
Information Systems Research

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

# What Motivates People to Purchase Digital Items on Virtual Community Websites? The Desire for Online Self-Presentation

Hee-Woong Kim, Hock Chuan Chan, Atreyi Kankanhalli,

To cite this article:
Hee-Woong Kim, Hock Chuan Chan, Atreyi Kankanhalli, (2012) What Motivates People to Purchase Digital Items on Virtual Community Websites? The Desire for Online Self-Presentation. Information Systems Research 23(4):1232-1245. https://doi.org/10.1287/isre.1110.0411

*Information Systems Research*
Vol. 23, No. 4, December 2012, pp. 1232–1245
ISSN 1047-7047 (print) | ISSN 1526-5536 (online)

http://dx.doi.org/10.1287/isre.1110.0411


# What Motivates People to Purchase Digital Items on Virtual Community Websites? The Desire for Online Self-Presentation

Hee-Woong Kim
Graduate School of Information, Yonsei University, Seodeamun, Seoul 120-749, Korea, kimhw@yonsei.ac.kr

Hock Chuan Chan, Atreyi Kankanhalli
Department of Information Systems, School of Computing, National University of Singapore, Singapore 117417, Republic of Singapore {chanhc@comp.nus.edu.sg, atreyi@comp.nus.edu.sg}

The sale of digital items, such as avatars and decorative objects, is becoming an important source of revenue for virtual community (VC) websites. However, some websites are unable to leverage this source of revenue, and there is a corresponding lack of understanding about what motivates people to purchase digital items in VCs. To explain the phenomenon, we develop a model based on the theory of self-presentation. The model proposes that the desire for online self-presentation is a key driver for such purchases. We also hypothesize that the social influence factors of online self-presentation norms and VC involvement as well as personal control in the form of online presentation self-efficacy are antecedents of the desire for online self-presentation. The model was validated by using survey data collected from Cyworld ($N = 217$) and Habbo ($N = 197$), two online social network communities that have been pioneers in the sale of digital items. This work contributes to our understanding of the purchase of digital items by extending the theory of self-presentation and adds to the broader line of research on online identity. It also lends insights into how VC providers can tap this source of revenue.

*Key words*: digital item purchase; virtual community; desire for online self-presentation; VC norms; VC involvement; online presentation self-efficacy

*History*: Viswanath Venkatesh, Senior Editor; Manju Ahuja, Associate Editor. This paper was received on November 28, 2007, and was with the authors for 24 months for 6 revisions. Published online in *Articles in Advance* March 12, 2012.

## Introduction

Virtual communities (VCs; e.g., Yahoo Groups) are online meeting places where people separated by space and time can achieve various purposes, such as sharing their interests, building relationships, exchanging knowledge, and engaging in transactions (Koh et al. 2007). Even when VCs are able to attract members through the benefits offered, the lack or insufficiency of an underlying business model often threatens their sustainability (Leimeister and Krcmar 2004). Thus, knowledge of how to leverage different sources of revenue is essential for the survival of VCs.

The traditional revenue sources for VCs have been membership fees and advertisements. However, more recently, the sale of digital items, e.g., avatars, graphics, and music files, to VC members has attracted interest as a new method of generating revenue for online communities (Worthen 2010). Digital items can be defined as new media elements used by members for presentation, expression, and communication in online environments. The sale of such items can yield considerable profits because of minimal production and inventory costs (Whadcock 2010). In 2009, sales of digital items reached US$2.2 billion and are expected to grow to US$6 billion by 2013 (Worthen 2010). For instance, the social network website Cyworld[1] has been successful in selling digital items, including avatars, clothes, wallpaper, music, and works of art, at prices ranging from US$0.20 to US$3 each. In 2010, Cyworld conducted transactions of digital items worth more than US$220,000 per day.[2] Another successful website, Habbo, generated revenues of US$80 million in 2010 through the sale of digital items.[3] However, other VCs, such as Livejournal.com and Sayclub.com, have recently started to sell digital items

[1] www.cyworld.com/pims/mhsection/mh_index.asp.

[2] http://www.google.com/hostednews/afp/article/ALeqM5jTk-b8UadVNyPiEILD-tnjHIv34g?docId=CNG.fe1d0589886b23ad62bffe-61357001df.21.

[3] http://www.reuters.com/article/2011/05/17/us-summit-sulake-idUSTRE74G4YD20110517.

and are still exploring ways to increase their revenues from this source.

Despite the growing phenomenon of digital item sales, there is a lack of research on what motivates VC members to purchase these items. Prior research on VCs has mainly addressed issues of attracting and retaining members (Bateman et al. 2010, Gupta and Kim 2007, Koh et al. 2007), enhancing knowledge contribution (Ma and Agarwal 2007, Phang et al. 2009, Wasko and Faraj 2005) as well as knowledge seeking (Kankanhalli et al. 2005, Phang et al. 2009), and carrying out design (Bieber et al. 2002, Ma and Agarwal 2007) and valuation (Gu et al. 2007) of communities. Of particular interest in this literature is the study by Ma and Agarwal (2007), who noted that members use VC features, including digital items such as avatars, for identity communication and verification. However, missing in the previous research is an explanation of members' purchase of digital items in order to generate revenue for VCs. This gap in the literature and the practical problem it represents for VC providers serve as motivations for our study that aims to examine the determinants of why members buy digital items on VC websites.

Previous literature on consumer behavior suggests that individuals not only purchase goods for their functional and experiential value but also for their symbolic or expressive value (Smith and Colgate 2007). Nevertheless, prior e-commerce research (e.g., Gupta and Kim 2010) has mainly focused on the functional or experiential value of purchases. However, an important reason why people buy clothes and decorative items is to portray a desired image of themselves (Schlenker 1980, 2003). This phenomenon can be understood through self-presentation theory (Goffman 1959, Leary 1996). It suggests that the desire to present oneself in a preferred manner to others can motivate the use of objects that fulfill this desire (Canary et al. 2003, Schau and Gilly 2003). Extending this reasoning, we propose that in the online context, the desire for online self-presentation is a key driver of the intention to purchase digital items.

Further, self-presentation theory holds that people tailor the presentation of their identity to a particular social setting (Kamau 2009, Leary 1996) and to their degree of control of the presentation (Döring 2002). Thus, both social influences and personal control could affect the desire for self-presentation. Accordingly, we identify and propose two social factors (online self-presentation norms and VC involvement) based on the processes of social influence (Kelman 1974, 2006) and one personal control factor (online presentation self-efficacy) based on social cognitive theory (Bandura 1995) as antecedents of the desire for online self-presentation.

The above noted gap in the research on online communities as well as the practical problems faced by VC providers in leveraging the sale of digital items motivate our research. Thus, this study has two broad objectives: (1) develop a model to explain the intention to purchase digital items in terms of the desire for online self-presentation and its antecedents and (2) validate the model through a survey of members on VC websites that have been successful in tapping this revenue source. The proposed model was tested on two such online social network websites, Cyworld and Habbo, that are exemplars of VCs profiting from the sale of digital items. This study aims to advance our understanding of online self-presentation and the motivations involved in the purchase of digital items. It also contributes to research by extending self-presentation theory and adding to the broader literature on online identity. Moreover, the study can inform VC providers on how to leverage this source of revenue.

## Conceptual Background

We first introduce the concepts of self- and identity presentation and summarize the research on these concepts. We then describe self-presentation theory, which is our main theoretical foundation, before identifying the social influence and personal control constructs that were used to develop our research model.

### Self and Identity

Self-concept describes a person's perception of "self" in relation to various characteristics, including appearance, personality, skills, occupation, and group membership (Owens 2006). The related concept of identity refers to the defining characteristics of a person (Ruyter and Conroy 2002). Identity is subsumed within the broader concept of self and is considered a tool by which a person categorizes himself or herself and presents that self to the world (Ma and Agarwal 2007, Owens 2006). In the physical or offline world, an identity corresponds to a physical self (Donath 1998). As a result, self-definition and self-presentation of offline identities are affected by physically expressed attributes that may be impossible or difficult to change or conceal. These include the race, age, and gender of the individual (Huffaker and Calvert 2005). However, it is still possible for people to acquire and use material objects, such as clothing and accessories, to shape and project a desired identity.

