Virtual Social Networks: Toward A Research Agenda

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ABSTRACT

Multi-user virtual communities have become an accepted fundamental component of communication whereby community members share information and knowledge for mutual learning or problem solving. Virtual communities in a multi-user virtual environment (MUVE) have evolved into active social networks, formulating an alternative social existence and this phenomenon warrants further investigations. In these virtual social networks (VSNs), member participation is essential for their success. Therefore, developing knowledge on how to manage and sustain participation of members in VSNs fills a gap in our academic understanding of the dynamics underpinning the processes of virtual community development. This article aims to address these issues by extending the theory of sense of community into a virtual context (SOVC) and by integrating it with other communication theory of U&G.

Keywords: research agenda; sense of virtual community; user participation; virtual community; virtual social networks

INTRODUCTION

Internet technologies have changed the methodology and content of communications in online environments (Koh, Kim, Butler & Bock, 2007). New forms of communication, such as collaborative communications, which enable people to communicate and interact with one another in the absence of face-to-face interactions, have emerged (Jepsen 2006). Such interactive collaborative communications have led to the formation of multi-user virtual communities for social networking known as virtual social networks (VSNs), and these have become an accepted fundamental component of communication (Koh et al. 2007). This proliferation of virtual communities worldwide provides an important form of communication whereby community members share information and knowledge for mutual learning or problem solving (Chen & Xie 2008). These communities in the multi-user virtual environment (MUVE) have expanded into a space to live and not just for occasional or casual participation (Kwai & Wagner 2008). These virtual social networks are essentially communities aiming to formulate alternative social existences and this evolving phenomenon warrants further investigation.
In this respect, the issue of what makes sense of a virtual community has captured the attention of both practitioners and researchers but so far research on this subject is limited (see Blanchard & Markus 2004, Fisher, Sonn & Bishop, 2002). According to communication theory, a sense of community (SOC) implies an emotionally positive effect which creates an intrinsically rewarding reason to continue participation in an online community (Blanchard & Markus 2004, Whitworth & DeMoor, 2003). When participants experience positive feelings in a virtual community, they are more likely to increase or maintain their membership, thereby contributing to its sustainability and success (Blanchard & Markus 2004, Sangwan 2005). We postulate that the sense of virtual community must be a principal construct in research designed to understand any form of virtual collaboration such as communication and participation in virtual communities-of-practice, or virtual social networks. Indeed this construct can facilitate our understanding of participation in virtual space where organizations are also increasingly using collaborative communication for various issues (Jepsen 2006, Koh & Kim 2003). Prior research has shown that virtual networks play a critical role in determining the way problems are solved, organizations are run, and the degree to which employees succeed in achieving their goals (see Kuk 2006, Kwai et al. 2008, Wietrz & Ruyter 2007). Similarly, virtual social network research has focused on how the structure of bonds affects members and their relationships in physically less-bounded social systems and global communities in a multi-user virtual environment (Wasserman & Faust, 1994). Most large-scale, virtual social networks that rely on members to contribute content or build services share the problem of how to increase participation across the board. The concentration of a small number of members who contribute both to postings and to other content shows that a larger number of participants do not feel motivated enough for regular participation (Koh et al. 2007). For example, in a study of a USENET forum, Franke and Hippel (2003) found that the most prolific 1% of members contributed 20% of the postings, and the top 20% of members contributed to 61% of the messages. Similarly, in a study of an online project, Koch and Schneider (2002) found that 17% of members made 80% of the contribution. Different levels of participation are related to the success of virtual communities (Kuk 2006). Therefore, developing knowledge of how to manage and sustain participation of members in VSNs fills a gap in our academic understanding of the dynamics underpinning the process of virtual community development.

