

The Influence of Self-Concept Improvement on Member Loyalty to Online Communities: An Empirical Comparison between Social Networks and Virtual Worlds

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Abstract

Self-concept refers to an individual's conscious reflection of personal qualities constructed in a social context, and is a potent influence on the individual's social, psychological, and behavioral functioning. In this work we examine whether the use of online communities improves members' self-concepts, thereby increasing the social value they gain from, and loyalty they feel towards, these communities. Furthermore, we investigate whether the influence of self-concept improvement on perceived social value varies across two contrasting computing platforms for online communities—social networks and virtual worlds. The results of an online survey of Facebook and Second Life members support the positive influence of self-concept improvement on perceived social value and member loyalty, and the moderating effect of computing platforms on these relationships.

1. Introduction

Online communities are social networking platforms in which individuals interact primarily via computer-mediated communications for educational, professional, social, and other purposes [31]. Online communities have proliferated in the past several years. For instance, in year 2007, Microsoft spent US\$240 million to acquire a 1.6% stake in Facebook, giving Facebook a market value of \$15 billion (New York Times, October 15, 2007). Facebook had more than 500 million users in 2010, making it the world's second most popular website after Google (The Economist, January 28, 2010). Second Life, created in 2001, has also grown at an exponential rate: The site's membership increased to 2.2 million by December 2006, 5.5 million by April 2007, and 20 million by August 2010.

Researchers have identified members' intrinsic need to improve their self-concepts as one of the factors behind the success of online communities [11].

Self-concept refers to an individual's conscious reflection of personal qualities constructed in a social context, and is a potent influence on the individual's social, psychological, and behavioral functioning [14, 32]. As such, individuals continuously revise and enhance their self-concepts using , among other things, their social interactions [14, 32]. Online communities provide yet another channel for social interactions and therefore another vehicles for self-concept improvement [1, 25].

While a number of prior studies have examined the influence of self-concept improvement on members' participation behaviors (see Li and Lai 2007 and Wang and Fesenmaier 2004)[21,45], there is little research on the influence of self-concept improvement on member loyalty to online communities. Identifying the drivers of member loyalty is crucial in determining the long-term viability of online communities, as many communities that attracted members' active participation in the early stages of the life cycle disappeared within a short time due to low member retention in the later stages. Individuals remain loyal to products from which they gain the most value [35]. Enhancement of self-concept delivers *social value*, because an individual with a robust self-concept is successful in socializing with others and forming more meaningful relationships with others [14]. Therefore, one can expect that as they improve their self-concepts and, as a consequence, obtain more social value from using an online community, members will grow more loyal to that community. We will put to the test this important yet understudied question.

While examining the influence of self-concept enhancement on member loyalty, we analyze three sub-elements of self-concept rather than considering self-concept a unidimensional construct. Most of the prior studies consider only one aspect of self-concept, such as Vasalou et al. (2008). However, the psychology literature asserts that self-concept is a multi-faceted construct that entails three major elements: self-presentation, social identity, and self-efficacy [22, 45]. First, *self-presentation* refers to the

ways in which individuals manage impressions and present favorable images of the selves to others in an attempt to gain others' affection [21]. Second, *social identity* is concerned with the identity shared with members of a reference group [40]. Lastly, *self-efficacy* refers to the degree to which individuals believe they are capable of controlling events or the other people who affect their lives [5].

Describing the self-concept in terms of these three elements is particularly relevant in the study of online communities, because this decomposition helps us understand the recent emergence of two contrasting computing platforms upon which online communities are built: social networking sites (SNS, a platform for social networking such as Facebook) and virtual worlds sites (VW, a platform for virtual worlds such as Second Life). SNS allows users to post a detailed self-composed personal history and to share the history among members of their chosen networks [11]. In contrast, VW allows users to create pseudonymous virtual personae and engage in real-time conferencing in computer-simulated social environments [26].