Extending Ruyter and Conroy's (2002) definition of identity, we conceptualize *online identity* to be a configuration of the defining characteristics of a person

in an online space.[4] In the online context, it may be possible to change or hide attributes that are not feasible to alter or conceal in the offline world, e.g., one's physical characteristics. An individual's online identity is thus not necessarily tied to the offline identity of the person (Kim et al. 2011). Overall, the need to display a new identity, to present an identity in a new context, or to characterize and differentiate oneself further (Turkle 1997, Walker 2000) may all be reasons for online self-presentation. In fact, it has been suggested that the main motive for the creation of personal Web spaces is to project a desired identity or image to others, i.e., for online self-presentation (Schau and Gilly 2003). Walker (2000) discussed how people present their online identities on their Internet home pages through design and content. Prior research has also studied digital representations available for online self-presentation in different VC settings and the outcomes of such representations. For example, members' customization of avatars to show their individuating properties in Yahoo communities was found to be linked to their self-awareness (Vasalou et al. 2007).

In a related study, Ma and Agarwal (2007) examined the role of VC features in communicating and verifying members' identity and facilitating their knowledge contribution in emotional support and common interest VCs. The use of free VC artifacts, such as instant messaging, chat rooms, member directories, and personal spaces, for identity communication was found to affect identity verification. This verification, in turn, influenced member satisfaction and knowledge contribution in the target VCs. In a workplace context, Thatcher and Zhu (2006) studied how the use of IT affects identity processes (i.e., organization-related identification, identity enactment, and self-verification). Although these studies have contributed substantially to our understanding of the influence of IT artifacts on online self-presentation and subsequent outcomes, our study investigates the hitherto unexplored area of the motivations behind the purchase of digital artifacts in VCs. It aims to understand how the desire for online self-presentation drives the purchase of digital items and to investigate the antecedents of this desire. For this purpose, this study builds on self-presentation theory that can be used to explain people's presentation desires in VCs.

### Self-Presentation Theory

Self-presentation theory (Goffman 1959, Leary 1996) explains why people engage in projecting a desired image of themselves to others. The theory proposes two main (and sometimes related) motives that govern self-presentation (Schlenker 2003). First, people want to influence others and gain rewards through self-presentation. For example, an individual can try to make others like him by presenting his positive personal qualities. This may allow the person to obtain benefits or favors from those who like him. The second motive suggested is that individuals present an image to assert a personal identity and use it to associate with similar people. This motive is evident when members self-present in order to build relationships in VCs (Ma and Agarwal 2007) that may possibly allow them to obtain rewards as well (related to the first motive). The second motive is particularly relevant for social network websites where self-presentation can help people find similar others with whom to build relationships. Goffman (1959) further observed that effective social interaction does not occur if people do not construct and present their identities. Thus, online self-presentation could be an important motive for participation in social network websites.

Regarding the means through which self-presentation takes place, off-line self-presentation relies mainly on language (i.e., vocabulary, grammar, and accent), behavior, appearance, and possessions. In terms of appearance and possessions, people acquire and use material objects, such as clothing and accessories, to portray a preferred image of themselves to others (Schlenker 1980, 2003). In contrast, online self-presentation relies primarily on textual, symbolic, and aural presentation methods (Schau and Gilly 2003). In textual presentation, written linguistic cues, e.g., intensity and lexical diversity, and paralinguistic cues, e.g., typographical marks and emoticons, are used to create an online image (Jacobson 1999). For symbolic presentation, graphical digital items (e.g., avatars, furniture) support image creation, whereas for aural presentation, sound cues (e.g., musical digital items) form the online image. In typical VC websites, these digital items, e.g., avatars, wallpaper, and music, can be acquired for symbolic and aural self-presentation. Hence, members' desire for online self-presentation in the VCs should drive their purchase of these items.

### Social Influence and Personal Control

An individual undertakes self-presentation with a specific social situation (in our case the VC) in mind (Schlenker 2003). Apart from the social context, self-presentation theory posits that this behavior is also a function of an individual's degree of control over the presentation (Leary 1996). Accordingly, both social influences (Kamau 2009) and personal control (Döring 2002) have been suggested to affect self-presentation.

[4] Previous studies have used terms such as Internet identity (Walker 2000), digital identity (Turkle 1997), and online identity (Vasalou et al. 2007) synonymously.

Specifically, three processes of social influence have been proposed: compliance, internalization, and identification (Kelman 1974, 2006). In the compliance process (Ahuja and Galvin 2003, Kelman 1974), people comply with formal rules to gain a reward or to avoid a punishment controlled by others. Individuals also comply with informal norms to gain social approval and avoid disapproval. Although compliance involves subscribing to external rules or norms of the group, internalization refers to the process by which the individual's own value system becomes congruent with the group's values. Once the values of the group are assimilated by the individual, they can then guide subsequent behavior (Hitlin 2003). Thus, both compliance and internalization emphasize the importance of group norms in affecting an individual's behavior. In the context of online social networks (as in offline contexts), formal rules for self-presentation are unlikely to exist. Instead, informal norms of self-presentation, referred to as *online self-presentation norms* in our study, are likely to operate. Thus, compliance and internalization processes explain the importance of online self-presentation norms in influencing self-presentation in VCs.

The third process of social influence, i.e., identification, refers to an individual's acceptance of social influence to maintain a positive self-defining relationship with a group. When people perceive themselves to be members of a social group, they develop an emotional involvement with it (Tajfel and Turner 1986) and exhibit pro-social behaviors in the group (Dukerich et al. 2002, Sluss and Ashforth 2007). Thus, identification is associated with a feeling of group involvement (Dick 2001) or *VC involvement* in the context of our study. The identification process explains the importance of VC involvement for self-presentation in VCs. These three processes of social influence have also been successfully applied to understand information systems (IS) adoption in previous studies (Ahuja and Galvin 2003, Venkatesh and Davis 2000).

Apart from social influences, personal control in the form of belief in one's ability to self-present, i.e., self-efficacy, may also affect online self-presentation (Döring 2002). Social cognitive theory (Bandura 2001) identifies the behavioral control of self-efficacy as the single most important determinant of how people select their behavior. "Unless people believe they can produce desired results and forestall detrimental ones by their actions, they have little incentive to act" (Bandura 2001, p. 10). Specific forms of self-efficacy have been conceptualized based on the target behavior involved. For example, previous IS literature has found computer self-efficacy to be an important antecedent of system use (Compeau and Higgins 1995, Venkatesh 2000). Because the task of self-presentation in online settings can be challenging (Thatcher and Zhu 2006), the belief in one's ability to self-present should be important to facilitate self-presentation. Therefore, in the context of our study, we propose *online presentation self-efficacy* as a personal control factor that may determine self-presentation in the VC.

## Research Model and Hypotheses

Based on the conceptual background outlined above, we propose the research model presented in Figure 1. We identified three antecedents, i.e., online presentation self-efficacy, VC involvement, and online self-presentation norms, that could lead to the desire for online self-presentation. The desire for online self-presentation, in turn, is expected to drive the intention to purchase digital items. Controls in the form of age, gender, and VC tenure are also included in the model.