This article aims to address these issues by extending the theory of SOC into virtual contexts (SOVC). First, we demonstrate the theoretical strength of SOVC from the members’ perspective to develop a conceptual understanding of why members participate in virtual social networks. In accordance with previous research, we treat the social network context as a moderator (Venkatesh, Morris, Davis & Davis, 2003). Subsequently, we develop a research agenda with propositions for future research work. Implications relating to the satisfaction of members for sustainability of virtual social networks are also discussed. The article contributes toward an improved understanding of the SOVC construct on aspects contributing to the successful VSN for the interests of various stakeholders. VSN organizers can apply the theoretical understandings to increase participation by and satisfaction of their members (Koh & Kim 2003, Porter & Donthu 2008) for successful business models. An understanding of the dynamics of VSNs can also potentially be applied by enterprises and policy makers to facilitate virtual collaboration among their members, and to better transform activities of offline communities into an online context (Kuk 2006). These are important issues for business activities such as marketing and advertising of products and services where, through SOVC, promotion by word-of-mouth and other advertising influences and persuasions can be better exercised in virtual social networks (Chen & Xie 2008).
A COMMUNICATION THEORY PERSPECTIVE ON VIRTUAL SOCIAL NETWORKS

A community is characterized mainly by the relational interactions or social bonds that draw people together (Gusfield 1975). Relational communities are distinguished from territorial communities through their association with human relationships, irrespective of their location or being physically bounded together. In this sense, most virtual communities, including virtual social networks, are relational communities since these are based on common social interests such as social meetings, hobby clubs, religious groups, or fan clubs (Koh & Kim, 2003). Members of virtual social networks can be geographically dispersed while participating in common social actions.

Sense of community (SOC) is a feeling that members have of belonging; a feeling that members matter to one another and to their community; a shared belief that members’ needs will be fulfilled through their commitment to be together; a feeling of being emotionally secure through bonding with other members (McMillan & Chavis 1986). This sense of belonging is about individual member’s perception, understanding, attitudes, feelings toward the community and his or her relationship to it. At same time, this feeling extends to other members’ participation for a complete and multifaceted community experience (Blanchard 2007, Forster 2004).

Similarly, in a virtual community or in a virtual settlement, a sense of community exists with a set of community-like behaviors and processes (Blanchard & Markus 2004, Forster 2004,). SOC is a vital component of a virtual community and is at the core of all efforts to strengthen and build a virtual social network (Chipuer & Pretty 1999, Obst 2002). More specifically, SOVC is defined as members’ feelings of membership, identity, belonging or bonding, and attachment and connection to a group with common interests or goals (Koh & Kim, 2003) that interacts predominantly through electronic communication (Blanchard 2007). Affective or utilitarian bonds and connections manifesting a sense of virtual community are developed through social interactions between members using a technological medium. This bonding and connectivity is an important criterion that can be used to differentiate virtual social networks from other virtual settlements (Koh et al. 2007). With the ease of mobility and increased ability to communicate in MUVE, a sense of connection has evolved that ensures trust and value for members in order to build a virtual community (Forster 2004, Porter & Donthu 2008). Research demonstrates that SOVC relates to higher member participation and influence on other members in a virtual community for its success and sustainability (Andrews 2002, Blanchard & Markus, 2004).

Although there are differences between SOVC and SOC, researchers in various virtual settings have adapted the measure of SOC, as developed in the sense of community index (SCI) by Chavis et al. (1986), to study virtual groups (Blanchard 2007, Forster 2004, Koh & Kim 2003,). The SOC construct consists of four antecedents of feelings of membership, feelings of influence, integration and fulfillment of needs, and shared emotional connection (McMillan and Chavis 1986). Koh and Kim (2003) adapted two main dimensions of membership and influence and adjusted the construct for the virtual context. They also suggested immersion as a third dimension of SOVC to explain virtual communities’ characteristics of anonymity, addictive behavior, and voluntary and total involvement.

A social network is a social structure made of individuals or organizations that are tied by one or more specific types of interdependency (Friedkin 1982). It reflects the ability to access information and exchange feelings through the links between network members (Friedkin 1982). Social network analysis views social relationships in terms of nodes (individual actors within the networks) and ties (relationships between the actors) (Wasserman & Faust 1994). Social communities can exist as personal and direct social ties that either link individuals who share values and beliefs or impersonal, formal,
and instrumental social links (Mathwick, Wiertz & Ruyter, 2008). The likelihood and process of interaction within electronic social networks can be modeled by the nature of network size or degree of openness which is defined as the degree to which a member is near all other members in a network (directly or indirectly) (Constant, Sproull & Kiesler 1996, Mathwick et al. 2008). Prior research explores the capacity of the social networks as a communication channel and their role in influencing the spread of new ideas and practices (Davis 1989) in creating social capital (Mathwick et al. 2008) and other organizational usage (Constant et al. 1996). This approach can be useful for examining and explaining many online business and marketing phenomena and little research has focused on exploiting virtual communities from this perspective.