We examine whether the three elements of the self-concept influence members' perceived social value and loyalty differently across SNS and VW. The social psychological literature notes that the activation of the facets of self-concept is situation-specific [40]. The needs, constraints, and resources in a particular context determine whether or not a specific aspect of self-concept is activated [40]. For instance, an individual's social identity is activated while cheering for a college football team with a large group of alumni, while self-presentation is triggered during a job interview. We examine whether SNS and VW activate distinct facets of self-concepts; as a result, help members gain social values from different facets.

In summary, this study has two primary purposes: (1) to examine the influence of the three elements of self-concept on members' perceived social value of, and loyalty to, online communities, and (2) to examine whether this influence varies across the two contrasting computing platforms: i.e., SNS and VW.

2. Literature review

2.1 The theory of self-concept and online communities

Self-concept directs all aspects of individuals' functioning, including thoughts, feelings, and behaviors [38]. The perceptions individuals hold about themselves direct how they perceive, interpret, and react to external stimuli [38]. As such, individuals have an intrinsic desire to develop a coherent self-concept [23]. Individuals develop and enhance social concept

among other things, through social interactions. In this sense self-concept, while specific to an individual are affected by interpersonal relationships [32]. Thus, in order to build a coherent self-concept, an individual needs to interact with other individuals in social contexts [14].

Online communities offer the protected environments to develop self-concept [2, 42]. Because people in online communities have greater control over the time and place for interactions with others, a behavior in an online community is less likely to engender negative consequences than the corresponding behavior offline. In addition, people can meet like-minded individuals easily in online communities [24]. Within a circle of similar-minded people, individuals feel less threatened when disclosing their selves [24]. Lastly, some online communities guarantee anonymity and resultant distance from other members [24].

2.2 The multifaceted nature of self-concept

Self-concept is a multidimensional and multifaceted construct [32]. Three elements that have received the most attention are: self-presentation [8], social identity [40], and self-efficacy [5]. These three dimensions are not necessarily fully distinct and exhaustive but the ones most often referred to in the literature.

Self-presentation refers to behaviors by an individual intended to manage the impressions observers have of the individual [21]. An individual wants to present a favorable image to others in order to gain others' affection [7, 21], and to define the self-concept because the perceptions of others affect his/her self-concept [38]. An individual disclose personal information about him/herself online to be recognized by other members [29].

Social identity refers to the aspect of a person's self-concept in which individuals view themselves as members of a reference group in an attempt to define themselves [4]. To build social identity, the individual must have strong ties to the group and internalize the traits that distinguish the group from other groups [40]. The individual adheres to the norms, cultures, and values of the group when identifying with a reference group [40].

Self-efficacy refers to "people's beliefs about their capabilities to produce effects to exercise control over their own functioning and over events that affect their lives" [5]. A person with a robust sense of efficacy thrives in many aspects of life, including life choices and level of motivation, because self-efficacy enables an individual to overcome hardship and obstacles in life [5]. Therefore, individuals use self-efficacy to

defend their self-concept when faced with adversity and challenge [38].

2.3 Review of previous studies of online communities and self-concept

In previous studies that have examined individual participation in online communities, self-presentation has been described two different but overlapping concepts. On one hand, self-presentation is described in terms of activities that increase social bonding by validating identity information for other participants (e.g., posting personal information, such as home address and school) [12]. On the other hand, self-presentation may mean an individual's use of avatars to (1) reflect their offline self, (2) reinvent themselves in a manner different from the offline selves and (3) embody a message using emoticons [18, 43]. Members' desire for self-presentation eventually leads to the purchase of digital items, such as avatars [18, 43].

Next, previous research has recognized *social identity* as a significant influence on members' participation in online communities. Because people want to identify themselves as members of groups (i.e., social identity), they desire close interpersonal connections with others and compare themselves with other members [35]. In addition, people with a strong social identity are apt to engage in joint actions with other community members [4], and develop stronger desire to participate in the online community, and actually participate more [11].

Previous research has investigated *self-efficacy* as another important driver of members' participation in, and contributions to, online communities. VW allows them to experiment with controls they have not expanded in their real lives because of fear of rejection and ridicule [41]. Also, making regular and high-quality contributions helps members believe they have an impact on the group and supports their views of themselves as efficacious beings [45]. Therefore, members contribute actively to the online community [45].

