



Defining user value: A case study of a smartphone



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ABSTRACT

Recently, value has been one of the important components of user experience (UX). Value that an individual can pursue has been widely studied in the field of social science, and some researchers in the field of marketing found that value may be connected to products. Agreeing to the linkage between value and products or services, this study intended to define what value is and distinguished life value from user value. Life value (e.g., happiness, freedom and equality) can be defined as desirable states of existence or modes of behavior. User value can be regarded as a subset of life value and an association with a certain product or service. In this study, user value elements of a smartphone were extracted from the list of life value elements through a case study using a longitudinal observation approach. The result of this study can provide insights to researchers probing user's value.

Relevance to industry: This study proposed fifteen user value elements of a smartphone, including convenience, pleasure, beauty and friendship. Those elements can be used to investigate and understand how users are satisfied with their smartphones.

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1. Introduction

Recently researchers in the field of human–computer interaction (HCI) have widely studied user experience (UX). Studies by a variety of researchers from both academia and industry formulated an approximate definition of UX (Alben, 1996; Arhippainen and Tähti, 2003; Forlizzi and Ford, 2000; Kuniavsky, 2007; McNamara and Kirakowski, 2006). UX is an experience that consists of all aspects of users' interactions with a certain product or service.

To provide good experiences to users, researchers tried to decompose UX into components. Although they partially disagree about which components constitute UX (Law and Van Schaik, 2010), many studies attempted to narrow their differences (Hassenzahl and Tractinsky, 2006; Law et al., 2009). Park et al. (2011) proposed usability, affect and value as key components of UX, integrating a variety of previous studies. Among the components, numerous studies on usability or affect were conducted, whereas very few studies on value were done in the perspective of UX (Han et al., 2001; Hix and Hartson, 1993; Hong, 2005; Nagamachi, 1995; Zhai et al., 2009).

Indeed, various studies on value were conducted in the field of marketing, in which value were considered to be related to purchasing behavior (Gutman, 1982; Vinson et al., 1977; Zeithaml,

1988). The purpose of those studies was to reveal the mechanism by which value promotes desire to purchase. For example, Gutman (1982) thought that a customer might purchase a product after considering the product's utilities that may affect his or her value. Zeithaml (1988) insisted that cost and quality of a product affect the customer's perception of the value of a product or service; however, researchers in the field of marketing focused on purchasing behavior, not on identifying factors that contribute to value.

The objective of this study is to define value and to identify its elements. First, various studies that mentioned value or similar constructs were collected. Based on knowledge gained from previous studies, life value and user value are defined. Then, candidate for life value elements were collected and merged. Among the final list of life value elements, user value elements of a smartphone were extracted with a case study using a longitudinal observation approach. Unlike life value, analyzing literature was not considered to identify user value elements because few studies about user value were conducted.

2. Literature review

Literature that remarked on or discussed human value is extensive across the ages. Both Aristotle's 'mean' and Confucius's 'goodness' are types of value. However, many saints and philosophers only recommended that ordinary people remain virtuous. Values that individuals seriously pursue have been investigated since twentieth century (Table 1).

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Table 1
Definitions of value in literature.

Reference	Domain	Terminology	Definition	Citations ^a
Parsons (1951)	Sociology	Value	An element of a shared symbolic system which serves as a criterion or standard for selection among the alternatives of orientation which are intrinsically open in a situation	11461
Rokeach (1968)	Psychology	Value	Modes of conduct and end-states of existence	196 ^b
Vinson et al. (1977)	Marketing	Global value	Enduring beliefs concerning desired states of existence or modes of behavior	312
Gutman (1982)	Marketing	Value	Desirable end-states of existence, play a dominant role in guiding choice patterns	1074
Zeithaml (1988)	Marketing	Value	1) Low price, 2) Whatever I want in a product, 3) The quality I get for the price I pay, and 4) What I get for what I give	4097
Dodds et al. (1991)	Marketing	Value	An abstract concept that is highly interrelated and frequently confused with the concepts of quality, benefits, and price	1336
Richins (1994)	Marketing	Possession value	The extent to which an owner holds a possession to be dear, independent of exchange opportunities	364
Woodruff (1997)	Marketing	Customer value	A customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations	1524
Jensen (2001)	Marketing	Customer value	Perceived by customers, involving a trade-off between what the customer receives, and what he or she gives up in order to acquire and use a product	20
Overby et al. (2005)	Marketing	Consumer value	A worth trade-off between what a consumer receives from a seller and what s/he gives up in the context of use situations	26
Boztepe (2007)	Industrial design	User value	1) Value as exchange and use, 2) Value as sign, and 3) Value as experience	38

^a Citation: the number of articles that cited the reference, counted by Google scholar in 2011.