Building bonds in virtual communities relates to the various levels of participation contributing to the membership life cycle. Research in psychological SOC has revealed some effects on the individual level of participation in offline communities (Burroughs & Eby 1998) where members have a tendency to remain affiliated with others in their community (Fisher et al. 2002). This trait of SOC can be extended to MUVE to examine the impact of SOVC on participation in social networks in order to explain members’ exit or sustained membership, similar to participation in traditional or face-to-face communities.

Wenger (1999), using the principles of legitimate peripheral participation, illustrate a cycle of how users become incorporated into virtual communities. They suggest five types of trajectories within a learning community: peripheral (i.e. lurker), one who uses an outside, unstructured participation; inbound (i.e. novice), a newcomer who invests in the community and is heading towards full participation; insider (i.e. regular), one who is fully committed community participant; boundary (i.e. leader), one who sustains membership participation and brokers interactions; and outbound (i.e. elder) as one in the process of leaving the community due to new relationships, new positions, new outlooks (Wenger 1999). Kim (2000) reinforces this typology and explains that members of virtual communities begin their life as visitors, or lurkers. After breaking through the initial barriers of communication, members become novices and begin to participate in community life. After contributing for a sustained period, members become regular contributors. If they break through further barriers, members become leaders; and once they have contributed to the community for some time members become elders. This variance in participation can reflect on the building of SOVC and create value for members to join and stay in their virtual community for social networking. Other studies on communities in different research settings also demonstrate that participation is related to SOVC (Cho & McLeod 2007).

RESEARCH AGENDA

By the concept of virtual social networks we understand virtual communities which have a common social interaction interest, and these interactions generate and provide social capital for stakeholders. This social capital is an intangible resource embedded in and accumulated through a specific social structure (Mathwick et al. 2008). These specific social structures allow a higher level of member participation valuable to businesses such as electronic commerce, and organizational activities involving employees’ collaboration.

In this article, we investigate SOC as a starting point and adapt it to the virtual community context. Thus, similar to SOC, the principles of SOVC have four antecedents: membership, influence, integration and fulfillment of needs, and shared emotional connection (McMillan 1996). Although the SOC construct has been reviewed, extended and refined in later research in both offline and online contexts (see Table 1 for an overview of selected studies), we used the original dimensions to develop our research propositions. The rationalization for this derives from the fact that none of the studies in online communities (see Blanchard 2007, Koh & Kim 2003, Long & Perkins 2003) has conducted
Table 1. An Overview of Selected Studies on SOC and its extension to SOVC