Finally, there is one empirical study that has investigated constructs similar to all three aspects of self-concept [22]. According to Li and Lai (2007), members' needs for inclusion (the construct rooted in the social identity theory), affection (self-presentation), and control (self-efficacy) influence members' intentions to give and obtain information in an online community [22].

This review reveals two significant gaps in the literature. First, most studies focused on one (or two) aspect(s) of self-concept, whereas Social Psychology literature maintains these three are distinct elements of

self-concept [38]. Only one study [22] dealt comprehensively with all three elements, but that study does not examine the three in terms of members' loyalty. The influence of self-concept has been investigated in the context of members' participation behaviors, such as contributions, giving/obtaining information, or intentions to purchase digital items, but not in the context of member loyalty.

Next, to the best of our knowledge, no prior studies explore how distinct computing platforms moderate the impact of self-concept on member loyalty. The computing platforms upon which online communities are established shape the manner in which users behave and build interpersonal relationships [37]. The significant influence of technology on the formation and development of user behavior is well known in the field of human-computer interaction [28]. However, this influence has not been examined in the literature on online communities.

3. Development of hypotheses

To close the two aforementioned important gaps in the literature, we investigate the influence of self-presentation, social identity, and self-efficacy on the perceived social value members derive from the community, which is an antecedent of member loyalty to the community. Simultaneously, we investigate whether or not these relationships vary between SNS and VW. Figure 1 presents our research model.

3.1 The main effect of self-concept

We postulate that each element of the self-concept affects the perceived social value members derive from the online community. Social value refers to the benefits of participating in online communities for socializing and forming relationships with others [44]. We claim that the more members can improve each element of their self-concept via an online community, the more clearly they perceive the value of using the community to socialize and form relationships.

A positive relationship between self-concept improvement and successful socialization is a common finding in the psychology literature [32]. A coherent self-concept allows individuals to regard themselves with a high level of respect. This respect is reciprocal in the sense that respect for oneself leads to respect for others. Therefore, the person with high self respect is successful in forming and maintaining meaningful relationships with others [32].

According to Schutz and Allen (1966), affection, inclusion, and control are primary reasons for building interpersonal relationships. As explained in section 2.3, these three constructs are rooted from theories on self-

presentation, social identity, and self-efficacy, respectively. Consequently, the more effectively an online community enables members to facilitate self-presentation, social identity, and self-efficacy, thereby fulfilling members' motivations for interpersonal relationships, the more successful the members will perceive their relationships with other members to be [34]. Therefore, we hypothesize:

H1. Self-presentation improved by the use of an online community will increase members' perceived social value of the online community.

H2. Social identity improved by the use of an online community will increase members' perceived social value of the online community.

H3. Self-efficacy improved by the use of an online community will increase members' perceived social value of the online community.

The more social value members perceive that they can gain from using an online community, the more loyal the members will become to the community. Loyalty is defined as the individual's deeply held affective commitment to a product or service for an extended period of time; the individual prefers the products and/or services consistently over competing products in repeat purchases [19]. This type of commitment occurs because the individual anticipates obtaining *long-term* benefits from maintaining an ongoing relationship with a partner, a community or an organization [19].

The social value achieved from participating in an online community has *long-term* benefits, compared to value accrued from the consumption of products or services that may lead to short term gratification. Consumers can gain short term benefit, such as functional value (e.g., convenience), emotional value (e.g., happiness), epistemic value (e.g., novelty), or conditional value (e.g., seasonal gift), from consuming a product and/or service [35]. However, social value is maintained for a longer period of time than the other values, because relationships and social networks are important social capital that may provide assistance to the individual in the long run [13]. Consequently, we postulate that social value increases member's loyalty (that is, members' long-term commitment to online communities). Thus we posit:

H4. Perceived social value will increase member loyalty to the online community.

