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Social Relationships Development In Virtual Community: A Life Cycle Approach

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Abstract

A common problem that a virtual community fails to develop is that its members' motivation to contribute valuable resources to the community, e.g., time, labour, money, information, or knowledge, will diminish over time. We believe that strong social relationships among members and those between members and their virtual community play an important role in motivating members to stay longer with the community and to continue contributing resources to the community. These strong social relationships in turn help virtual community to sustain its development. Adopting a life cycle approach, this research explores how a member builds up his/her social relationships within a virtual community through ongoing communication with other members in the community and the community as a whole. A four-stage social relationship development model, depicting how members initiate, negotiate, sustain, and detach relationships with their virtual community is proposed. An in-depth empirical case study of a virtual community was conducted to establish and verify the model. The identified communication needs and behaviours of virtual community members in each stage of the proposed online social relationship development model can give virtual community designers some helpful implications in providing stage based incentives and facilitation mechanisms to virtual community members.

Keywords: Virtual Community, Social Relationships, Communication, Facilitation.

1   INTRODUCTION

The Internet has become a digital platform for people to initiate, develop, and sustain their personal social network (Castells 2010). Virtual communities consist of people who interact frequently and intensively online and occasionally offline, though mostly on a temporary basis. For example, there are more than 500 million active users, and 50% of the active users log on to Facebook every day (Facebook 2011). In the research of virtual communities, one of the fundamental questions that researchers should be aware of is whether computer-mediated virtual communities, usually large but loosely structured, are significantly different from traditional small communities which are often tied by strong personal relations. In a discussion of the nature of virtual communities, Memmi (2006) argued that virtual communities are often bound by reference to common objects or goals, not by personal relations between group members. Bishop (2007) supported the goal-driven approach in virtual community research and argued that one's action in virtual environment is strongly associated with meeting one's goals. Conversely, research taking the need-driven approach (Maslow 1943) suggested that personal needs and social needs motivate members' contributions (Kim 2000; Dholakia et al. 2004). Studies have identified that individuals with a high level of community attachment, affiliation, or a sense of belonging are more likely to be active contributors (Bock et al. 2005; Cho et al. 2010).

Nevertheless, prior research seems to overlook the role of social connectedness, i.e., the human requirement to establish, affirm, and protect social relationships, that has been identified as one of the fundamental human requirements (Hardin & Conley 2001) to lessen the most primitive human fear, separation anxiety (Bowlby 1960). In an increasing alienated world, being in a virtual community provides people a new opportunity to be connected with others so as to increase their chances of achieving common goals and/or satisfying their social needs. Understanding how people develop their online social relationships can provide a new insight into information system (IS) research. Further, rather than treating online social relationship development as one single phase, adopting a life cycle approach (Tuckman & Jensen 1977) to identify salient stages in online social relationship development can provide IS researcher and virtual community designers more thoughts to tackle the problem of motivating continuous online contributions with the help of staged, personalized facilitation mechanisms that can foster strong social relationships between members and their virtual communities.

In this research, we focus on finding salient stages of online social relationship development based on Tuckman and Jensen's (1977) five-stage group development model. Specifically, we attempt to answer the question: what are the characteristics of each salient stage, if any, in terms of members' communication needs and behaviours in a virtual group environment? Although prior research has emphasized the importance of relational management in virtual communities (William & Cothrel 2000) and discussed group dynamics in virtual worlds (Nicolopoulou et al. 2006), no study (we are aware of) has focused on the communication aspect or empirically established a staged model based on in-depth interviews with senior members of an existing virtual community. Theoretically, this research extends the understanding of the staged social relationship development in virtual community. Further, the findings provide a guideline for virtual community designers in applying personalized facilitation mechanisms in virtual community.

2   GROUP DEVELOPMENT AND COMMUNICATION

2.1   Virtual Communities and Dominant Characteristics

To achieve humans' collective benefits such as social order, defence against intruders, and acquisition of valuable resources, the creation of community has been a natural process since the hunter-gathering time. Although the advent of technology has changed the form of community, particularly the communication among members, it has never stifled the creation and development of community.

Instead, the recent transformation of computerized information and communication technology (ICT) has allowed people to freely form more communities regardless of geographical constraints and social identity restraints (Memmi 2006). Online communities emerge wherever people with common interest are connected and interact through ICT enabled network, e.g., the Internet (Komito 2001; Nicolopoulou et al. 2006). An online community can take the form of a website that allows its members to discuss particular subjects and interests. It is often formed by people who share similar goals, beliefs, or values (Figallo 1998). However, the sustainability of such communities, which often lack strong ties, has been a concern for researchers (Figallo 1998; Kim 2000; Preece 2002; Bishop 2007).