<table>
<thead>
<tr>
<th>Authors</th>
<th>Context</th>
<th>Findings</th>
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</thead>
<tbody>
<tr>
<td>McMillan and Chavis (1986).</td>
<td>Offline Communities</td>
<td>This study proposes four antecedents of psychological SOC: membership, influence, integration and fulfillment of needs and shared emotional connection.</td>
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<tr>
<td>Chavis, Hogge McMillan &amp; Wandersman (1986)</td>
<td>Offline Communities</td>
<td>This study designs the widely used and broadly validated measure of Psychological Sense of Community from the Sense of Community Index (SCI) instrument (see Chipuer &amp; Pretty 1999, Long &amp; Perkins 2003).</td>
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<tr>
<td>Chipuer and Pretty (1999)</td>
<td>Offline Communities</td>
<td>The study measures SOC using SCI and shows some support for the existence of the four antecedents of the McMillan and Chavis (1986) SOC model in the SCI.</td>
</tr>
<tr>
<td>Long and Perkins, (2003)</td>
<td>Offline Communities</td>
<td>This study reassesses SCI using confirmatory factor analysis (CFA) and results yield a poor model fit for McMillan and Chavis’s (1986) original theoretical formulation, and develops an eight-item, three-factor Brief SCI (BSCI).</td>
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<tr>
<td>Koh and Kim (2003)</td>
<td>Virtual Community</td>
<td>This study conceptualizes and operationalizes SOVC in three antecedents: membership, influence and immersion, and validates several other antecedents of SOVC: the enthusiasm of the community’s leaders, offline activities available to members, and enjoyability.</td>
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<tr>
<td>Blanchard and Markus (2004)</td>
<td>Virtual Community</td>
<td>The paper explores whether online communities do have an SOVC. The antecedents of SOVC differ from physical SOC. The behavioral processes that contribute to SOVC- exchanging support, creating identities and making identifications, and the production of trust- are similar to those found in offline communities, but they are related to the challenges of electronic communication.</td>
</tr>
<tr>
<td>Blanchard (2007)</td>
<td>Virtual Community</td>
<td>This study develops an SOVC measure, building on the measure of SOC. Potential antecedents of SOVC, exchanging support, and identification determine that the newer SOVC measure is an improvement over the SCI.</td>
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<tr>
<td>Oh and Jeon (2007)</td>
<td>Virtual Community</td>
<td>This study investigates membership dynamics, patterns of interaction in the virtual community and how different network characteristics (i.e. network size and connectivity) influence the stability of the virtual community, providing insight into dynamic and reciprocal relations among community members.</td>
</tr>
<tr>
<td>Porter and Donthu (2008)</td>
<td>Virtual Community</td>
<td>By using membership dimension, this study shows that efforts to provide quality content and foster member embeddedness have positive effects on user attitude about the virtual community sponsor.</td>
</tr>
<tr>
<td>Mathwick et al. (2008)</td>
<td>Virtual Community</td>
<td>This study examines and supports the conceptualization of social capital as an index composed of the normative influences of voluntarism, reciprocity, and social trust in a virtual community.</td>
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any methodologically rigorous systematic analysis in MUVE. We envisage that, based on our propositions, future studies can provide both internal and external validation of the construct for sustained employment in further research. Moreover, in an offline environment, these dimensions have been established as the key to fostering a sense of connection among members in order to build a sense of community; this requires further research in different research settings (Fisher et al.2002).
MEMBERSHIP

Membership, defined as the experience of feelings of belonging to a community, includes five attributes: a sense of belonging and identification, emotional safety, boundaries, a common symbol system and personal investment (McMillan & Chavis 1986). It is an important component for a successful virtual community (Oh & Jeon 2007).

The first attribute, having a sense of belonging in a virtual community, is essentially about a member’s expectation or faith that he or she will be able to fit into and gain acceptance by other participants of the social network (Chipuer & Pretty 1999) and be identified and recognized by the community (McMillan & Chavis 1986). This identification can be manifested in many ways in an online environment (Koh & Kim 2003), for example, by referring to each other by name in an online community of social networks (Blanchard & Markus 2004). This expression can create intimacy between members and a sense of belonging to the community.

The second attribute, emotional safety, is a feeling of security and willingness to reveal how one really feels in one’s community (McMillan & Chavis 1986). Virtual community participants can feel a degree of emotional safety in their community whenever support is available, in terms of simple interaction or giving basic verbal support (Bagozzi and Dholakia 2002). Members herd together because the need for emotional safety reinforces them to do so and such reinforcement binds them into a cohesive virtual network (Oh & Jeon 2007).

The third attribute, boundaries, consists of elements such as language, dress, ritual and logistical time or place settings indicating who belongs or does not belong to the community (McMillan & Chavis 1986). Obst et al. (2002) argue that members are more aware of their membership within a common interest boundary, such as in a virtual community, than in a geographic community of common interest. Boundaries can also be criteria for membership (McMillan 1996). In virtual communities for social networks a list of frequently asked questions provides information about the community’s character, core purpose, expectations of members, taboo topics and norms so that members with similar inclinations can identify with the community (Leimeister, Cesareni & Schwartz, 2005). Furthermore, some virtual communities are regulated by moderators and by criteria for membership that must be met prior to participation (McMillan 1996). Rituals such as “waving hello” when entering a particular chat room, or controlling access through an initiation ritual are also part of the boundaries separating members from non-members (see Wenger 1999).

The fourth attribute of membership, a common symbol system consists of elements such as special languages (from simple words to phrases that represent messages known only by the members of the community), or objects that have a special meaning for the members (for example, structures, paintings, sports equipment) (García, Giuliani & Wiesenfeld 1999). Understanding common symbol systems is a prerequisite to understanding the community and its members (McMillan & Chavis 1986). In the context of virtual communities, groups establish linguistic conventions such as signature styles, unique abbreviations, emoticons and specialized vocabularies or spellings which become a common symbol system of the communities that not only reflects their culture but also readily identifies regular participants (Blanchard & Markus 2004). Members sharing a common symbol system will be able to identify themselves with the community and develop a feeling of membership (Blanchard and Markus 2004, Chipuer & Pretty 1999).