3.2 The moderating effects of computing platforms

We assert that the type of computing platform used for online communities will affect the extent to

which each element of self-concept leads to the perceived social value from using the online community. Prior to developing our hypotheses on the moderating effects, we illustrate SNS and VW in terms of features and functionalities that help members define, elaborate, and express the self.

SNS provide a plethora of features and functionalities, such as photo-sharing, messaging, chatting, etc. However, the two most common features, which are the backbone of SNS, are: the personal profile and the social networking function [10]. The personal profile is a unique page that contains a user's demographic information, affiliations, interests, self-description, and picture(s) [10]. The profile represents how the individual chooses to present the self at a specific time [9]. The social-networking function is the ability to connect with others, variously called friends, followers, fans, or contacts.

VW also provides various features, but the two most common are: a computer-simulated social environment and an avatar [27, 47]. In the computer-simulated social environment, users have a certain amount of control over their environment and the ability to generate their own content [27]. Meanwhile, an avatar is a graphical representation of a user, created and controlled by the user [47]. The consensus in prior studies is that, although they reflect some aspects of themselves in avatars [39], very few users craft their avatars to completely match their real selves [27]. Instead, people tend to augment positive aspects of the self while hiding negative aspects [33].

Below we describe how the two different computing platforms moderate the influence of self-presentation, social identity, and self-efficacy on members' perceived social value.

Both SNS and VW provide opportunities for self-presentation to members [10, 20]. The personal profile in SNS allows people to post personal information [10], while in VW an avatar enables people to portray themselves visually [18]. This ability to present the self via SNS and VW brings members social value—by presenting the self, people manage the impressions they have on others and acquire affection from others [7], thereby successfully forming and maintaining relationships [10].

However, the self as presented via SNS travels faster and reaches a wider audience because of the social networking function which exponentially increases the spread of the self to members in the individual's network as well as to others who are connected to the members of the network [12]. In addition, because the social networking function connects people who already have some offline social connection, the self portrayed in online communities is

likely to be passed along to the real-life social circles of SNS members [12].

Because of this faster and wider spread, SNS members are likely to perceive a greater impact of self-presentation than VW members. For VW members, the transfer of the self may not reach their real-life social circles [1] unless users specifically choose to reveal personal information. As a result, compared to VW, SNS presents greater foreseeable social consequences of self-presentation for members, not only in their online communities but also in their real lives. We posit that, compared to VW, SNS members will perceive that they can gain greater value from presenting the self than VW members.

H5. The degree to which self-presentation increases members' perceived social value will be greater in SNS than VW.

There are three conditions that facilitate social identity: (1) the degree of social interactions (e.g., written correspondence vis-à-vis face-to-face communication), (2) social closeness and (3) shared interests among group members [40]. First, the personal profile leads SNS members to disclose real-life personal information (e.g., home address and alma mater); therefore, SNS members have a high likelihood of real-life encounters and frequent social interactions with other members of the community [29]. Second, given that the social networking function is most often used to connect people who have some offline connections [10], SNS members are likely to belong to the same social circle, and thus have a higher level of social closeness compared to VW members. Third, because they belong to the same social circle, SNS members are likely to share common interests with other group members [30].

In contrast, VW members are not required to reveal personal information and, in fact, must use surrogates (i.e., avatars) to represent themselves. Thus, there is most likely a disconnection from members' real-life social circles, which leads to a less possibility of having social encounters or belonging to a common social circle in real life. In sum, SNS provides a better opportunity for strengthening social identity than VW does.

One of the more well-known consequences of maintaining strong social identity is that people tend to form closer interpersonal relationships and bonding with members of the same reference group [40]. As a result of enhanced social identity, SNS members are likely to form closer relationships with other members, and subsequently perceive greater social value of using the online community, than VW members. Therefore, we hypothesize:

H6. The degree to which social identity increases members' perceived social value will be greater in SNS than VW.

SNS members must be cautious about acting unlike their real-life selves, because acting in such a way will harm the member's reputation in the community [3]. Therefore, while the close connection between online and offline social circles in SNS is a pathway to improve social identity (as described in section 3.2.2), it inhibits people from freely increasing their self-efficacy¹.