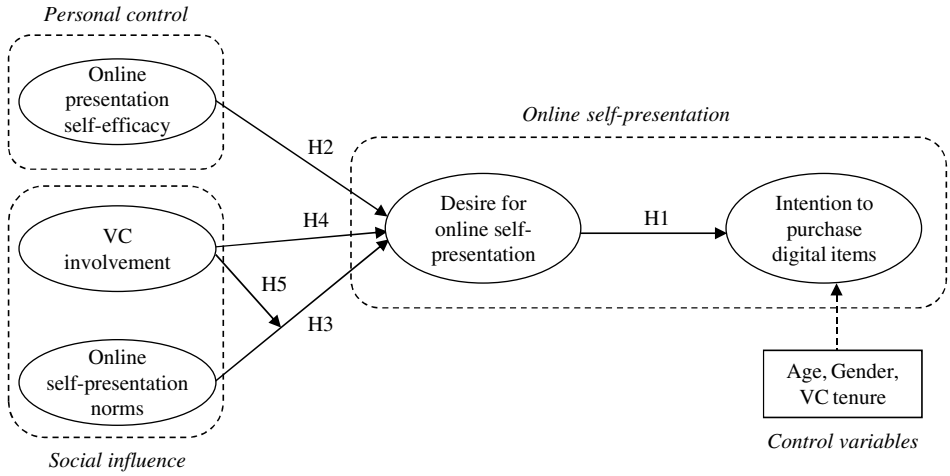
### Intention to Purchase Digital Items

We propose the desire for online self-presentation, defined as *the extent to which an individual wants to present his or her preferred image in a VC of interest*, as a key determinant of the intention to purchase digital items. Specifically, online self-presentation is a volitional behavior (as opposed to an involuntary or accidental behavior) motivated by the desire for self-presentation because it requires an individual to spend time and effort on the VC websites. Any motivated behavior must be understood as a channel through which human desire is satisfied (Maslow 2001). Online self-presentation can thus be understood as the means of satisfaction of an individual's desire to present oneself.

Further, motivation initiates behavior and determines its direction and intensity (Pinder 1998, Teo et al. 1999, Van der Heijden 2004). Thus, the desire for online self-presentation serves as a motivation (Mitchell 1982) that leads to behaviors, such as the purchase of digital items that enable online self-presentation. Kanfer (1991) emphasized the importance of desires as internal tensions that influence the mediating cognitive processes and result in behavioral variability. Motivations also determine resource allocation for different behaviors (Latham and Pinder 2005). Based on their desire for online self-presentation, people may allocate resources toward the purchase of digital items for self-presentation and expend effort toward this goal.

For online self-presentation, blogs and homepages, e.g., in social network sites, are the main venues for people to construct and communicate their identity to others (Kim et al. 2011). In our study, Cyworld Minihomes and Habbo Rooms serve the same purpose, and the digital items sold on these websites

**Figure 1 Research Model**




are key means available to the VC member for self-presentation through the symbolic and aural meanings associated with these items. The acquisition of digital items enables users to associate themselves with these objects that make their online selves more communicative (Schau and Gilly 2003). Therefore, the desire for online self-presentation should motivate people to purchase digital items that can be used to create their preferred image in the VC.

Hypothesis 1 (H1). *The desire for online self-presentation has a positive effect on the intention to purchase digital items*.

### Online Presentation Self-Efficacy

Self-presentation desire may, in turn, be enhanced by personal control in the form of a person's confidence about his or her ability, i.e., self-efficacy, to present a preferred image (Döring 2002). The specific form of self-efficacy relevant to our study is online presentation self-efficacy that refers to individuals' *belief in their own ability to present their image in the VC of interest*. The effect of online presentation self-efficacy on the desire for online self-presentation can be explained by social cognitive theory (Bandura 2001). It posits that human behavior is continuously and extensively self-regulated.

Specifically, self-efficacy beliefs are important determinants of human self-regulation in that people are more comfortable attempting tasks they consider themselves capable of performing (Bandura 1995). Self-efficacy especially reduces anxiety and increases the ease of performing the target behavior (Compeau et al. 1999, Venkatesh 2000). Thus, individuals with high self-efficacy tend to demonstrate superior performance (Compeau and Higgins 1995, Wei et al. 2011). As noted by Bandura (2001, p. 10), "Efficacy beliefs also play a key role . . . influencing the types of activities and environments people choose to get into." As a result, efficacy beliefs influence choices and aspirations (e.g., the desire for online self-presentation; Relich et al. 1986). Further, people with a strong belief in their abilities (e.g., online presentation self-efficacy) would want to engage in those behaviors (i.e., the desire for online self-presentation) because individuals tend to maximize value by doing those things at which they know they can succeed (Thaler 1985). Hence, higher online presentation self-efficacy should lead to a greater desire for online self-presentation.

Hypothesis 2 (H2). *Online presentation self-efficacy has a positive effect on the desire for online self-presentation*.

### Online Self-Presentation Norms and VC Involvement

In the earlier description of social influence processes, we identified VC involvement and norms as key factors affecting individuals' motivations in the VC. This agrees with previous IS research (Venkatesh and Davis 2000) findings that subjective norms have a positive effect on the motivation for the use of a technology. For our study, the relevant norms are those of online self-presentation, defined as *the perceived norms that members should manage and present their online image in the VC of interest*. VC members are likely to adapt their behavior according to the community norms (Ren et al. 2007). In other words, people will be more likely to want to engage in a particular behavior, such as online self-presentation, if this behavior is perceived as the norm for their online group (Blanchard and Markus 2004).

Further, VC members have the opportunity to observe and internalize the group norms of online self-presentation. In social network websites, such as Cyworld and Habbo, people may observe other members expending time and effort, i.e., attaching importance, toward self-presentation in their Minihomes

or Rooms. The internalization of perceived online self-presentation norms serves to develop individuals' desire to present their own online image. At the same time, members may also develop their desire for online self-presentation by complying with the VC presentation norms. Therefore, both compliance and internalization processes (Kelman 1974, 2006) could lead to a greater desire of people to present themselves when the perceived online self-presentation norms are strong.

Hypothesis 3 (H3). *Online self-presentation norms have a positive effect on the desire for online self-presentation*.

The other social influence antecedent that we identified, i.e., group involvement, represents an individual's identification with and interest in being part of a group. For our study, the relevant form of this construct is VC involvement, defined as *a state of motivation, arousal, or interest toward the online community* (Dholakia and Bagozzi 2004). VC involvement has been previously linked to various positive outcomes, such as personal investment, postings, and use of common symbols, in online communities (Blanchard and Markus 2004, Koh et al. 2007). The more individuals identify with the group, the stronger should be their desire to follow group behavior, e.g., presentation of their identity (Brown and Leigh 1996). Thus, individuals exhibit pro-social behaviors (e.g., wearing club uniforms as fans of a sports club) in the group as their level of group involvement increases (Dukerich et al. 2002, Sluss and Ashforth 2007). When involvement is high, individuals tend to adopt the interests of the group (Ellemers et al. 1997, Hogg and Terry 2000), and this may result in a greater desire to present oneself in the target VCs.

Hypothesis 4 (H4). *VC involvement has a positive effect on the desire for online self-presentation*.

**Interaction Hypothesis**

Further, we expect that VC involvement and online self-presentation norms will interact in influencing the desire for self-presentation. This is based on social identity theory (Hogg 2006, Terry et al. 1999) that suggests group involvement and group norms interact positively to encourage the adoption of group behavior. When an individual enters a group, his or her self-categorization helps to develop a social identity and produces cohesion and positive group attitudes (Hogg and Terry 2000). Thus, motivation or interest in the VC (i.e., VC involvement) results in identification with the group (Terry et al. 1999) that may lead to a greater compliance with group norms (e.g., online self-presentation norms). Further support for the interaction hypothesis can be found in Hogg (2006, p. 124), who noted, "If people identify strongly with a group whose norms prescribe certain actions, then they are more likely to do those actions than if they did not identify strongly or the norm did not prescribe the behavior." Additionally, Terry et al. (1999) found that the effect of group norms on behavioral intention hinges on the strength of group involvement.

Although the interaction effect was found in the offline context (Terry et al. 1999), we also expect it to exist in the online context as well. This is because previous literature on social influence theory does not suggest such differences for online versus offline contexts (Shen et al. 2011, Song and Kim 2006). From a social influence perspective, a low level of involvement with a VC may limit the internalization of VC norms. Conversely, when VC involvement is high, group norms are likely to be strongly internalized through cognitive assimilation and adopted to a larger extent. Wenzel (2004, p. 213) noted, "Social norms should elicit concurring behavior when members identify with the group to whom the norms are attributed; they then internalize the social norms and act accordingly. In contrast, social norms should be ineffective when identification is weak." Hence, VC involvement is expected to strengthen the relationship between online self-presentation norms and the desire for online self-presentation.