The fifth attribute, personal investment, denotes the contribution that members make to the community. Personal investment, “material” or “non-material” (Blanchard 2007, García et al. 1999) can provide the feeling that one has earned a place in the community and its membership, which then becomes more meaningful and valuable (McMillan 1996). For the virtual context, members can show a willingness to invest in the community by offering unsolicited help without an obvious request or immediate benefit to themselves (Chipuer & Pretty 1999, Porter & Donthu 2008).

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With regard to membership, McMillan and Chavis (1986) argue that the five attributes of membership: boundaries, emotional safety, a sense of belonging, personal investment and a common symbol system, fit together in a circular, self-reinforcing way (Oh & Jeon 2007). Thus, the greater the feeling of membership experienced by members of the community, the more it is likely to create an SOVC. Further, the greater the feeling of membership, the more likely that membership will be continued over a period of time.

**Proposition 1a:** There is a positive relationship between membership and SOVC.

**Proposition 1b:** There is a positive relationship between a sense of membership and sustainability of membership over time.

**INFLUENCE**

A bi-directional influence between a community and its members is needed to create an SOC (McMillan & Chavis 1986, Porter & Donthu 2008) and to cultivate trust and harvest value (Porter & Donthu 2008), and to create community cohesiveness (Massey, Montoya-Weiss & Hung, 2003). SOVC is contingent on a social network virtual community influencing its members and likewise a member must have the potential to influence the community. The ability of a virtual community to attract and simultaneously influence its members is crucial to maintaining cohesiveness (Chipuer & Pretty 1999, Massey et al. 2003). The salient element of influence is the development of trust (McMillan 1996). Being conceptualized as a form of belief, intention and behavior, trust refers to confident, positive expectations, the belief and willingness to act based on the community’s conduct (Leimeister et al. 2005). Influence also reflects the cognitive aspects of a virtual community (Obst et al. 2002). Influence can be measured by three indicators: expressing a minority opinion, asking for or giving neutral, opposite or popular opinions, and asking for clarification (Ligorio et al. 2008, Massey et al. 2003). The influence expressed either by taking a stand on the divergent opinion or by asking for clarification shows a willingness to be influenced by another member, expressing both interest in another viewpoint and a willingness to expend extra effort to understand it (Massey et al. 2003).

Two elements exist regarding the level of dyadic influence the virtual community has on its members: first, the members’ need for consensual validation; and second, the community’s need for conformity (Bieber, Engelbart, Furuta, Hiltz, Noll, Preece, Stohr, Turoff, & VandeWalle 2002). One reason for conformity relates to the pressure on the members to validate the virtual community’s views or values (Hung & Li 2007, Porter & Donthu 2008). This pressure can shift from the individual member to the community to consensually validate its members for creating common norms (McMillan & Chavis, 1986). Members with a stronger need for consensual validation tend to be more influenced by the virtual community because of the need for reassurances provided by other members who share a similar experience. Likewise, an individual will feel a stronger pressure to validate the community’s view when the virtual community has a strong need for conformity (Hung & Li 2007).

**Proposition 2:** There is a positive relationship between influence and SOVC.

**INTEGRATION AND FULFILLMENT OF NEEDS**

Needs-fulfillment suggests that members of a community believe that the resources available in their community will meet their needs (McMillan & Chavis 1986). Prospective member attraction to a social networking virtual community depends on the perceived satisfaction the member may receive from fulfillment of his/her needs (Massey et al. 2003). For a stronger sense of community, the social networks virtual community can find ways to juxtapose and integrate members’ needs and resources (see Oh & Jeon 2007). The extent to which integration and fulfillment of needs is achieved in a virtual community
depends on the degree of ease with which an individual member’s need fits among the community needs. In this sense, needs-fulfillment is similar to the “perceived usefulness” construct in the Technology Acceptance Model (TAM) (for example, Davis 1989), and “uses” dimensions of Uses and Gratification Theory (U&G) (Katz, Gurevitch & Hass 1973, Sangwan 2005).