There are some distinctive interaction features among members of a virtual community (Dholakia et al. 2004; Nicolopoulou et al. 2006; Rheingold 1994). For example, many virtual communities allow members to interact with others at anytime without the restraints of frequency of interaction, disclosure of true identity, and obligation of contribution. They offer members symmetry and/or asymmetry communication, using text, graphic, and video. Sometimes they organize face-to-face rendezvous or activities for members to achieve a common goal, strengthen relationships among members, and sustain a strong affiliation with the communities. Individual involvement in a virtual community can be very aggressive or minimal under peer pressure or at personal will. Norm of a virtual community cannot be easily constituted and enforced because members are usually free to come and go, unless the membership is strictly controlled. Solidity of a virtual community can be weak or strong, depending on factors such as purpose, value, leader, management, number of members, internal or external interventions, competitors, etc.

The distinctive features of virtual communities have prompted many researchers to look for ways to make virtual communities successful and sustainable. Kim (2000) suggested several characteristics of successful and sustainable virtual communities: clear purposes or vision (e.g., Jesus for Jesus club), flexible and small-scale places, members' roles (e.g., designing community activities based on the membership life cycle: visitors, novices, regulars, leaders), leadership of community moderators (i.e., community leaders), and on-line/off-line events that strengthen community members' identification and bonds among them. William and Cothrel (2000) suggested three ways to run online communities: member development, community asset management, and community relationship management. A clear vision, opinion leaders, off-line activities, rules/roles, and useful contents based on expertise are important (William & Cothrel 2000). Recent research of virtual communities focuses on the motivation of knowledge sharing, reflecting that knowledge contribution is the key to successful virtual communities. Several factors have been argued to motivate knowledge sharing, e.g., the enhancement of professional reputation (Wasko & Faraj 2005), the competence of community leader (Erat et al., 2006), identity verification (Ma & Agarwal 2007), and social factors (Dholakia et al. 2004; Cheung & Lee 2009). In addition, research also addresses the effects of facilitation in virtual community management. Nicolopoulou et al. (2006) highlighted the facilitators' interventions in running online communities based on Tuckman's (1965) small group development and Tuckman and Jensen's (1977) group development model. The research of Nicolopoulou et al. (2006) focused on the development of a decision making virtual community and suggested that "facilitation seems to be much more effective when the knowledge of group dynamics is taken into consideration."

Inspired by the research of Nicolopoulou et al. (2006), we extend the research to social-networking based virtual communities and focused on the communication needs and behaviours of their members. We adopt a life cycle approach based on Tuckman and Jensen's (1977) five-stage group development model to investigate whether the communication needs and behaviours can be categorized into salient stages that reflect the strength of their social relationship with their community. In the rest of section 2, we describe Tuckman and Jensen's (1977) five-stage group development model, which was used as the framework for the case study, and give a discussion of the foundation of social groups, i.e., communication. The third section describes the methodology of the case study. Finally, we present the findings and propose an online social relationship development model describing common communication needs and behaviours of virtual community members in each stage of the model, followed by the discussion of the findings and the conclusion of this research.

2.2 Stages of Group Development

In early literature of group and organization studies, Tuckman (1965) identified the interpersonal realm and task realm in group life over time. The way members of a group acted and related to one another was considered the interpersonal realm. The content of the interaction as related to the task was referred to as task realm. Both realms simultaneously took place during group functioning process because members completed tasks while relating to one another. According to Tuckman's model in regard to group structure, four stages were involved: testing and dependence, intragroup conflict, development of group cohesion, and functional role relatedness. In regard to task structure, four stages were involved: orientation to task, emotional response to task demands, open exchange of relevant interpretations, and emergence of solutions. Tuckman (1965) summarized the stages of two realms into the single model of four stages: forming, storming, norming, and performing. However, by analysing interactions over the life of a group using factor analysis, Mann (1967) categorized five stages of group development: initial complaining, premature enactment, confrontation, internalization, separation and terminal review. Braaten (1975) refined Mann's (1971) developmental model and proposed that five stages were involved in group development: dependency upon trainer; initial anxiety and/or resistance; mounting frustration, hostility; work phase, intimacy, integration, mutual synthesis; separation. As shown in Table 1, Tuckman and Jensen (1977) later added the fifth stage, adjourning, to reflect studies postulating a life cycle approach (Mann 1971; Gibbard & Hartman 1973; Spitz & Sadock 1973; Lacoursiere 1974; Braaten 1975).