In contrast, the computer-simulated social environment in VW grants members control not available in the real world [27]. For instance, members can apply social skills that may not be possible in the real world. Therefore, VW members embrace and encourage the practice of experiencing different roles and expanding control. Thus, the term "second life" was coined because the VW site Second Life (www.secondlife.com) enables members to explore a life they have not experienced.

Given the expanded control available in computer-generated environments and the disconnection from real-life social circles due to the use of avatars, VW members can experiment with expanded control and enhanced skills more freely than SNS members [42]. In so doing, VW members increase their sense of self-efficacy [42]. When self-efficacy is increased, people tend to be more confident and comfortable meeting new people, conversing with others, forming interpersonal relationships, and bonding [5]. Due to the improved self-efficacy, VW members will perceive that they can gain greater social value from the online community than SNS members.

H7. The degree to which self-efficacy increases members' perceived social value will be greater in VW than SNS.

4. Research methods

Given the lack of adequate measurement instruments, we developed instruments for self-presentation and self-efficacy using the card sorting method, and then validated the instruments and tested the hypotheses using an online survey. We chose Facebook and Second Life as representatives of online communities employing SNS and VW, respectively,

¹ One may argue that people with superior knowledge or rare experience can increase their self-efficacy by making high-quality contributions to SNS [45]. However, given the large user base of SNS (500 million Facebook users), it is hard to reasonably assume that every member of SNS possess expertise and experience that can impress other members.

because they have the largest base of registered users in each category (Wikipedia, August 2010).

4.1 Instrument development process

As mentioned above, we found no measures for self-presentation or self-efficacy appropriate for the context of online communities. Whereas, we found measures for social identity [11], social value [46] and loyalty [19] from previous studies and revised some of them to reflect the purpose of this study. We followed Moore and Benbasat's (1991) three-stage process of instrument development to ensure the reliability and validity of the instruments.

The first step in instrument development is to ensure the *content validity* of the measurement items [36]. The scales were developed based on the most relevant literature on self-concept in the psychology field. In particular, we reviewed the self-presentation tactic scale developed by Lee et al. (1999), [20] and the self-efficacy scale created by Harrison et al. (1996), which are used to measure personal traits [16]. Based upon the original items, we developed new measures. Accordingly, our measurement instruments have strong theoretical support and content validity (Table 1).

The second step is to assess the *construct validity* of the measurement items [36]. We employed the card sorting method, in which judges are asked to sort items into the construct categories in which they believe each item falls. Since our constructs were based on well-established theories, we read the judges the definitions of all the constructs, and then asked them to match each measurement item to the appropriate construct category. In addition, the judges sort items that did not fit into any constructs into an "unclear" category.

In the first round of card sorting, the judges were seven undergraduate students enrolled in the *Introduction to Information Systems* course at a private university in North America. All were active members of either Facebook or Second Life, and all were aware of Facebook and Second Life. We collected their responses, suggestions for changes, and comments about any ambiguity in the scales, and then refined the measures accordingly. In the second round of card sorting, the judges were seven MBA students enrolled in the *Management Information Systems* course at the same university and were active members of either or both communities. In the second round, all judges classified the items into the intended constructs, demonstrating 100% inter-coder reliability. Therefore, we finalized the items with minimal rewording.

Lastly, we tested the measurement instruments from the data collected from the survey. The data were collected through an online survey company that sent its pool of social-networking community users

invitations to participate. Participants were asked to identify themselves either as member of Facebook or Secondlife and answer questions based on the specific platform they chose. The first page of the questionnaire included a filter question to ascertain whether they were current members of the intended online community. Those who were not were excluded from the survey. One hundred Facebook members, and 100 Second Life members, who verified their membership with the corresponding community, filled out the questionnaire. Despite the self-verification process, some respondents could have misrepresented themselves in order to participate and claim incentives. To prevent such cases, we included another filter question in the middle of the questionnaire: "Please write a feature of [either Facebook or Second Life] you use most frequently." Only those respondents who provided valid features were selected by a coder who was blind to the hypotheses but familiar with the features of both communities. We collected final valid questionnaires from 135 respondents—90 Facebook members and 45 Second Life members².