The principle of integration and fulfillment of needs includes both the individual member’s feeling of being supported by other members in the community while also supporting them (Blanchard & Markus 2002). The main types of satisfaction in being a member of a virtual community are status in the online social network, shared values, and meeting other’s needs while having one’s own needs fulfilled (Chipuer & Pretty 1999). Virtual social network resources such as content, in archives or other formats, represent aggregate collective expert resources and social capital of knowledge that can meet member needs (Mathwick et al. 2008). Member-generated content that derives from members’ competencies and, through active participation, contributes to this social capital of knowledge, increases value for all members (Porter & Donthu 2008; Stohr, Turoff & Vandewalle, 2002).

Members look for support and reinforcement by either expressing a need, or offering to fulfill another member’s needs (Ligorio 2008). The fulfillment of one’s need helps members develop a sense of community (Bagozzi & Dholakia 2002). We utilize the U&G theoretical framework which is grounded in the functionalist and communication research paradigm to extend the antecedent of integration and fulfillment of needs in the SOVC model in the virtual social network environment (Blumler 1979). This needs-gratification is concerned with what members do with the VSN, and suggests that members will be motivated to select a virtual community that best gratifies their needs. U&G theory proposes five categories of use-gratification, namely: cognitive, affective, personal integrative, social integrative and tension release needs (Katz et al. 1973). Cognitive needs represent the intrinsic desire for information acquisition for knowledge and understanding in an increasingly information-rich society and in the context of VSN can be interpreted as functional or resource-based needs that are gratified by member-generated content (Stohr et al. 2002). Affective needs are related to emotional experiences and an intrinsic desire for pleasure, entertainment and aesthetics (Katz et al. 1973). These emotive needs (Sangwan 2005) are served when a virtual community or VSN evolves beyond its functional or resource-based needs-fulfillment orientation. It then serves these emotive needs through their expression and exchange of social-emotional support (Ligorio 2008) or offers to help. These aspects also indicate that the members asking or offering emotional support believe in the mutual success of their VSN (see Blanchard and Markus 2004). Personal integrative needs are contextual needs (Sangwan 2005) and derive from an individual’s desire to appear credible, be perceived as confident, and to have high self-esteem in a specific context. These needs are closely related to an individual’s value system (Katz et al. 1973). Social integrative needs are affiliation needs where members want to be part of a community and want to be recognized as part of it and develop a sense of belonging. These can be served in many ways; for instance, in the process of supporting other members’ resource-based needs, one can also fulfill one’s own need for recognition (Forster 2004). Tension-release needs relate to the need for escape and diversion from problems and routines (Blumler 1979, Ligorio 2008).

Prior research shows needs-gratification as one of the principal motivators for virtual community usage (Sangwan 2005, Stafford, Stafford & Schkade, 2004). We propose that functional, emotive and contextual needs-fulfillment affects the user’s feeling of needs-fulfillment in a virtual social network.

**Proposition 3:** There is a positive relationship between integration of needs and SOVC.

**Proposition 4a:** There is a positive relationship between cognitive needs-gratification and SOVC.
Proposition 4b: There is a positive relationship between affective needs-gratification and SOVC.

Proposition 4c: There is a positive relationship between personal integrative needs-gratification and SOVC.

Proposition 4d: There is a positive relationship between social integrative needs-gratification and SOVC.

Proposition 4e: There is a positive relationship between tension release needs gratification and SOVC.

Shared Emotional Connections

Shared emotional connections (SEC) is a commitment and belief that members have shared and will share history, common places and time together, and similar experiences in their community (McMillan & Chavis, 1986). SEC consists of the following mechanisms: frequency and quality of the interaction, a shared history, and the investment that people make in their community (Chipuer & Pretty, 1999).

The frequency and quality of the interaction (for example, sending and reading messages) are important in creating positive experiences and bonds in virtual environments (Bieber et al., 2002). The frequency of reading messages has a greater influence than that of sending messages in forming close relationships amongst members (Hung & Li, 2007). The quality of SEC is influenced by mechanisms such as common experiences of risk and values and traditions (McMillan, 1996). In a virtual community or VSN, shared experience of crisis and threats from an external source can serve to increase connections through triggering of intense discussions and generating trust (Porter and Donthu, 2008).