Stage	Characteristics
Forming	Understanding the purpose, the definition, the title, the composition, the leadership pattern, and life span of the group. Establishing personal identity within the group, possibly by making some individual impression.
Storming	Having conflict in regard to consensus on purposes, leadership, roles, norms of behaviour and work. Revealing personal agenda and generating a certain amount of interpersonal hostility. Establishing new and more realistic setting of objectives, procedures, and norms. Testing trust in the group. Having the phenomenon of procrastination, whereby a delay or absenteeism by the members of the group takes place, especially on those occasions when they are not allowed to take up leadership in their particular areas of expertise, as they feel fit to do.
Norming	Establishing norms and practices, particularly when and how group should work, how it should take decisions, what type of behaviour, what level of work, what degree of openness, trust, and confidence is appropriate. Testing the group and measuring the appropriate level of commitment. Building a common sense of identity after the conflict has been resolved. Moving together towards the stated purpose, more or less as one.
Performing	The group reaches the capacity to perform after the three previous stages have been successfully completed, unlikely to be impeded by the other processes of growth and by individual agendas.
Adjourning	The group exists the task cycle. Leaders make space for recognition of achievement in group and individual sense and give value to members' contribution. The group dissolves.

Table 1.   Model of Group Development (Tuckman & Jensen 1977).

Although virtual communities are often considered as temporary groups, the life span of some virtual communities can be many years. The size of the virtual communities can be quite large, from thousands to millions members. The structure of community and the interaction among members are loosely structured. To reflect the life span, size, and other characteristics of virtual communities, Tuckman and Jensen' (1977) model, originally used to study small, closed, and temporary group, needs to be tailored. We attempt to find a model based on the communication among virtual community members as the communication can manifest their cognitive understanding (Hardin & Conley 2001) of their social relationships with the community or with other members in the community. The relationship between three core types of communication and social relationship development is discussed below.

2.3 Communication and Social Relationship Development

As communication is an important foundation of social relationship development, we focus on three core types of communication, which are of special importance in terms of transmission of information and share of information, namely intrapersonal communication, interpersonal communication, and group communication (Windahl et al. 2009; DeVito 2010).

2.3.1 Intrapersonal Communication

Intrapersonal communication is defined as "communication with oneself" (DeVito 2010). An individual's interpretation makes messages meaningful. Individuals assign meaning to a given event or message by analysing message sender's behaviours, attitudes, and messages. The intrapersonal interpretation of the messages received will affect how individuals react to the messages, e.g., initiating a relationship or speculating an existing or non-existing relationship.

On one hand, when establishing a new relationship with a virtual community, individuals will try to reduce their uncertainty concerns about the community to be involved, including site orientation, the purpose of the group, its composition, leadership pattern, existing members, and history (Tuckman 1965; Tuckman 1977). On the other hand, individuals may assume or speculate a relationship with the counterparts through intrapersonal communication, i.e., personal interpretation or belief about what the counterparts think, without a need to reconfirm the relationship with the counterparts through interpersonal communication, i.e., an exchange of understanding or belief with the counterparts. Uncertainty reduction theory can explain what drives an individual to initiate a relationship during initial encounters with people (Berger & Calabrese 1975). When initiating a relationship, individuals typically will consider their needs for personal space, i.e., privacy, and for closeness with others, i.e., affiliation. When speculating a relationship, individuals will likely to interpret and evaluate the signs or symbols given by the counterparts based on the social norm for a particular type of relationship.

2.3.2 Interpersonal Communication

Interpersonal communication occurs between two individuals when they are close in proximity, able to provide immediate feedback, and utilize multiple senses (Millers 1978). Interpersonal communication includes communication that is personal and occurs between people who are more than acquaintances. Canary et al. (2003) argued that interpersonal communication includes communication used to define or achieve personal goals through interaction with others. Interpersonal communication messages are offered to initiate, define, sustain, or further a relationship (Dainton & Zelley 2005). Interpersonal communication refers both to the content and quality of messages relayed and the possibility of further relationship development.

