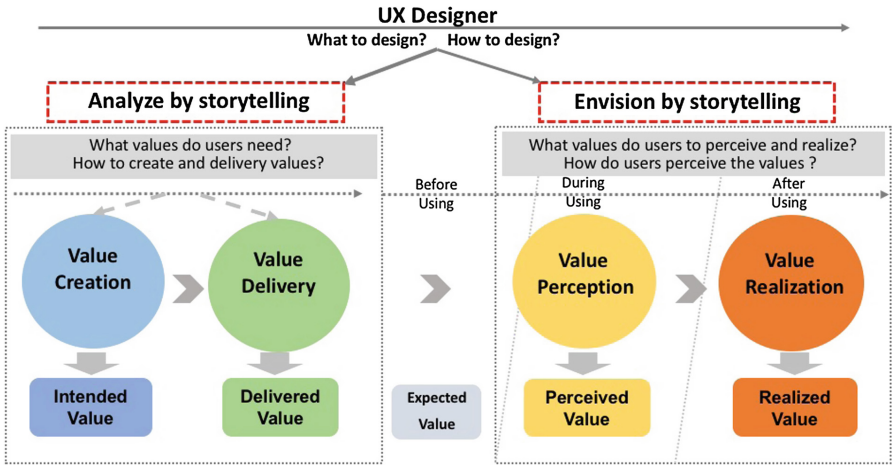


Fig. 1. The two sections of the value consideration in UX design

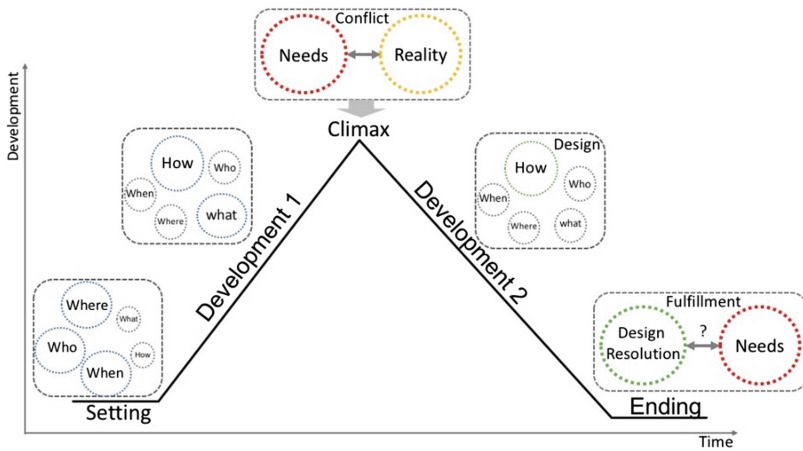


Fig. 2. The five stages of the storytelling-value approach

Value awareness would be improved by detailing the storytelling procedure. It also helps to solve the problems of the integrated storytelling method that it seems too general to be applied by designers in design practice. The stage of Development 2 in storytelling actually involves the envisioning of the design and interaction between users and the products. The needs list works as a guideline which helps designers to decide what the product it will be and what values the product would deliver. The product design referring to physical features, functionality etc. an be envisioned in

Design stage. While in the Interaction stage, designers can envision the scenarios when users interact with the product. User use the proposed product in the specific context and they can perceive the functional values such as good quality, advanced technology, usefulness, ease of use, etc., the aesthetic values such as beautiful or fashionable form design, nice material etc. as well as emotional values through perceiving the aspects of performance, utility, usability, aesthetics, etc. of the product through the interaction. Users would experience the value realization continuously in the Impact stage after the interaction. The emotional values like satisfaction, happiness, frustration, etc., the social values like recognition, respect, trust and cultural values like symbolic features are usually realized through users' realization of the importance or significance of the product. The value perception and realization differ individually because users have their definitions and opinions of these values, and not every user would experience all of the values in the five categories. However, for designers, it is important to take them into account in order to improve their design by promoting fulfilment of the user values. Another aspect which should not be neglected is that values as an experience would be dynamic over time, and storytelling provides opportunities for designers to envision what would happen and value changes along the timeline.

The storytelling-value approach works as a guideline to provide designers an overview of the values which possibly should be considered when designing based on user's needs. A check-list is suggested as a support to make concrete design strategies or decisions as shown in Fig. 4 as an example.

