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How does the value provided by a software product and users' psychological needs interact to impact user loyalty

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ABSTRACT

A multi-disciplinary review of literature shows that products can provide three types of value to the users – utilitarian, hedonic and social. Further, these values impact user outcomes such as their loyalty to the product. However, in this study we suggest that the relative impacts of these values on user loyalty to the product will vary with user needs. To test this contention we conducted a study with actual users of three software products – Producteev, Kerbal and Facebook. The results of the study confirm that user needs selectively moderate the impact of the various values provided by the software product to the users on their loyalty for the software product. These findings have implications for software product managers. They highlight the relevance of developing software products aligned with the profile of the targeted users to maximize their loyalty to the software product and the importance of the hitherto unexplored SV in the context of software products.

1. Introduction

In this study, we investigate the determinants of user loyalty to a software product from a user needs-value perspective Loyalty is "a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior" [77]. In the context of software products, loyalty includes the user commitment to not switch to other software products in addition to the behavioral intention to use the software product. An investigation of the antecedents of user loyalty (UL) is relevant as software usage alone does not ensure bottom line benefits to organizations engaged in development of software products, unless the software is charged to the user on usage (transaction) basis. Software development organizations are interested in retaining existing customers rather than losing them to competition. Loyal customers are also more likely to spread positive word of mouth [50] thereby enabling software development organizations to attract new users to their fold.

We adopt the user value perspective in our investigation of antecedents of user loyalty to software products. Existing literature reveals that user perception of value derived from the use of a software impacts her loyalty to the product. While the concept of value originated in the consumer behavior literature it was later applied in human–computer interaction and information systems literature [38]. The constructs commonly used in Human–Computer Interaction (HCI) literature [53] for hedonic and utilitarian values (HV and UV) are hedonic and pragmatic quality; and those prevalent in TAM (Technology Adoption Model) in IS (Information Systems) literatures are perceived enjoyment [105] and perceived usefulness [26] respectively.

However, the value perspective in consumer behavior literature also includes Social Value (SV) which have not yet been adopted in IS and HCI literatures. In the initial stages of the development of the construct, SV was considered as a part of HV (e.g. [57]). However, in later stages (e.g. [62,80]) a clear differentiation emerged between hedonic and social values. While UV was associated with functional value, HV was associated with emotional value and SV was associated with symbolic value. The social dimension of consumption came to be understood through the symbolic interactionism perspective which emphasizes the role of product consumption in the social roles played by people [10,93]. The symbolic meaning of product is realized outwardly through the construction of social identity in the social world and inwardly in the construction of self-identity [40].

We therefore used the tripartite conceptualization of value – UV, SV and HV – to address this gap in IS literature. While existing IS and HCI literature has explored the impacts of value (HV and UV) provided by software products on dependent variables such as user experience and systems use, the impact of the SV provided by the software product on user loyalty has not been investigated. Additionally, users' value perception was suggested by Woodruff ([111], p. 140) as "what they want and believe they get from buying and using a seller's product." Yet, while what they get (value) has been explored in literature, the role of basic psychological needs on the user preferences for HV, UV and SV provided by the software product has not been explored in either IS,

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HCI or consumer behavior literature. In this study, we therefore consider users' basic psychological needs of the users in investigating the impact of value user loyalty.

In our investigations, we first conduct a multidisciplinary review of IS, HCI, consumer behavior, product development and human needs literatures. Integrating concepts from this review we then developed a theoretical model to answer the following questions: What are the various types of values that software products provide to its users? How do the various values impact user loyalty for the software product? What are the basic psychological needs of software users? How do these needs influence the impact of various values provided by the software product on user loyalty? We tested the proposed theoretical model in a longitudinal study with actual users of three software products. The findings of the study are then discussed for their relevance to practitioners and future research.

2. Literature review

2.1. Evolution of the value perspective

The conceptualization of Hedonic and Utilitarian product values as distinct and independent constructs first emerged in consumer research literature ([57]; also see [38]). The equivalent constructs of perceived enjoyment and perceived usefulness in Technology Acceptance literature [26,105] and of hedonic and pragmatic quality in Human–Computer Interaction literature [53] were introduced later.

Yet, despite the different terminologies used, the Hedonic and Utilitarian values provided by a product are understood in the same way across literatures. While Utilitarian value represents the functional and practical aspects of a product, Hedonic value represents novelty, aesthetics, enjoyment, unexpectedness and fun ([75,94,103]; Hassenzhal, 2003). Also, across literatures both Utilitarian value as well as Hedonic value provided by the Utilitarian software product are considered important to its users ([49,112]; Hasasenzhal, 2003; [100]).