In virtual community, regular members will negotiate their economic rewards, i.e., benefits gained and costs involved, with the community. The benefits gained include, for example, money, merits, knowledge, and information. The costs involved include, for example, time, efforts, and risks of sharing knowledge and information. Social exchange theory (SET) evaluates personal relationships on the basis of associated costs and benefits (Thibaut & Kelley 1959). SET attempts to clarify when and why individuals continue and develop some personal relationships while ending other. SET assumes that personal relationships are a function of comparing benefits gained versus costs to obtain those benefits. People want to make the most of the benefits while lessening the costs as humans are selfish in nature. These fundamental assumptions lead to the core components of SET framework: outcome, comparison level, and comparison level of alternatives. Lack of rewards can lead to dissatisfaction. Before becoming regular members, novice members will learn how to deal with the communities through modelling. Novice members will look at what other people do and what rewards they get for a particular action or behaviour such as posting messages. Bandura's (1977) social learning theory argues that people will emulate behaviour if there are perceived rewards associated with a particular action or behaviour. Bandura (1977) claimed that "most human behaviour is learned

observationally through modelling: from observing others one forms an idea of how new behaviours are performed, and or later occasions this coded information serves a guide for action."

2.3.3   Group Communication

According to Rothwell (1998), a group refers to "a system of three or more individuals who are focused on achieving a common purpose and who influence and are influenced by each other." A group is different from an aggregate that has no intention to form structure and build communication channel. A group is distinct from an organization typically involving formal hierarchies and structured channels of communication. A group's structure and patterns of communication typically emerge through interaction. A group's structure and patterns of communication typically emerge through interaction to solve group communication problems.

To promote group interaction and deal with group communication problems, members need to sense a high status and centrality in the community so that they can influence and lead the group communication process. To promote group interaction and deal with group communication problems, interaction process analysis (IPA) explains patterns of group discussion, particularly in terms of leadership (Bales 1953; Bales 1970; Bales 1999). IPA suggests that groups seek to achieve task goals (productivity) and maintenance (cohesion) simultaneously. Task performance requires communication geared toward achieving the groups' goals, such as asking for and receiving information or giving suggestions. Maintenance goals are achieved by socioemotional communication, such as expressing agreement, releasing tension, and demonstrating cohesion. However, groups must try to reach equilibrium between task and maintenance needs as they are often in conflict with each other. IPA can be used to study the roles that individuals enact in groups, leadership emergence in the group, and communication problems within the group. To strengthen and sustain the relationship among group members, symbolic convergence theory explains how the development of a group consciousness, including shared emotions, motives, and meanings, will foster individual members to feel obliged to contribute to the group for its common goals (Bormann et al. 2001). Building fantasy chains results in group cohesion, a process termed symbolic convergence (dramatizing message, response, and elaboration). Organizing an activity, starting a new topic, or posting new material can provide an opportunity to create a fantasy chain in virtual community.

3   RESEARCH METHODOLOGY

In this study, we define virtual community as a gathering of people who interact online for a purpose based on particular social relationships among them. We intend to reflect on social relationship development and focus on communication aspect related to virtual communities. This study explores the communication experiences of the members of a virtual community of interest for photographers and tries to categorize its members' communication experiences into salient stages that reflect the intimacy of their social relationships with the community. We use the case study for exploratory and descriptive purposes by generating qualitative data and inductively building a rich understanding of how the members reflect the stage of their social relationship with their community in their communication experiences (Yin 1994).

The empirical research for this study was conducted over 6 months in 2010. A qualitative approach, i.e., focused group, was adopted to gather data as the approach is recommended to probe into deep thoughts of virtual community designers and encourage more active discussions among members, generating more insights for the research (Yin 1994). Five focused group sessions involving a total of 20 senior members of the subject community and 5 professional virtual community designers were conducted. All members manifested their observations of the communication among members and those between members and the community. The case study adopted a life cycle approach (See Table 1) to assist us in drafting an online social relationship development (OSRD) model. All postings of each of the 15 randomly selected senior members who had been with the community for more than 36 months were extracted. The postings were used in the verification of the OSRD model (Denzin 1999).

The first focused group sessions involved five directors of the community so as to gain an understanding of how the community forms, functions, and develops. In addition, 3 focused group sessions involved 15 invited members who had been with the community for more than 2 years provided insights into how these members developed their social relationships with the community and what they did, in terms of communication, during the course of social relationship development with other members and with the community as a whole. The duration of the four focused group sessions varied from 30 minutes to 1 hour. We wrote down notes for most of the discussions and asked the members to confirm the notes. The OSRD model was finalized. A fifth focused group session involving 5 professional virtual community designers was held to assort postings from the 15 randomly selected senior members into groups based on the OSRD model.