Hypothesis 5 (H5). *The effect of online self-presentation norms on the desire for online self-presentation will increase as VC involvement increases*.

## Research Methodology

Cyworld and Habbo were chosen for the study because they are successful VCs in terms of profiting from the sale of digital items. Thus, they can provide insights into the best practices in this area. People join Cyworld or Habbo for free and upon registration they are given a personal online space (i.e., a "Minihome" in Cyworld or a hotel "Room" in Habbo, as shown in the online supplement).[5] Thereafter, members can purchase digital items, such as avatars, music, and furnishings, from the VC provider and use them in their online space. People can visit others' online spaces and over the course of the visit form impressions about the owners. Neither Cyworld nor Habbo requires members to buy digital items to decorate or enhance their personal online space; i.e., purchase is voluntary. Thus, these websites serve as an appropriate context for investigating the motive behind purchase of digital items.

Although Cyworld and Habbo are similar in the ways described above, certain differences between

[5] An electronic companion to this paper is available as part of the online version at http://dx.doi.org/10.1287/isre.1110.0411.

them increase the generalizability of our results. First, most digital items have a limited life span in Cyworld, but in Habbo all digital items have unlimited life spans. Second, in Cyworld, each member has a blog with several options, including diary, guestbook, and album, and can interact with other members even when they are not online. However, Habbo has no blog option, and members can interact with others only when they are online. Because our focus is on social network websites where the VC provider sells digital items, we did not study virtual worlds, such as Second Life, that have varied purposes (e.g., educational, entertainment, commercial, and work functions) or where most transactions are conducted between users. The myriad purposes and transactions of such sites could dilute the focus of the study.

To develop a deeper understanding of the phenomenon, we used a sequential combination of qualitative and quantitative research methods, where findings from the qualitative study empirically informed the later quantitative study. This is in accordance with the guidelines for mixed methods research (Venkatesh et al. 2012). We collected qualitative data by conducting interviews with 15 members of Cyworld, the marketing manager of Cyworld, and 20 members of Habbo to explore why people join Cyworld or Habbo and what motivates them to purchase digital items (see the online supplement). According to the interviews, people join Cyworld or Habbo to stay in touch with friends and/or to make new ones. As to why people pay for digital items, the interviews show that those members who make such purchases are motivated by a desire for online self-presentation (see the online supplement). The interviews thus substantiated the basic premise of our model. The interviews also assisted in the interpretation of specific survey results, as will be discussed later. We then collected quantitative data through online surveys in Cyworld and Habbo to empirically test the research model shown in Figure 1.

### Operationalization of Constructs

To develop our survey instrument, we adopted existing validated scales wherever possible. To assess *intention to purchase digital items*, we adapted scales from Dodds et al. (1991) by considering our research context of social network VCs and digital items. We further ensured that the questions were specific and consistent with respect to action (purchase), target (digital item), context (Cyworld and Habbo), and time (within the next six months). To measure the *desire for online self-presentation*, we developed our own scales based on the definition of the construct. Self-presentation is defined as an individual's behavior to project a preferred image (Canary et al. 2003). Thus, we developed four items to measure the desire for online identity presentation: "want to establish a preferred image for myself in Cyworld/Habbo," "want to present my image to others in Cyworld/Habbo," "want to project my image in Cyworld/Habbo," and "want to give a preferred impression about myself to others in Cyworld/Habbo."

We adapted items from previous literature (Compeau and Higgins 1995, Venkatesh 2000) to measure *online presentation self-efficacy* based on the VCs of interest and the definition of the construct that refers to the belief in the ability to present one's online image in the VC. Kyle et al. (2004) developed scales (e.g., "important to me," "enjoyable things," "pleasurable to me," and "enjoy") to assess involvement in hiking. To measure *VC involvement*, we adapted the scales to our study context. Further, based on our research context and target behavior (presentation of an online image), we adapted the scales for *online self-presentation norms* from Taylor and Todd (1995) to our study. The questionnaire employed the seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The scales are shown in Table 1.

### Quantitative Data Collection

Five hundred members of Cyworld were randomly selected as survey participants. Because all Cyworld members have a Minihome, we left a survey invitation message with the URL of the survey website in the guestbook of each Minihome of the 500 invited participants. The owners of the Minihomes and their visitors could read the invitation and participate in the survey. We also left invitational messages on the forums in Cyworld. Similarly, we left survey invitations on the forums in Habbo. We could not leave the messages in the personal online spaces (called Rooms) in Habbo because its Rooms did not have guestbooks. A total of 217 complete and valid responses were collected from Cyworld over four weeks, and 197 responses were collected from Habbo over six weeks (see the online supplement). The descriptive statistics of the sample indicate that the majority of respondents were between 20 and 29 years of age. The majority of the Cyworld respondents were professionals, followed by undergraduate or graduate students, but the majority of the Habbo respondents were undergraduate or graduate students, followed by high school students. Because Habbo targets mainly young adults, its subjects were somewhat younger than the Cyworld subjects. However, VC tenure and Internet experience were comparable between the two subject groups.

We assessed nonresponse bias by comparing early and late respondents, i.e., those who replied during the first two weeks and those who replied during the last two weeks. *T*-tests performed on each VC group showed that the early and late respondents did not

**Table 1 Measurement Instrument**

| Construct | Item | Wording |
|---|---|---|
| Intention to purchase digital items (*PIN*) | PIN1 | The probability that I would consider buying a digital item from Cyworld/Habbo within the next six months is high. |
| | PIN2 | My willingness to buy a digital item from Cyworld/Habbo within the next six months is high. |
| | PIN3 | The likelihood of my purchasing a digital item from Cyworld/Habbo within the next six months is high. |
| Desire for online self presentation (*PRN*) | PRN1 | I want to establish a preferred image for myself in Cyworld/Habbo. |
| | PRN2 | I want to present my image in Cyworld/Habbo. |
| | PRN3 | I want to project an image about myself in Cyworld/Habbo. |
| | PRN4 | I want to give a preferred impression about myself to others in Cyworld/Habbo. |
| VC involvement (*INV*) | INV1 | Participating in Cyworld/Habbo is one of the most enjoyable things I do. |
| | INV2 | Participating in Cyworld/Habbo is important to me. |
| | INV3 | Participating in Cyworld/Habbo is pleasurable to me. |
| | INV4 | Participating in Cyworld/Habbo means a lot to me. |
| Online self-presentation norms (*ONM*) | ONM1 | Many people think it is important to establish their images in Cyworld/Habbo. |
| | ONM2 | The presentation of self image is common among people in Cyworld/Habbo. |
| | ONM3 | Many people think that it is important to manage their images in Cyworld/Habbo. |
| Online presentation self-efficacy (*OPS*) | OPS1 | I know how to present my image reasonably well on my own in Cyworld/Habbo. |
| | OPS2 | I can decorate my image reasonably well on my own in Cyworld/Habbo. |
| | OPS3 | I know how to create my image reasonably well on my own in Cyworld/Habbo. |

differ significantly in terms of age, Internet experience, or VC tenure. Mann-Whitney tests also revealed no significant differences in gender ratio between the two groups of respondents.

## Data Analysis and Results

Data analysis was conducted using the partial least squares (PLS) technique with PLS-Graph 2.91. PLS was chosen because it analyzes measurement and structural models with multi-item constructs that include direct, indirect, and interaction effects. Also, PLS is not as restrictive on the sample as covariance-based structural equation modeling (SEM) methods that require a separate multi-sample analysis for interaction effects along with relatively large sample sizes and multivariate normal data distributions (Jöreskog and Sörbom 1989). We first assessed the validity of the measurement instrument and then tested the hypotheses.

### Instrument Validation

To conceptually validate the instrument, two IS researchers and one marketing researcher reviewed the survey instrument and examined its face validity. We also conducted a sorting exercise (DeVellis 2003) with four graduate students who served as judges. They correctly placed the items onto the intended constructs. In addition, the measurement instrument was reviewed by a focus group of five Cyworld members to check for any ambiguity of wording or format.