We used SPSS version 14 and Smart PLS version 2.0 to validate the measurement items. To analyze *reliability*, we examined Cronbach's alpha and the composite reliability for each construct. Both Cronbach's alpha and the composite reliability for all the constructs should be higher than the suggested level of 0.7 [6]. All constructs showed acceptable levels of reliability. Therefore, we proceeded to test validity. In so doing, we applied Gefen and Straub's (2005) two criteria for determining *discriminant validity*: the square root of every average variance extracted (AVE) should be (1) at least 0.50 and (2) much larger than the correlations among any pair of latent constructs [15]. The Smart PLS results showed that our measures satisfy the two conditions (Tables 2 and 3). All measures had the square roots of AVEs that were higher than 0.50, and much larger than any other inter-construct correlations.

5. Data analysis

Smart PLS with a bootstrapping technique was used to test the hypotheses. The sample of 135 cases satisfies the requirement that the sample size be at least 10 times the largest number of structural paths directed at any one construct. The largest number of paths to any construct in the research model is three (see Figure 1). We first analyzed the structural model for the entire sample (Figure 2). Then, we split the sample into Facebook members (Figure 3) and Second Life

² The demographic information for the respondents will be provided upon request.

members (Figure 4) to test the moderating effects of computing platforms on the relationships between social value and self-presentation (H5), social identity (H6), and self-efficacy (H7).

In the structural model for the entire sample, all path coefficients were significant either at the .01 or the .001 significance level, thus supporting hypotheses H1 through H4. Specifically, self-presentation was positively associated with social value ($t = 4.465, p < .001$), supporting H1 which predicts that when members can present themselves, they will perceive greater social value from using the community. As expected, social identity was positively related to social value ($t = 3.368, p < .01$), supporting H2. Next, self-efficacy was also positively associated with social value ($t = 2.685, p < .01$); these results support H3. Lastly, social value was positively related to loyalty ($t = 7.456, p < .001$), supporting H4, which predicts that when members perceive more social value from using an online community their loyalty to the community increases.

In the separate structural models for Facebook and Second Life members, we examined the moderating effect of computing platform by comparing the path coefficients from self-presentation, social identity, and self-efficacy, to social value. In doing so, we followed the method outlined by Keil et al. (2000) [17] that uses the differences between the corresponding paths for the separate structural model. The paths between self-presentation and social value were significant for both Facebook and Second Life members ($t = 3.210, p < .01$ [Facebook]; $t = 2.928, p < .01$ [Second Life]), but the path coefficient was greater for Facebook members than for Second Life members (0.487 [Facebook] vs. 0.312 [Second Life]). The difference between two paths is significant ($t = 6.799, p < .001$), supporting H5, which states that self-presentation has a greater influence on social value among SNS members than among VW members.

Second, the path between social identity and social value was significant at the 0.05 significance level for Facebook members but was not significant for Second Life members ($t = 2.160, p < .05$ [Facebook members]; $t = 0.882, p > .05$ [Second Life members]). The path coefficient from social identity to social value was stronger for Facebook members than for Second Life members ($t = 8.017, p < .001$). This result supports H6.

Lastly, the path coefficient from self-efficacy to social value was not significant for Facebook members ($t = 1.362, p > .05$), but was significant for Second Life members ($t = 5.193, p < .001$). Again the difference between the two coefficients is significant ($t = -18.409, p < .001$). These results support H7, which states that self-efficacy improvement contributes more strongly to

perceived social value among VW members than among SNS members.