4   RESULTS

4.1   Case Study

The subject community is a virtual community of interest for models, professional photographers, and recreational photographers. It was launched in late 2005 by a group of five persons including the founding president Mr. Young. Mr. Young used to be a core member of another photographer community for 3 years until he decided to launch the community based on his vision of building an active and non-commercial photographer community for the benefits of photographers and models. The community has a shared community value: giving helps to friends in need is a great virtue and a big enjoyment. The community had over 3000 members by the end of 2010. The core members of the community are five directors, including the current president and the deputy president. There are other managerial members who help organizing activities. Each core member is in charge of certain responsibilities in running the community.

The community has a structure, community rules, and capable core members who can take responsibilities, complete missions, and enforce community rules. Regular and event driven online and offline gatherings and activities are organized for members to meet new friends, strengthen friendships, improve photography skills, and build a strong sense of belonging with the community. Some activities are sponsored by commercial institutions to generate operating funding for the community, to allow members to make contacts for career advantages, and to build up community image and value. Members are encouraged to trust community leaders, respect community norms, share knowledge with others, and give a helping hand in running events, and obey community rules. Capable or enthusiastic members are invited to be managerial members. Malicious members are suspended for memberships to avoid flaming (Alonzo & Aiken 2004; Gupta et al. 2010). Each member is given a title representing the level of participation in the community. The title is given based on the frequency of meaningful contribution to the community. Excellent members are awarded a title such as best actor/actress, best director. Each member has a personal profile showing their nickname, title, award, date of registration, a picture, and the total number of contributions.

4.2   Findings

Based on the results of the focused sessions involving the discussion of personal experiences and assortment of the 20,153 postings of 15 randomly selected senior members, we found in general that members of the subject community went through four stages to develop their social relationships with their virtual community, i.e., initiation, negotiation, sustenance, and adjourning. In each stage of the online social relationship development model, an individual had central concerns and usually experienced intrapersonal communication, interpersonal communication, or group communication.

4.2.1   Relationship Initiation

In the initiation stage, novice members usually needed to engage in uncertainties reduction practices by understanding the virtual community they just joined and observing how the virtual community

functioned. They verified community goals, rules, norms, topics of interest, ways of communication, and member profiles in order to find a place for themselves within the community. They conducted information seeking practices. Browsing frequent asked questions (FAQ), checking community rules, and surfing the database of previous postings were usually the first few things novice members did. They might ask questions which did not appear in the FAQ and expected others in the virtual community to reply to see if other community members were friendly, helpful, and reliable. Novice members in this stage could experience intrapersonal communication when they tried to find supports, build trust, and clarify their identity via communication. Some posting examples are:

"Hi, I'm a new person. Please give me advices and look after me.";

"Good photos, I wish I can… one day."; "Who is xxx (name)? Where can I find…?" ; or

"Sorry, may someone tell me how to register for the Sunday outdoor shooting session?".

4.2.2   Relationship Negotiation

In the negotiation stage, novice members have become regular members who started to think about whether to further their relationship with other members and the virtual community as a whole, typically based on costs (e.g., time, risks) and benefits (e.g., good reputation, rewards) involved. Regular members experienced intrapersonal communication when they attempted to negotiate their economic rewards and social rewards via communication. They gave more feedbacks and personal opinions or information to the virtual community and members in need. They answered questions raised by novice members or other members. However, the interaction with other members could involve conflicts and flaming (Johnson 2009). Regular members might confront with people who held different views to theirs. They might challenge or object to the purposes, leaders, roles, and rules of the virtual community. They might reveal their personal agenda and generate interpersonal hostility. They might report unacceptable behaviours or act as moderators. They might show procrastination by refusing to participate. Some posting examples are:

"I think the photos can be altered in some ways…."; "xxx (name), Can you help me…?";

"The photos are good. If you can … then they will be even better. Keep going, xxx.";

"I like the event, xxxxxx." ; or "Why the event was cancelled with a public notification?".