While Hedonic value as an end valued for its own sake provides intrinsic motivation to the users, Utilitarian value as a means to accomplish instrumental goals provides extrinsic motivation to the user to use the software [99]. When system use helps in accomplishing utilitarian goals such as "improved job performance, pay, or promotions" ([27], p. 1112), then the system use is considered extrinsically motivated [49,112]. However, when system use is "for no apparent reinforcement other than the process of performing the activity per se" ([27], p. 1112) such as for hedonic experiences of pleasure, enjoyment and fun then the system use is intrinsically motivated [49,112].

However, products also provide SV. Users have also been known to identify themselves in relation to other users or group of users [7,61]. This social identity includes self-awareness of group membership, and feeling of attachment and belongingness to the group [98]. For example, consumers of Volcom products are youth who feel a sense of belonging to those who are against the world of adults. In addition to the social identity, products and their attributes through their symbolic value often become part of the extended self of the user and reflect his self-identity [10]. For example, users are known to feel "creative" when using Apple products [1].

Aaker [1] noted that symbolic value may be critical in building brands. He gave examples of self-expressive benefits of brands such as Olay "heightens consumers' self-concept of being gentle, sophisticated, mature, exotic, mysterious and down-to-earth", driving Lexus creates the impression of being "successful", using Apple product creates the impression of being "creative", buying clothes at Zara creates the impression of being "cool". Brands also provide social benefits such as Betty Crocker Mixer Web site that "allows members to talk to experts and connect with others" or "When I go to Starbucks, I am part of a closed club of aficionados even if I don't interact with any." Or provide membership to aspirational groups: "When playing with a Titleist Pro V1, I am among a group that contains some really good golfers."

However, unlike in consumer behavior literature, not much attention has been focused in IS literature on the SV provided by software product. We suggest that SV is also relevant in the context of software products. Software including those designed for utilitarian and hedonic use can enhance a user's self-esteem, for example, through its efficacious use and mastery of its advanced features as well as provide her membership to the desired community of users. Therefore, in thus study we examine the impacts of all three types of value provided by software products on user outcomes. Further, we also examine the impact of value on user loyalty by considering the moderating influence of human needs.

2.2. Human psychological needs

There is a stream of research on fundamental human needs starting with McDougall [70], Freud [45], Murray [71], Maslow [69], Baumeister and Leary, [9] and Reis et al., [81]. In a more recent development, Sheldon et al., [89] examined 10 different feelings, each of which has been proposed as a need by prominent psychological theories. The identified set of 10 basic human needs (autonomy, competence, relatedness, physical thriving, security, self-esteem, self-actualization, pleasure-stimulation, money-luxury, and popularity-influence), are in line with other theories within the literature stream. Of these 10 needs, the needs for relatedness, autonomy and competence were found to be most salient and universal across cultures [19,34,89]. The three needs of relatedness, autonomy and competence are considered to be an integrative and parsimonious framework of human psychological needs [85].

However, there are individual differences in psychological needs [33]. For example, the individual need for competence and relatedness may vary. Studies by Richer et al., [82] and Richer and Vallerand [83] have found that individuals high in need of competence are low in need of relatedness. Further, individuals with a higher need for competence may have a higher need for autonomy than individuals with higher need for relatedness. Fisher [43] and Nix et al., [73] found that being competent was not enough to motivate people and perform better in the absence of autonomy. Thus each user has her own unique needs profile.

There is empirical evidence of users' varying needs profile or "innate propensities" [85] as well as their impact on user preferences and use behavior. Service value research has shown that women have stronger hedonic shopping motivations and emphasize hedonic value more than men [5]. TAM research also suggests perceived enjoyment impacts males and females differently [48,106,112]. Further, in the early stages of using a new technology, such as new software features, younger men tend to exhibit a greater tendency to seek novelty and innovativeness (e.g., [17]). Thus the relative importance of HV to users will vary with age and gender.

Further drawing on consumer behavior literature we propose that enduring personality characteristics such as the regulatory focus of individuals may also impact user outcomes. The well established theory of regulatory focus postulates two different self-regulatory systems to achieve a goal. People can either target their attention towards the achievement of ideals and gains, or the fulfillment of duties and the avoidance of losses [110]. Depending on how individuals direct their attention, they find themselves in either a so-called promotion or prevention focus [54]. Fundamentally, the regulatory focus can either be situational or dispositional. The dispositional regulatory focus or the chronic focus of an individual represents an individual's enduring approach or personality feature [110].

Users with prevention focus are likely to behave in a safe and responsible manner. Individuals with prevention focus are very attentive and show careful prevention behavior to avoid undesired states (they are anxious not to make mistakes) [110]. Therefore, they will prefer utilitarian benefits as UV provided by the product fulfills *prevention* (pain avoidance) goals of the user [18,20,54,55]. As value derived from the use of a product impacts UL [91], the impact of UV will be