^b Because the original reference, 'Beliefs, Attitudes, and Values (1968)', was not counted by Google scholar, a citation of Rokeach's other important reference, 'The role of values in public opinion research (1968)', was investigated.

2.1. Studies on value of group

An article by Weber (1930) had a direct effect on value research, although he did not define value itself; Weber suggested that values shared by Protestants might influence the growth of capitalism. The belief in salvation that can only be earned by sincerity and frugality promoted development of local capitalist societies. Business investment in new plants and equipment might be encouraged because spending money for one's desire was contrary to Protestant values. Although Weber's idea did not rely on a scientific basis, it inspired following-up studies in the field of sociology.

Value was studied in sociology. Parsons (1951) described that the values would be formed by a group or community sharing a common ideology or environment. Swidler (1986) suggested that a certain culture can be classified as 'settled' or 'unsettled'. In a settled culture, individuals are supposed to conform to the tradition or common sense that might be a shared value, and do not ask why they have to act in such a way. In an unsettled culture, individuals refuse to conform to the cultural style, and each acts according to his or her own ideology.

2.2. Studies on value of individual

Studies on value at the individual level began with Maslow (1943); although he did not mention the term 'value', his study offered a revealing insight into value that individuals may pursue. According to Maslow, five basic needs of a human being consist of physiological, safety, love, esteem, and self-actualization. A physiological need is the most fundamental. This need should be met before the individual desires the secondary or higher level needs. Maslow (1943) agreed that this framework might be somewhat contrived and could not be applied to all people. For example, some people can be driven by a love or belonging need while physiological needs are unmet.

Rokeach (1968) conducted a full-scale study on value itself at the individual level. He thought that value is important per se and is not related to external objects and events. He regarded both final states of existence (i.e., terminal value) and modes of behavior (i.e., instrumental value) as value. A final state of existence means an ideal nation or magnificent individual, whereas a mode of behavior indicates virtues required to reach a final state of existence.

Mitchell and colleagues at Stanford Research Institute (SRI) developed VALS, a tool to evaluate value (Strategic Business Insight, 2010). VALS was coined by combining 'value' and 'lifestyle'; it differentiated types of human beings in terms of value. According to VALS, Americans were classified into nine types: survivors, sustainers, belongers, emulators, achievers, I-am-me, experiential, societally conscious, and integrated. Despite criticism that all people cannot be divided into only nine types, this framework succeeded in business. Maslow's theory greatly affected the VALS framework (Yankelovich and Meer, 2006).

2.3. Studies on value from product use

Researchers in the field of marketing tried to integrate the value structure of Rokeach (1968) into marketing theory. Most research in the field of marketing was overlooked until that of Gutman (1982), whose basic idea was that value may affect the choice of a product. He regarded products as "potential satisfiers of people's value by grouping them into sets or classes so as to reduce the complexity of choice". Functional groupings of products may produce consequences to a user. Then, the user may consider consequences and decide whether or not to buy the product. Afterward, his framework became the foundation of Means-End Conceptualization of the Components of Advertising Strategy (MECCAS) which is a famous method to analyze advertisements (Reynolds and Gutman, 1988). Many following-up studies based on Gutman's model were conducted in the field of marketing. (Jensen, 2001; Overby et al., 2005; Parasuraman, 1997; Woodruff, 1997).

Parasuraman, who suggested SERVQUAL, which has been used to measure service quality (Zeithaml et al., 1990), also conducted research on value. Unlike other studies, Parasuraman (1997) considered acceptance of value over time. He sorted customers into four groups (i.e., first-time, short-term, long-term, and lost) according to when they purchased products. He assumed that first-time customers only understood products at the attribute level. According to him, some time passed before a customer came to understand value at a consequence level or goal level. Interpretation was meaningful in the aspect of including the time effect, although the study was criticized for its lack of evidence.

Meanwhile, value studies were conducted from a different perspective in the field of HCI and industrial design. Because UX

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