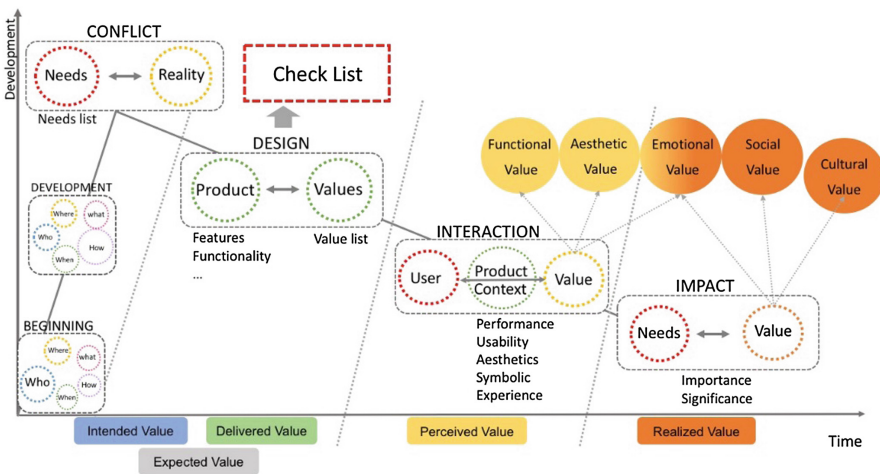


Fig. 3. The framework of value awareness

Check List		
Values	Value Details	Design Strategies
Functional	Performance Quality ...	Advanced technology, Good Structure design Simple operation ...
Aesthetic	Beautiful Fashionable ...	Nice color, Amazing shape Interface design ...
Emotional	Satisfied Happiness ...	fulfill the task quickly, easily Simple interaction ...
Social	Respect Recognition Environmentalism ...	Cool form, Social connection, sharing Environmental materials ...
Cultural	Symbolic Well-being ...	Symbols, Colors for special culture
Others	...	

Fig. 4. An example of the check list to support design strategies

6 Co-design Workshop

This storytelling-value approach was developed through co-design with design students. The workshop based on a real design project which was related to user experience design, and all the participants worked together to generate and develop design ideas guided by this approach. The initial framework of the proposed storytelling-value approach was put on the wall so that everyone could see it and worked based on it. Values were reminded and discussed when we made generation of the design ideas. The whole process was video recorded which was used to support analysis afterwards and all the participants were encouraged to report the problems or their opinions when necessary by thinking-aloud during the process. Some design ideas were generated and discussed and the output was presented in text, sketches and storyboards. A questionnaire including participants' basic information and the questions about acceptance from both utility and usability aspects. The results of the co-design workshop firstly showed the positive attitudes in acceptance of the approach itself. All the participants believed that it did improve their awareness of values in user experience design, and help them to make a holistic consideration of design by analysing both the user needs and values and envisioning in the storytelling process. Participants' opinions of the approach design not only referred to utility and usability but also involved something else in, such as advices on the adoption of the approach in workshops, time consideration and visual presentation, etc. The feedback had been used in the iteration design of the approach.

7 Discussion

In this paper, we presented the storytelling-values approach and its background as well as co-design improvement. This is primarily a concept paper with limited empirical illustration using interpretive research methods. We endeavoured to contribute to user experience design by combining storytelling and values into discussion. The narratives and scenario-based nature of storytelling benefits storytelling as a good way to express and discuss user experience including values. Through the positive feedback from the co-design workshop also indicated that this approach is potentially in improving value awareness for user experience designer because they usually forget or not mention it when design, this approach is still in its infant stages and needed to be improved. It seems to more appropriate to adopt the approach in ideation phase since storytelling method takes advantage of envisioning in scenarios.

Like all studies, the present research has certain acknowledged limitations. First, there were limited number of participants in both focus group and co-design workshop. All the participants involved are from universities, without any UX designers externally working in design companies. The difference in working environment probably influence their opinions on values since UX designers in companies should also take time, cost, available resources etc. into account when they make design. They may also view values from more practical perspectives which we did not get only from our participants.

Secondly, the storytelling-value approach was proposed with the aim to improve value awareness in design. In fact, value awareness is necessary during the whole design process, especially in real design projects which involve more factors from economical aspects or practical aspects in companies. we only tried to adopt it in ideation phase of UX design and it also seemed to be more suitable in early stages of design.

At last, the evaluation of the application of this approach is not clear. Participants gave feedback by their self-report on value awareness. Whether the awareness has been improved and how much it is increased is still confusing. Values as an experience change over time, and people who use this approach also experience the same dynamic change in their values in the approach. Therefore, in order to facilitate UX designers work with value, it is imperative to deal with all the limitations to make it more pragmatic in design practice.

8 Conclusion

In this paper, we introduced the storytelling-value approach which was developed to help improving awareness of value in user experience design. Values are important in user experience design because values are an experience, and they should be considered from a holistic point of view so that user experience would be improved by enhancement of value awareness. Our highlight of value awareness means that values should be considered in UX design process. The co-design workshop provided insights into design optimization. In the next phase of our research, we will examine the application of this approach in more design practice.

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