We further assessed the constructs for convergent and discriminant validity. Convergent validity can be established by examining standardized path loadings of items, composite reliability (CR), Cronbach's $\alpha$, and the average variance extracted (AVE) of constructs (Gefen et al. 2000). The standardized path loadings of all items were significant ($t$-value $> 1.96$) and greater than 0.7. The CR and Cronbach's $\alpha$ for all constructs exceeded 0.7. The AVE for each construct was greater than 0.5 (see the online supplement). Thus, each test result met its threshold criterion, and the convergent validity for the constructs was supported.

Discriminant validity of a measurement model is supported when the square root of AVE for each construct is greater than the correlations between that construct and other constructs (Fornell and Larcker 1981). As shown in Table 2, this condition was satisfied. We also conducted a second test of discriminant validity that utilizes a process of constrained testing as suggested by Anderson and Gerbing (1988). From the results of this test, all $\chi^2$ statistics (range of $\Delta\chi^2$ is from 137.77 to 305.05) were found significant, indicating that the measurement model was significantly better than alternative models (obtained by combining pairs of latent constructs). Hence, discriminant validity was established. We also tested our data for common method variance by using the Bentler and Bonnet test and Harman's single-factor test, steps suggested by Sharma et al. (2009) and Malhotra et al. (2006). No single factor dominated the total variance, indicating lack of common method bias. We further assessed the method factor based on the guidelines suggested by Liang et al. (2007). Given the small magnitude of method variance and the insignificance of method factor loadings, method bias was unlikely to be a concern in this study.

**Table 2 Descriptive Statistics and Correlations**

| | Mean | S.D. | *PIN* | *PRN* | *OPS* | *INV* | *ONM* |
|---|---|---|---|---|---|---|---|
| *PIN* | 4.73(C) | 1.68(C) | **0.94**(C) | | | | |
| | 4.04(H) | 2.00(H) | **0.96**(H) | | | | |
| *PRN* | 4.72(C) | 1.41(C) | 0.58(C) | **0.91**(C) | | | |
| | 4.84(H) | 1.43(H) | 0.53(H) | **0.85**(H) | | | |
| *OPS* | 4.28(C) | 1.56(C) | 0.50(C) | 0.52(C) | **0.89**(C) | | |
| | 4.83(H) | 1.61(H) | 0.36(H) | 0.72(H) | **0.93**(H) | | |
| *INV* | 4.33(C) | 1.52(C) | 0.50(C) | 0.64(C) | 0.50(C) | **0.92**(C) | |
| | 4.56(H) | 1.53(H) | 0.53(H) | 0.72(H) | 0.63(H) | **0.87**(H) | |
| *ONM* | 4.80(C) | 1.23(C) | 0.33(C) | 0.48(C) | 0.32(C) | 0.33(C) | **0.79**(C) |
| | 4.89(H) | 1.47(H) | 0.35(H) | 0.61(H) | 0.52(H) | 0.57(H) | **0.81**(H) |

*Notes.* Leading diagonal shows the squared root of AVE of each construct. C: Cyworld, H: Habbo.

**Table 3 Results of Testing Interaction Effects**

| Dependent variable: Desire for online self-presentation | Cyworld | Habbo |
|---|---|---|
| Step 1: Main effects | | |
| Online presentation self-efficacy (*OPS*) | $0.22^{***}$ | $0.38^{***}$ |
| Online self-presentation norms (*ONM*) | $0.28^{***}$ | $0.21^{***}$ |
| VC involvement (*INV*) | $0.43^{***}$ | $0.37^{**}$ |
| Step 2: Interaction term | | |
| *ONM* ∗ *INV* | 0.02 | 0.04 |
| Comparison between step 1 and step 2 | | |
| $\Delta R^2$ | 0.01 | 0.01 |
| *F* | $0.43^{ns}$ | $0.55^{ns}$ |

$^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; ns: nonsignificant at the 0.05 level.

## Hypotheses Testing

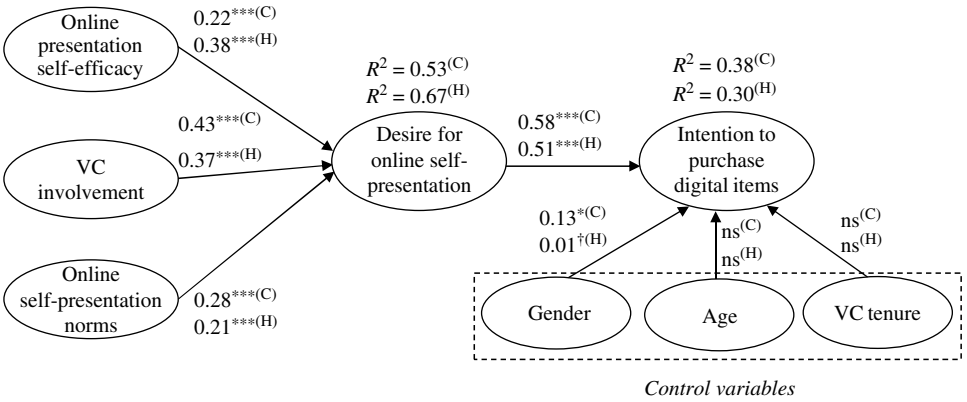
After establishing the validity of the survey instrument, we tested the hypotheses using PLS. We also considered three other factors (age, gender, and VC tenure) as control variables in determining the intention to purchase digital items. We expected that younger members and women would be more likely to purchase digital items for online self-presentation because they may be more concerned about the presentation and management of their online images (Huffaker and Calvert 2005). We also expected that members with longer tenure in the VC would be more likely to purchase digital items because of the learning effects associated with their experience.

Path coefficients and significance values for the main effects are reported in Figure 2. In both Cyworld and Habbo, the desire for online self-presentation and one control factor (gender) have significant effects on the intention to purchase digital items. That is, women have stronger intentions to purchase digital items than men. In both VCs, online presentation self-efficacy, online self-presentation norms, and VC involvement have significant effects on the desire for online self-presentation. Thus, H1–H4 were supported. The explanatory power ($R^2$) for the intention to purchase digital items (0.38 for Cyworld and 0.30 for Habbo) and the desire for online identity presentation (0.53 for Cyworld and 0.67 for Habbo) are well above the accepted threshold of 0.10 (Falk and Miller 1992).

Next, we examined the interaction hypothesis regarding VC involvement using the guidelines provided by Chin et al. (2003). The interaction term was calculated after standardizing the indicators. The independent constructs are entered in the first step, and the interaction term is added in the second step. As summarized in Table 3, the change in $R^2$ values between the two steps was 0.01 ($F = 0.43$; insignificant at the 0.05 level) for Cyworld and 0.01 ($F = 0.55$; insignificant at the 0.05 level) for Habbo. The moderation effect of VC involvement on the relationship between online self-presentation norms and the desire for online self-presentation was not significant. Thus, H5 was not supported.

As a post-hoc analysis, we performed path comparison tests (see the online supplement) between the two samples based on the guidelines suggested

**Figure 2 Results of Hypotheses Tests**




*Note.* C: Cyworld, H: Habbo.
$^{\dagger}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$; ns: nonsignificant at the 0.05 level.

by Chin et al. (2003). The tests comparing Cyworld and Habbo show that only online presentation self-efficacy has a significantly different effect on the desire for online self-presentation; i.e., online presentation self-efficacy has a stronger effect on desire in Habbo than in Cyworld. The different effect could be because of the higher percentage of young respondents in Habbo (48% in the 15–19 age group) compared to Cyworld (18% in the 15–19 age group). This is because younger people may be more willing to apply their presentation knowledge and skills to their online self-presentation as compared to older members. Additional tests on Habbo subjects agreed with this reasoning by showing that younger members exhibited a stronger effect of online presentation self-efficacy on the presentation desire (path coefficient = 0.40, $p < 0.001$, for the less than 20 age group) as compared to older members (path coefficient = 0.11, $p < 0.05$, for the greater than 25 age group).