4.2.3   Relationship Sustenance

In the sustenance stage, regular members could choose to be elders, who were active members, or lurkers, who were passive members, typically based on whether or not the virtual community could provide them with a strong feeling of affiliation. Elders would experience group communication when they felt responsible for creating and sustaining the virtual community. If they found group members cooperatively create and sustain a shared consciousness, a shared meaning, and a group identity through interaction, they would either become elders who perceived they were central to the group and claimed responsibilities of sustaining the virtual community. With more investment of personal resources to the community, elders would actively manage and lead the community by showing non-reciprocal behaviours, establishing norms and rules, building a common sense of identity, and providing facilitations. Some posting examples are:

"I think the community rule…need to be modified."; "New website is now on.";

"A new event is held in this weekend. The sponsors are xxx, xxx, and xxx."; or

"We manage to find a place for the event.".

4.2.4   Relationship Detachment

In the detachment stage, elders would leave the community for personal or external reasons. If they personally could no longer provide personal resources to the community because of other

commitments or obligations, they would cease to be active elders. For external reasons such as losing support, incurring bad reputation, or having serious conflicts with members of the community or the community itself, they would cease to be active elders and stop interacting with the community. However, some elders showed their intention to return to the community. Some elders resumed their roles with supports from other members. For now, they engaged in intrapersonal communication rather than group communication. Some posting examples are:

"I'm busy…."; "I will leave the director post;

"I have not been online for a while."; or

"I'm back. Thanks!".

5   DISCUSSIION

Prior research in the field of information system tend to focus on technology acceptance model, innovation diffusion theory, theory of planned behaviour, and task-technology fit model, aiming at understanding how to attract more new users to gain benefits from the use of Internet or information technology. Recent research shifts the focus to the interaction among users as the Internet has become a new platform of exchanging information, ideas, and goods. For example, social exchange theory and social dilemmas have been applied and developed to explain and predict users' attitudes and behaviours towards the interaction on the Internet, particularly in the area of knowledge sharing or virtual community participation.

Usually individuals aggregate based on a shared purpose or on obligations (Rothaermel & Sugiyama 2001). The traditional territorial or geographic community emphasizes spatial setting whereas some communities such as recreational clubs and religious groups focus on human relationship. These two types of communities are not necessarily mutually exclusive. Virtual communities on the Internet belong to the relational community since their members are usually not physically bound together (Wellman & Gulia 1999).The notion that virtual communities are relational communities gives a direction for virtual community research to investigate the role of social connectedness in the motives of playing an active role in virtual communities.

Hierarchical needs theory (Maslow 1943) has been applied to study the question of why people participate in online communities (Kim 2000; Bishop 2007). The theory suggests that the reason people participate in a community is not limited to the satisfaction of physiological or security needs. People may participate actively in a community in order to satisfy their social and esteem needs. Heller (1990) argued that a virtual community is often characterized by the relational interaction or the social ties that draw people together.

A feature of post-industrial society is that proximate neighbours are no longer embedded in cross-cutting networks of obligation and mutual assistance. This means fewer people who provide reciprocity, assistance, and reaffirmation. These changes seem to pose a threat to the existence of traditional communities in which people share a common sense of belonging. However, being in a community, or communities, is part of our everyday life. Community gives us a feeling of belonging to a group (Komito 2001) along with "a strong sense of involvement and shared common interests with that group" (Rayport & Jaworski 2001: 133). A solution of being connected to a community or communities is using new information and communication technologies (ICT) to find others with whom to share common experience or solve a problem. Rather than moving to a new place, or trying to recreate common experience amongst proximate neighbours, individuals can use ICT to join a community or form a community. For example, a person who needs to remove virus on his/her computer, but has no relatives, friends, or other people to consult, can use the Internet to find help from people who share common experience. He/She can also search knowledge or messages posted by other people in related discussion sites or forums for help. In so doing, such people create shared experiences. For many, these experiences provide a sense of common experience and involvement that seems missing in modern society. The shared experiences become the base of social relationship development. Thus, new ICT, which may be fostering fragmentation by undermining traditional forms

of community and even national identity, may also counter this fragmentation by supporting a new form of community: the virtual community.

Findings from the case study suggest that in order to get help from others, usually unknown, people will establish contacts with public virtual communities as they are easily assessable over the Internet, usually without membership fees, true social identity revelation requirements, and restrictions on membership application. People usually go through certain stages in developing social relationships with the community as a whole or with other community members. Their communication with a community or community members reflects which social relationship stage they are in with the community. Many of the participants of the case study suggested that they established their social relationships with the community step by step. The stronger the social relationships, the more they contributed to the community.