6. Discussion and conclusion

In this paper, we analyze the three elements of self-concept—self-presentation, social identity, and self-efficacy—and claim that improvements in these three elements will lead members to perceive greater social value from participating in the online community. Subsequently, the perceived social value increases members' loyalty to the community. Furthermore, we identify the two types of computing platforms upon which online communities are built—SNS and VW. These computing platforms moderate the influence of the three elements of self-concept on perceived social value as follows: First, self-presentation increases members' perceived social value to a greater degree in SNS than in VW, because the self presented via SNS spreads faster and wider due to the social-networking function. Second, social identity has greater impact on perceived social value in SNS than in VW, because SNS facilitates the conditions for strengthening social identity. VW, however, facilitates the conditions for enhancing self-efficacy. The control provided in computer-generated environments and the disjunction from real-life social circles caused by the use of avatars enable VW members to experiment freely with social opportunities. Subsequently, enhanced self-efficacy allows VW members to gain greater social control than SNS members.

Like other studies, this study has limitations. Most of all, the number of respondents differed across the two conditions—Facebook and Second Life members. We verified 90 eligible Facebook members and 45 eligible Second Life members, each out of 100 respondents, and used their responses only for the analysis. We made this choice, because (1) using only valid responses was more important than having a balanced sample size and (2) the sample size of 45 satisfied the sample size requirements for the PLS analyses we planned to conduct.

This study makes the following contributions to the advancement of theory. The first contribution is including all three elements of self-concept in one empirical study and demonstrating that each element is associated with increased perceived social value, and subsequently, increased loyalty. These findings confirm that self-concept is not a unidimensional construct, as shown in the Psychology literature. Second, these findings help identify self-concepts as important drivers of member loyalty. In other words, we can begin to explain why many individuals become loyal to online communities as opposed to offline counterparts. Online communities provide a uniquely

protective environment to those individuals who want to improve their self-concepts. The individuals, who are more susceptible to others' criticism and social ridicule, may find it easier to improve their self-concepts online. Subsequently, they may become more loyal to online communities than to offline communities. Another significant contribution of this study is we empirically investigated the aforementioned hypotheses across two different computing platforms. Although technological artifacts are known to shape users' behaviors [28], most previous research on online communities explained members' behaviors only in terms of their social-psychological needs, overlooking the role of technologies as a significant influence. Granting that social-psychological needs affect members' behaviors (as shown in this study), it is imperative for IS researchers to recognize the roles played by technologies.

This study also provides developers with practical guidelines. In particular, because self-efficacy had a greater impact in VW, developers may want to expand options for creating avatars in terms of the capabilities avatars can demonstrate. For now, most options for creating avatars center on visual appearances—hair and eye color, clothes, etc.; however, developers could add options that represent occupations, knowledge, and expertise, with which members could improve their self-efficacy.

In a future study, researchers should explore other values, in addition to social value, that increase member loyalty. We focused on social value because it is an important antecedent of loyalty [35]; however we do not rule out the possibility that other values may also drive member loyalty. Finally, we limited our focus to the behavioral and individual aspects of loyalty drivers. Other drivers, such as tangible rewards (e.g., discount coupons) provided by businesses, may also play a significant role in increasing member loyalty. Future researchers may examine the relative influence of tangible rewards, social-psychological value, and technological artifacts on member loyalty.

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Table 1. Definition of the constructs and measurement items

Self-presentation (SP)
SP1. The virtual community helps me project a positive impression of myself to my peers.
SP2. By using the virtual community, I leave my peers with desirable impressions of me.
Social identity (SI)
SI1. My personal identity overlaps with my identity in the virtual community when I am engaged in social activities.
SI2. I think my real identity overlaps with my identity in the virtual community
Self-efficacy (SE)
SE1. The virtual community helps me believe I am capable of controlling events that affect my peers and me.
SE2. The virtual community helps me become competent in controlling events in my life positively.
SE3. The virtual community helps me build confidence in managing the life events that affect my peers and me.
Social value (SV)
SV1. The virtual community helps me maintain relationships with my peers.
SV2. The virtual community helps me stay connected with my peers.
SV3. The virtual community helps me form relationships with my peers.
Loyalty (LOY)
LOY1. I consider myself to be highly loyal to the virtual community.
LOY2. I feel loyal towards the virtual community.
LOY3. It means a lot to me to continue to use the virtual community.