## Discussion and Implications

### Discussion of Findings

There are several important findings obtained from our study. The first is that the desire for online self-presentation acts as a key motivator for the purchase of digital items. This finding agrees with Thompson and Hirschman's (1995) claim that presentation of the self can be conveyed through one's possessions, which drives their consumption. Further, the desire for online self-presentation is found to be affected by both social influence and personal control antecedents. As hypothesized, an individual with a high level of online presentation self-efficacy has a greater desire to present his or her preferred online image, confirming the effect of self-efficacy on people's choice of behavior (Bandura 2001). Also, the significant findings with respect to online self-presentation norms and VC involvement are consistent with and extend previous research (Kelman 1974) that explains the effects of compliance, internalization, and identification on offline identity-related behavior.

However, our interaction hypothesis was rejected; i.e., VC involvement did not have a moderating effect on the relationship between online self-presentation norms and the desire for online self-presentation. This finding diverges from previous research (Terry et al. 1999, Wenzel 2004) findings that social identification moderates the relationship between social norms and behavioral intention in different offline settings. A possible theoretical reason for the divergence may be the target for the interaction effect. Whereas the target in previous research (Terry et al. 1999, Wenzel 2004) was behavioral intention, our study's target was motivation toward the behavior that may have led to a different impact. Another plausible theoretical reason for the unsupported hypothesis is the presence of a direct effect of VC involvement on online self-presentation norms rather than an interaction between them. Indeed, a post-hoc analysis shows evidence for such a direct effect between VC involvement and online self-presentation norms (path coefficient = $0.33^{***}$ for Cyworld and $0.57^{***}$ for Habbo). Also, a contextual reason for the unsupported interaction effect could be the respondents' experience with the VCs in our study. Because most respondents were quite experienced with the VC (tenure = 2.6 years for Cyworld and 2.3 years for Habbo), they may have been fully exposed to the norms such that VC involvement did not affect the relationship between norms and their desire for online self-presentation.

### Limitations and Future Research

Despite the significant findings of this study, their interpretation is subject to certain limitations. First, although our results are largely consistent across the social networks that were studied, it would be useful to further test the robustness of the results by replicating this study across a variety of online communities that sell digital items. Second, additional antecedents may determine the desire for online self-presentation. For example, Hitlin (2003) argues that values form the core of identity that may drive the desire for identity communication (Canary et al. 2003). Thus, future studies could explore various values that may influence the desire for identity presentation in the online context. A third limitation lies in our exclusion of other antecedents of online self-presentation desire that represent individual member traits (such as social skills). These antecedents were excluded because the relevance of offline traits to online self-presentation behavior is unclear. Future research could attempt to conceptualize relevant online traits for this context and also examine other potential antecedents of the intention to purchase digital items, e.g., purchase for publicity or for giving gifts to others.

### Theoretical Implications

This study makes several important scientific contributions. Specifically, two aspects, i.e., establishing the desire for online self-presentation as a driver of the purchase of digital items and determining salient antecedents of this behavior, have not been addressed before. Another implication is that the paper extends the theory of self-presentation by applying it in the context of online digital purchases. Finally, the study adds to the broader line of research on online identity that has, until now, been largely conducted in a workplace setting. Each of these implications is elaborated below.

Using self-presentation theory as a basis, the study has modeled what motivates people to purchase

digital items on VC websites. Although VC providers would like to leverage this source of revenue, their intent has been hampered by a lack of prior study and understanding of the motivations behind members' purchase of digital items. Thus, this research contributes by explaining individuals' purchase of digital items as a way for them to shape and communicate their identity in the context of social network websites. It proposes and validates that the desire for online self-presentation is a key driver of the intention to purchase digital items on these websites.

The study also contributes by explaining the desire for online self-presentation in social network websites in terms of both personal control and social influence antecedents. Although previous research has examined several aspects of online identity—e.g., the difference between online and offline identities (Kim et al. 2011, Turkle 1997); the presentation of online identity on an Internet home page (Vasalou et al. 2007, Walker 2000, Walther 2007); and the use of IT artifacts to support identity verification (Ma and Agarwal 2007)—the antecedents of the desire for online self-presentation had not been explored. More specifically, Ma and Agarwal (2007) examined how the use of VC artifacts, e.g., virtual copresence, persistent labeling, self-presentation, and deep profiling, for identity communication affects identity verification that then influences knowledge contribution in the VC. However, their study targeted emotional-support and common-interest VCs in which the tools and artifacts were available for free. In contrast, our study focuses on VCs in which members have to decide to purchase the digital items prior to using them. Our study thus contributes to the literature by understanding what motivates members to buy digital items from VC providers in terms of the desire for online self-presentation and its antecedents.

Further, this study adds to the literature by extending self-presentation theory. Self-presentation theory has been used to explain the process of, and reasons for, presenting oneself to others in various offline contexts (e.g., Goffman 1959, Leary 1996, Schlenker 2003). Here, the theory is used to model and understand the motivations behind the purchase of digital items in the context of social network VC websites. Further, a salient contribution is made by showing how various perspectives, such as social influence theory and social cognitive theory, can be integrated to explain self-presentation desire. Whereas self-presentation theory serves as the overarching perspective for our explanation of digital item purchase in terms of the desire for online self-presentation, social influence theory explains how the community influences self-presentation and social cognitive theory adds the self-regulative effect of efficacy beliefs on the desire for self-presentation.

This study additionally contributes to the broader line of research on online identity that has mainly been conducted in workplace settings (e.g., Dukerich et al. 2002, Sluss and Ashforth 2007, Thatcher and Greer 2008). For example, identity comprehension (i.e., the degree to which significant others recognize the importance of one's identity) in work teams has been linked to higher levels of creativity and satisfaction (Thatcher and Greer 2008). Moreover, an increasingly large body of research demonstrates the influence of identification (i.e., self-definition with specific relationships or groups) on work behavior, such as citizenship behavior and coworker support (Dukerich et al. 2002, Sluss and Ashforth 2007). Previous research (Thatcher and Zhu 2006) has also explained how the use of electronic media in the workplace affects identity processes (i.e., organization-related identification, identity enactment, and self-verification). Our study adds to this literature by examining online identity presentation as a driver of the intention to purchase digital items in a non-workplace context.

**Practical Implications**

From a pragmatic perspective, this study has implications for revenue generation in social network VCs, such as Habbo and Cyworld. These two VCs have several common characteristics. As social network websites, both contain features to facilitate online interaction among members. Specifically, both provide personal online spaces in which members visit one another and build relationships. Also, both Cyworld and Habbo develop and sell digital items to their members. The members who buy these items can use them to decorate their online spaces as a way to project their online identities. Although people may find free digital items elsewhere, they cannot incorporate them into Cyworld and Habbo.

Our findings can be used by VCs with similar features to leverage the sale of digital items as a revenue source. Specifically, this study highlights that people's desire for self-presentation drives their intention to purchase digital items to use in their personal online spaces. Hence, it is worthwhile for VCs to stimulate their members' desire for online self-presentation. Our results suggest that to enhance their presentation desire, VC providers should help members improve their online presentation self-efficacies. To do so, VC providers can consider guiding members on how to buy and use digital items in their personal online spaces. VCs also need to develop easy to use tools for online self-presentation. For example, they can provide self-presentation templates that can be readily modified by members. VCs can also plan on organizing social events, such as a best personal online space design competition, to motivate members to improve their online presentation skills.

This study also suggests that VC providers should make efforts to increase members' involvement and establish norms related to online self-presentation as means of stimulating the desire for online self-presentation and the intention to purchase digital items. To develop involvement, VC providers should consider enhancing the usefulness of the VC and providing a pleasurable experience to members (Gupta and Kim 2007). Development of online self-presentation norms poses a problem of how to facilitate this behavior at the outset. Before members' presentation behaviors can be affected by such norms, there must first be a sufficient number of people in the VC whose use of digital items for self-presentation can be perceived as the norm. For this purpose, VC providers can consider ways to promote self-presentation through the use of digital items. For example, Cyworld has distributed digital items as gifts to selected members (e.g., opinion leaders and active participants) to help create online self-presentation norms.