6 CONCLUSION

A virtual world, or cyber society, that transforms our work, play and life is created on the Internet (Jones 1998; Chidambaram & Zigurs 2001). The Internet has become an ideal catalyst for virtual community building (Gate 1999). Virtual communities can take the form of a website that allows members to discuss particular subjects or interests. Such communities are often formed by people who share similar goals, beliefs or values (Figallo 1998). However, the sustainability of such communities, which often lack strong ties, has been a concern for researchers (Figallo 1998; Kim 2000; Preece 2000; Bishop 2007).

We argue that members' concerns about their virtual communities are closely associated with how they perceive their social relationship with their communities and such concerns are reflected in their communication with the community and the community members. We proposed the OSRD model based on the discussion of 20 senior members of a virtual community of interest (Table 2). A content analysis and assortment of 20,153 postings of 15 randomly selected senior members of the subject community supported the proposed OSRD model. Findings of the study coincide with prior research noting the importance of social factors in the research of virtual community sustainability. The study extends a study of the group dynamics of an electronic version of a decision-making game in a class by Nicolopoulou et al. (2006), but focuses more on the micro level of virtual community development and provides an analysis of how an individual establishes his/her social relationships with their virtual communities and what communication behaviours can be observed.

Stage	Characteristics
Initiation	Experiencing intracommunication, i.e., an individual's own interpretation of the messages received. Reducing uncertainties about the community and obtaining information existed in the knowledge base of the community. Finding supports, building trust, and clarifying identity within the community. Considering the need for personal space, i.e., privacy, and for closeness with others, i.e., affiliation.
Negotiation	Experiencing interpersonal communication, i.e., communication used to define or achieve personal goals through interaction with others. Emulating other members' behaviours. Evaluating personal relationships based on costs and perceived rewards, particularly the economic and/or social costs and rewards. Learning how to deal with the community through modelling.
Sustenance	Experiencing group communication, i.e., communication used to build a group consciousness. Sensing status, centrality, and leading role within the community. Claiming the responsibilities of protecting and sustaining the community. Showing non-reciprocal behaviours. Establishing and enforcing rules and norms. Providing facilitations.
Adjourning	Experiencing intracommunication, i.e., an individual's own interpretation of the messages received. Showing intention to leave. Committing to other obligations. Sensing a loss of support, bad reputation, or serious conflicts with others. Showing intention to return. Resuming previous community role with supports from other members.

Table 2.   Online Social Relationship Development Model.

Virtual community organizers or designers shall be aware of the stages of members' social relationship with their community because the needs and concerns in each stage are different. Virtual community organizers or designers are advised to match the members' contemporary concerns with the right facilitation mechanisms so as to satisfy members' needs or eliminate/lessen/ease their concerns, making them stay with the community longer and contribute more resources to the community. Future research can examine design principles of computer-mediated facilitation mechanisms from the perspective of meeting members' online communication needs based on the findings of this research.

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References

Alonzo, M. and Aiken, M. (2004). Flaming in electronic communication. Decision Support Systems, 36, 205-213.

Bales, R. F. (1953). The equilibrium problem in small groups. In T. Parsons, R. F. Bales, and E. A. Shils (Eds.), Working Papers in the Theory of Action, pp. 111-161. Free Press, Glencoe, IL.

Bales, R. F. (1970). Personality and Interpersonal Behavior. New York: Holt, Rinehart, & Winston.

Bales, R. F. (1999). Social Interaction Systems Theory and Measurement. Transaction Books, New Brunswick, NJ.

Bandura, A. (1977). Social Learning Theory. Prentice Hall, Upper Saddle River, NJ.

Berger, C. R. and Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. Human Communication Research, 16, 184-216.

Bishop, J. (2007). Increasing participation in online communities: A framework for human-computer interaction. Computers in Human Behavior, 23, 1881-1893.

Bock, G. W., Zmud, R. W., and Kim, Y. G. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS Quarterly, 29(1), 87-111.

Bormann, E. G., Cragan, J. F., and Shields, D. C. (2001). Three decades of developing, grounding, and using symbolic convergence theory. In W. B. Gudykunst (Ed.), Communication Yearbook 25 pp. 271–313. Erlbaum and the International Communication Association, Mahwah, NJ.

Bowlby, J. (1960). Separation anxiety. International Journal of Psychological Analysis, 41, 89-113.

Braaten, L. J. (1975). Developmental phases of encounter groups and related intensive groups: A critical review of models and a new proposal. Interpersonal Development, 5, 112-129.

Canary, D. J., Codey, J. J., and Manusov, V. L. (2003). Interpersonal Communication: A Goals-based Approach, 3rd Edition, Bedford, Boston.