Shared history is another aspect that makes members more similar to each other, facilitating the feeling of belonging together (McMillan, 1996). The longer members stay in a community, the more knowledge representing the community’s values and traditions they will gather. In this sense, a common history creates a sense of continuity and stability (McMillan & Chavis, 1986). Participants who have a shared history or have a background in common, are more likely that a sense of community may develop and be shared in these interactive VCs than those sharing haphazard geographical communities with nothing in common (Hemetsberger, 2002).

Similarly, investment, such as contributing time and effort to organizing community-related activities, influences SEC by determining the importance of the community’s success and status to individuals (Hemetsberger, 2002).

Proposition 5: There is a positive relationship between shared emotional connection and SOVC.

Structure of Virtual Social Networks

Virtual Social Networks or virtual communities exist for common use for social interaction, for sharing common places or space, and common bonds (Burroughs & Eby, 1998). These networks have varying levels of ties or bonds that form strong to weak interactions (Constant et al., 1996). Smaller, closed and tighter networks have stronger bonds. Nevertheless, these may provide a less positive experience for their members than open networks with lots of loose connections and weak ties (Constant et al., 1996). More open communication networks are more likely to introduce a wider range of innovative ideas and excitement to their members than closed networks (Friedkin, 1982). In closed networks, only an exchange of information and feelings with each other exists while in open networks members can exercise an influence outside as well as within their sub-networks (Friedkin, 1982). In larger groups it may be easier to take advantage of the benefits of living in a community without contributing to those benefits (Wasserman & Faust, 1994).
However, loosely-knit, open networks may limit the ability to recognize members or track emotional facts about all members of a group. The structure of a social network, virtual or not, affects the process of interaction between members within it. In this research, we expected the structure of social network would affect the development process of SOVC.

**Proposition 6:** Virtual Social Network structures moderate the relationships between (a) membership, (b) feelings of influence, (c) integration, (d) fulfillment of needs, and (e) shared emotional connection and SOVC

**SENSE OF VIRTUAL COMMUNITY (SOVC) AND PARTICIPATION**

Participation, treated as a dependent variable, reflects SOVC by implying motivation for member participation or a lack of it that influences sustainability of a virtual social network (Kuk 2006). A member who starts as a “lurker” by reading discussions but rarely actively participating may build up an SOVC by experiencing the specific culture and etiquette of the community gradually. There may always be some users with a lower SOVC, who will continue to habitually lurk on a forum, virtual community or VSN, and rarely contribute (Wenger 1999). But building SOVC can enforce higher participation from members. In this research, we expect SOVC to add to continuance and preference for a virtual social network.

**Proposition 7:** There is a positive relationship between SOVC and the level of participation.

**CONCLUSION AND FUTURE RESEARCH**

The framework offered in this article is designed to investigate SOVC by revisiting the theory of SOC and extending its antecedents into a virtual context of social networks. The structure of social networks is proposed as a moderator in the process. We demonstrate how SOVC may exert influences on participation in virtual social networks from the members’ perspective. Subsequently, a research agenda with propositions for future research work is developed. Our major contribution is to develop a better theoretical understanding of SOVC within the context of virtual social networks and its impact on VSN participation. Our contributions to future research include presenting an integrated and improved research framework from communication theories perspectives and indicating avenues for further research by developing a set of propositions. We provide insights into the interaction between participation and social network structure. From a managerial practice perspective, our study also provides a rationale to explain various needs and levels of participation of members in virtual social networks and virtual communities which may have implications for businesses seeking to establish an online presence and trying to understand user behavior. Understanding virtual social networks is of interest to organizations that want to increase their content and other resources for a successful business model.

We recognize that our research framework suffers from some limitations. We focus on membership and participation in a VSN. However, there may be a difference between a member who logs on anonymously (such as a guest visitor) and a registered member logging on with a recognized name or pseudonym. This makes it difficult to establish the intensity of participation in terms of SOVC development. In addition, prior research finds that remaining anonymous encourages participation in a virtual community by ensuring personal privacy (Andrews 2002). This is an important distinction because of the possible effects of anonymity or identity may have on participation levels and on building SOVC.

Finally, in terms of suggestions for future research, a cross-cultural approach to the study of VSN and SOVC will be valuable. The knowledge of how cultural factors account for
variance in members’ behavior and participation will intensify the generalizability and validation of such research.

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