## Conclusion

Because the sale of digital items is a relatively new source of revenue in VCs, there is a lack of understanding of what motivates people to purchase these items. This study examined the purchase of digital items on two successful VC websites by conceptualizing a new construct, the desire for online self-presentation, as a key driver of such purchases. Our findings show that the intention to purchase digital items is determined by the desire for online self-presentation. This, in turn, is influenced by online presentation self-efficacy, VC involvement, and online self-presentation norms. This study thus provides an explanation of online self-presentation and the purchase of digital items by members of such VCs. This is especially relevant because virtual worlds, where members have alternative identities, are predicted to be the evolution of social interaction.[6] As people establish online identities, the desire to present their online image in a preferred way will become more important to them. Given that digital items are considered as key tools for self-presentation in online spaces, this study is useful in showing how people's desire for online self-presentation can be satisfied and in doing so allow new revenue sources for VCs to be developed.

### Electronic Companion

An electronic companion to this paper is available as part of the online version at http://dx.doi.org/10.1287/isre.1110.0411.

[6] http://www.hypergridbusiness.com/2010/11/virtual-worlds-future-of-interaction/

### Acknowledgments

The authors would like to thank the Senior Editor, Associate Editor, and the three anonymous reviewers for their constructive comments and suggestions that significantly helped to improve the quality of the paper.

### References

Ahuja, M., J. Galvin. 2003. Socialization in virtual groups. *J. Management* **29**(2) 161–185.

Anderson, J. C., D. W. Gerbing. 1988. Structural equation modeling in practice: A review and recommended two-step approach. *Psych. Bull.* **103**(3) 411–324.

Bandura, A. 1995. Exercise of personal and collective efficacy in changing societies. A. Bandura, ed. *Self-Efficacy in Changing Societies*. Cambridge University Press, Cambridge, UK, 1–45.

Bandura, A. 2001. Social cognitive theory: An agentic perspective. *Ann. Rev. Psych.* **52**(1) 1–26.

Bateman, P. J., P. J. Gray, B. S. Butler. 2010. The impact of community commitment on participation in online communities. *Inform. Systems Res.*, ePub ahead of print January 27, http://isr.journal.informs.org/content/early/2010/01/27/isre.1090.0265.abstract.

Bieber, M., D. Engelbart, R. Furuta, S. R. Hiltz, J. Noll, J. Preece, E. A. Stohr, M. Turoff, B. Walle. 2002. Toward virtual community knowledge evolution. *J. MIS* **18**(4) 11–35.

Blanchard, A. L., M. L. Markus. 2004. The experienced "sense" of a virtual community: Characteristics and processes. *The DATA BASE Adv. Inform. Systems* **35**(1) 64–71.

Brown, S. P., T. W. Leigh. 1996. A new look at psychological climate and its relationship to job involvement, effort, and performance. *J. App. Psych.* **81**(4) 358–368.

Canary, D., M. Cody, V. Manusov. 2003. *Interpersonal Communication: A Goals-Based Approach*. Bedford/St. Martin's, Boston.

Chin, W. W., B. L. Marcolin, P. R. Newsted. 2003. A partial least square latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Inform. Systems Res.* **14**(2) 189–217.

Compeau, D. R., C. A. Higgins. 1995. Application of social cognitive theory to training for computer skills. *Inform. Systems Res.* **6**(2) 118–143.

Compeau, D., C. A. Higgins, S. Huff. 1999. Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quart.* **23**(2) 145–158.

DeVellis, R. F. 2003. *Scale Development: Theory and Applications*. 2nd ed. Sage Publications, Thousand Oaks, CA.

Dholakia, U. M., R. P. Bagozzi. 2004. Motivational antecedents, constituents, and consequences of virtual community identity. S. Godar, S. Ferris, eds. *Virtual and Collaborative Teams: Process, Technologies, and Practice*. Idea Group, Hershey, PA, 252–267.

Dick, R. 2001. Identification in organizational contexts: Linking theory and research from social and organizational psychology. *Internat. J. Management Rev.* **3**(4) 265–283.

Dodds, W. B., K. B. Monroe, D. Grewal. 1991. Effects of price, brand and store information on buyers' product evaluations. *J. Marketing Res.* **28**(3) 307–319.

Donath, J. S. 1998. Identity and deception in the virtual community. P. Kollock, M. Smith, eds. *Communities in Cyberspace*. Routledge, London, 3–4.

Döring, N. 2002. Personal home pages on the Web: A review of research. *J. Computer-Mediated Comm.* **7**(3), http://jcmc.indiana.edu/vol7/issue3/doering.html.

Dukerich, J. M., B. R. Golden, S. M. Shortell. 2002. Beauty in the eye of the beholder: The impact of organizational identification, identity, and image on the cooperative behaviors of physicians. *Admin. Sci. Quart.* **47**(4) 507–533.

Ellemers, N., R. Spears, B. Doosje. 1997. Sticking together or falling apart: Ingroup identification as a psychological determinant of group commitment versus individual mobility. *J. Personal Soc. Psych.* **72**(3) 617–626.

Falk, R. F., N. B. Miller. 1992. *A Primer for Soft Modeling*. University of Akron Press, Akron, OH.

Fornell, C., D. Larcker. 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Marketing Res.* **18**(1) 39–50.

Gefen, D., D. W. Straub, M. Boudreau. 2000. Structural equation modeling and regression: Guidelines for research practice. *Comm. AIS* **4**(7) 2–76.

Goffman, E. 1959. *The Presentation of Self in Everyday Life*. Doubleday, New York.

Gu, B., P. Konana, B. Rajagopalan, H. M. Chen. 2007. Competition among virtual communities and user valuation: The case of investing-related communities. *Inform. Systems Res.* **18**(1) 68–85.

Gupta, S., H.-W. Kim. 2007. Developing the commitment to virtual community: The balanced effects of cognition and affect. *Inform. Resource Management J.* **20**(1) 28–45.

Gupta, S., H.-W. Kim. 2010. Value-driven Internet shopping: The mental accounting theory perspective. *Psych. Marketing* **27**(1) 13–35.

Hitlin, S. 2003. Values as the core of personal identity: Drawing links between two theories of the self. *Soc. Psych. Quart.* **66**(2) 118–137.

Hogg, M. A. 2006. Social identity theory. P. J. Burke, ed. *Contemporary Social Psychological Theories*. Stanford Social Sciences, Stanford, CA, 111–136.

Hogg, M. A., D. J. Terry. 2000. Social identity and self-categorization processes in organizational contexts. *Acad. Management Rev.* **25**(1) 121–140.

Huffaker, D. A., S. L. Calvert. 2005. Gender, identity and language use in teenage blogs. *J. Computer-Mediated Comm.* **10**(2), http://jcmc.indiana.edu/vol10/issue2/huffaker.html.

Jacobson, D. 1999. Impression formation in cyberspace: Online expectations and offline experiences in text-based virtual communities. *J. Computer-Mediated Comm.* **5**(1), http://jcmc.indiana.edu/vol5/issue1/jacobson.html.

Jöreskog, K. G., D. Sörbom. 1989. *LISREL 7: A Guide to the Program and Applications*, 2nd ed. SPSS Inc., Chicago.

Kamau, C. 2009. Strategising impression management in corporations: Cultural knowledge as capital. D. Harorimana, ed. *Cultural Implications of Knowledge Sharing, Management and Transfer: Identifying Competitive Advantage*. IGI Global, Hershey, PA, 60–83.

Kanfer, R. 1991. Motivation theory and industrial and organizational psychology. M. D. Dunnetter, L. M. Hough, eds. *Handbook of Industrial and Organizational Psychology*. Consulting Psychologist Press, Palo Alto, CA, 75–170.