Table 2. Inter-construct correlations

	SP	SI	SE	SV	LOY
SP	0.92				
SI	0.56 ^B	0.94^A			
SE	0.78	0.45	0.93		
SV	0.75	0.59	0.69	0.87	
LOY	0.67	0.47	0.79	0.75	0.88

^A Diagonal cells indicate the square root of the Average Variance Extracted (AVE) of the corresponding construct.

^B Other cells indicate inter-construct correlations.

Table 3. Means, SDs, and average variance extracted

	Mean (SD)	Cronbach's Alpha	Composite Reliability
SP	3.99 (0.93)	0.82	0.92
SI	4.43 (1.70)	0.88	0.94
SE	4.04 (1.54)	0.92	0.95
SV	5.12 (1.63)	0.92	0.95
LOY	4.45 (1.69)	0.94	0.96

Figure 1. Research model

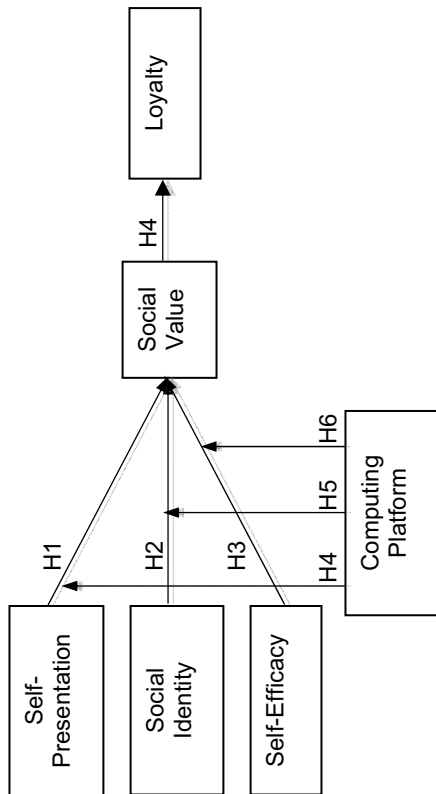
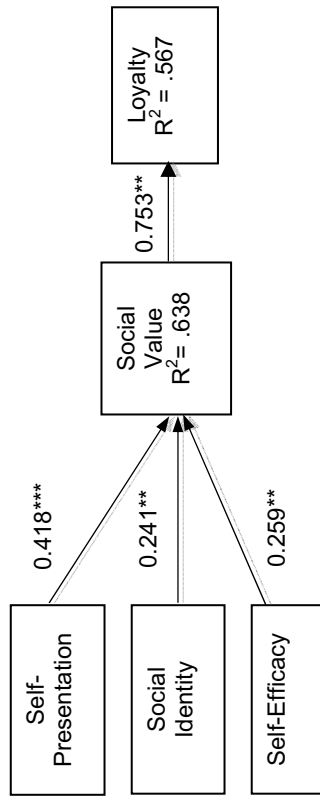


Figure 2. PLS results with entire sample



* denotes significance at 0.05 level
 ** denotes significance at 0.01 level
 *** denotes significance at 0.001 level

Figure 3. PSL results with Facebook members

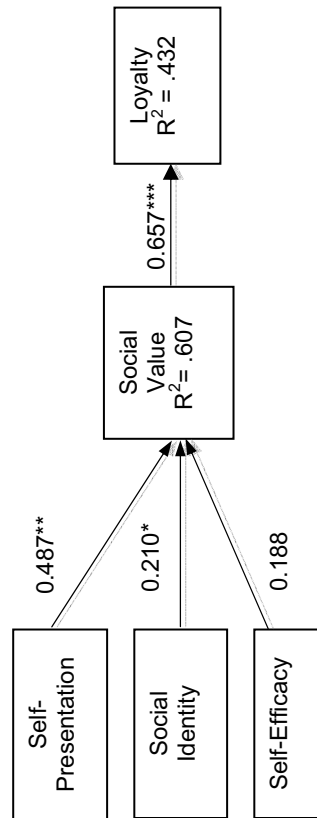


Figure 4. PLS results with Second Life members