Kankanhalli, A., B. C. Y. Tan, K. K. Wei. 2005. Understanding seeking from electronic knowledge repositories: An empirical study. *J. Amer. Soc. Inform. Sci. Tech.* **56**(11) 1156–1166.

Kelman, H. C. 1974. Further thoughts on the processes of compliance, identification and internalization. J. T. Tedeschi, ed. *Perspectives on Social Power*. Aldine, Chicago, 126–171.

Kelman, H. C. 2006. Interests, relationships, identities: Three central issues for individuals and groups in negotiating their social environment. *Ann. Rev. Psych.* **57**(1) 1–26.

Kim, H.-W., J. R. Zheng, S. Gupta. 2011. Examining knowledge contribution from the perspective of an online identity in blogging communities. *Comput. Human Behav.* **27**(5) 1760–1770.

Koh, J., Y. G. Kim, B. Butler, G. W. Bock. 2007. Encouraging participation in virtual communities. *Comm. ACM* **50**(2) 68–73.

Kyle, G., A. Graefer, E. Manning, J. Bacon. 2004. Predictors of behavioural loyalty among hikers along the Appalachian trail. *Leisure Sci.* **16**(1) 99–118.

Latham, G. P., C. C. Pinder. 2005. Work motivation theory and research at the dawn of the twenty-first century. *Ann. Rev. Psych.* **56**(1) 485–516.

Leary, M. R. 1996. *Self-Presentation: Impression Management and Interpersonal Behavior*. Westview Press, Madison, WI.

Leimeister, J., H. Krcmar. 2004. Revisiting the virtual community business model. *AMCIS 2004 Proc.*, New York, 2716–2726.

Liang, H., N. Saraf, Q. Hu, Y. Xue. 2007. Assimilation of enterprise systems: The effect of instrumental pressures and the mediating role of top management. *MIS Quart.* **31**(1) 59–87.

Ma, M., R. Agarwal. 2007. Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities. *Inform. Systems Res.* **18**(1) 42–67.

Malhotra, N. K., S. Kim, A. Patil. 2006. Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management Sci.* **52**(12) 1865–1883.

Maslow, A. H. 2001. A theory of human motivation. W. E. Natemeyer, J. T. McMahon, eds. *Classics of Organizational Behavior*. Waveland Press, Long Grove, IL, 55–72.

Mitchell, T. 1982. Motivation: New directions for theory research and practice. *Acad. Management Rev.* **7**(1) 80–88.

Owens, T. J. 2006. Self and identity. J. D. DeLamater, ed. *Handbook of Social Psychology*. Kluwer/Plenum, New York, 205–232.

Phang, C. W., A. Kankanhalli, R. Sabherwal. 2009. Usability and sociability in electronic communities: A comparative study of knowledge seekers and contributors. *J. AIS* **10**(10) 721–747.

Pinder, C. C. 1998. *Work Motivation in Organizational Behavior*. Prentice Hall, Upper Saddle River, NJ.

Relich, J. D., R. L. Debus, R. Walker. 1986. The mediating role of attribution and self-efficacy variables for treatment effects on achievement outcomes. *Contemporary Educational Psych.* **11**(3) 195–216.

Ren, Y., R. Kraut, S. Kiesler. 2007. Applying common identity and bond theory to design of online communities. *Organ. Stud.* **28**(3) 377–408.

Ruyter, D. D., J. Conroy. 2002. The formation of identity: The importance of ideals. *Oxford Rev. Ed.* **28**(4) 509–522.

Schau, H. J., M. C. Gilly. 2003. We are what we post? Self-presentation in personal Web space. *J. Consumer Res.* **30**(3) 385–404.

Schlenker, B. R. 1980. *Impression Management: The Self-Concept, Social Identity, and Interpersonal Relations*. Brooks/Cole, Monterey, CA.

Schlenker, B. R. 2003. Self-presentation. M. R. Leary, J. P. Tangney, eds. *Handbook of Self and Identity*. Guilford Press, New York, 492–518.

Sharma, R., P. Yetton, J. Crawford. 2009. Estimating the effect of common method variance: The method-method pair technique with an illustration from TAM research. *MIS Quart.* **33**(3) 473–490.

Shen, A. X. L., C. M. K. Cheung, M. K. O. Lee, H. Chen. 2011. How social influence affects we-intention to use instant messaging: The moderating effect of usage experience. *Inform. Systems Frontiers* **13**(2) 157–169.

Sluss, D. M., B. E. Ashforth. 2007. Relational identity and identification: Defining ourselves through work relationships. *Acad. Management Rev.* **32**(1) 9–32.

Smith, J. B., M. Colgate. 2007. Customer value creation strategies: Implications for opportunity recognition and product-concept specification. *J. Marketing Theory and Practice* **15**(1) 7–23.

Song, J., Y. J. Kim. 2006. Social influence process in the acceptance of a virtual community service. *Inform. Systems Frontiers* **8**(3) 241–252.

Tajfel, H., J. C. Turner. 1986. The social identity theory of intergroup behavior. S. Worchel, L. W. Austin eds. *Psychology of Intergroup Relations*. Nelson-Hall, Chicago, 7–24.

Taylor, S., P. A. Todd. 1995. Understanding information technology use: A test of competing models. *Inform. Systems Res.* **6**(2) 144–173.

Teo, T. S. H., K. G. Vivien, Y. C. Lai. 1999. Intrinsic and extrinsic motivation in Internet usage. *Omega* **27**(1) 25–37.

Terry, D. J., M. A. Hogg, K. M. White. 1999. The theory of planned behavior: Self-identity, social identity and group norms. *British J. Soc. Psych.* **38**(3) 225–244.

Thaler, R. 1985. Mental accounting and consumer choice. *Marketing Sci.* **4**(3) 199–214.

Thatcher, S., L. Greer. 2008. Does it really matter if you recognize who I am? The implications of identity comprehension for individuals in work teams. *J. Management* **34**(1) 5–24.

Thatcher, S., X. Zhu. 2006. Changing identities in a changing workplace: Identification, identity enactment, self-verification, and telecommuting. *Acad. Management Rev.* **31**(4) 1076–1088.

Thompson, C. J., E. C. Hirschman. 1995. Understanding the socialized body: A poststructuralist analysis of consumers' self-conceptions, body images, and self-care practices. *J. Consumer Res.* **22**(2) 139–54.

Turkle, S. 1997. *Life on the Screen: Identity in the Age of the Internet*. Simon & Schuster, New York.

Van der Heijden, H. 2004. User acceptance of hedonic information systems. *MIS Quart.* **28**(4) 695–704.

Vasalou, A., A. N. Joinson, J. Pitt. 2007. Constructing my online self: Avatars that increase self-focused attention. *Comput. Human Behav.* **7**(2) 445–448.

Venkatesh, V. 2000. Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Inform. Systems Res.* **11**(4) 342–365.

Venkatesh, V., F. D. Davis. 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Sci.* **46**(2) 186–204.

Venkatesh, V., S. Brown, H. Bala. 2012. Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quart.* Forthcoming.

Walker, K. 2000. It's difficult to hide: The presentation of self on Internet home page. *Qualitative Sociol.* **23**(1) 99–120.

Walther, J. B. 2007. Selective self-presentation in computer-mediated communication: Hyperpersonal dimensions of technology, language, and cognition. *Comput. Human Behav.* **23**(5) 2538–2557.

Wasko, M. M., S. Faraj. 2005. Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quart.* **29**(1) 35–57.

Wei, K. K., H. H. Teo, H. C. Chan, B. C. Y. Tan. 2011. Conceptualizing and testing a social cognitive model of the digital divide. *Inform. Systems Res.* **22**(10) 170–187.

Wenzel, M. 2004. An analysis of norm processes in tax compliance. *J. Econom. Psych.* **25**(2) 213–228.

Whadcock, I. 2010. Profiting from friendship. *Economist* (January 28), http://www.economist.com/node/15351026.

Worthen, B. 2010. Fraudsters like virtual goods. *Wall Street J.* (July 21), http://online.wsj.com/article/SB10001424052748704723604575379333744203498.html.