Castells, M. (1997). The Power of Identity. Blackwell Publishing, Malden, MA.

Castells, M. (2010). The Rise of the Network Society: The Information Age: Economy, Society, and Culture Volume I (Information Age Series). 2nd Edition, with a new preface. Wiley-Blackwell, Malden, MA.

Cheung, C. M.K. and Lee, M. K.O. (2009). Understanding the sustainability of a virtual community: Model development and empirical test. Journal of Information Science, 35(3), 279-298.

Chidambaram, L. and Zigurs, I. (2001). Our virtual World: The Transformation of Work, Play and Life via Technology. Idea Group Publishing, London.

Cho, H., Chen, M., and Chung, S. (2010). Testing an integrative theoretical model of knowledge-sharing behavior in the context of Wikipedia. Journal of the American Society for Information Science and Technology, 61(6), 1198-1212.

Dainton, M. and Zelley, E. D. (2005). Applying Communication theory for Professional life. Sage, Thousand Oaks, CA.

Denzin, N. K. (1999). Cybertalk and the method of instances. In S. Jones (Ed.), Doing Internet Research: Critical Issues and Methods for Examining the Net, pp. 107–125. Sage, London.

DeVito, J.A. (2010). Essentials of Human Communication, 7th Edition. Allyn & Bacon, New York.

Dholakia, UM., Bagozzi, R.P., and Pearo, L.K. (2004). A social influence model of consumer participation in network- and small-group-based virtual communities. International Journal of Research in Marketing, 21(3), 241-263.

Erat, P., Desouza, K.C., Schafer-Jugel, A. and Kurzawa, M. (2006). Business customer communities and knowledge sharing: exploratory study of critical issues. European Journal of Information Systems, 15, 511-524.

Facebook (2011). http://www.facebook.com/press/info.php?statistics, accessed on January 18, 2011.

Gates, B. (2000). Adopt the Web Lifestyle, Business @ The Speed of Thought, Penguin.

Gupta, S., Kim, H.W., and Shin, S.J. (2010). Converting virtual community members into online buyers. Cyberpsychology, Behavior, and Social Networking, 13(5): 513-520.

Figallo, C. (1998). Hosting Web Communities: Building Relationships, Increasing Customer Loyalty, and Maintaining a Competitive Edge. Wiley Computer Publishing, New York.

Gibbard, G., and Hartman, J. (1973). The oedipal paradigm in group development: A clinical and empirical study. Small Group Behavior, 4(3), 305-349.

Hardin, C. D., and Conley, T. D. (2001). A relational approach to cognition: Shared experience and relationship affirmation in social cognition. In G. B. Moskowitz (Ed.), Cognitive Social Psychology: The Princeton Symposium on the Legacy and Future of Social Cognition, 3–21. Lawrence Erlbaum, Mahwah, NJ.

Heller, K. (1990). Social and community intervention. Annual Review of Psychology, 41, 141-168.

Johnson, N.A. (2009). Anger and flaming in computer-mediated negotiations among strangers. Decision Support Systems, 46, 660-672.

Jones, S. G. (1998). Information, Internet, and community: notes toward an understanding of community in the information age, in S. G. Jones (Ed.) Cybersociety 2.0 Revisiting Computer-mediated Communication and Community, pp. 1-35. Sage, London.

Kim, A.J. (2000). Community Building on the Web: Secret Strategies for Successful Online Communities. Peachpit Press, Berkeley.

Komito, L. (2001). Electronic communities in an information society: Paradise, mirage, or malaise? Journal of Documentation, 57(1), 115-129.

Lacoursiere, R. (1974). A group method to facilitate learning during the stages of a psychiatric affiliation. International Journal of Group Psychotherapy, 24, 342-351.

Memmi, D. (2006). The nature of virtual communities. AI & Soc, 20 (228), 288-300.

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

Mann, R. D. (1971). The development of the member-trainer relationship in self-analytic groups. In C. L. Cooper and L. Mangham (Eds.), T-Groups: A Survey of Research. Wiley-Interscience, London.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50, 95-117.

Millers, G. R. (1978). The current status of theory and research in interpersonal communication. Human Communication Research, 4, 164-178.

Nicolopoulou, K, Kostomaj, M., and Campos, A. (2006). How to address group dynamics in virtual worlds. AI & Soc, 20, 351-371.

Rothaermel, F. and Sugiyama, S. (2001). Virtual internet communities and commercial success: individual and community-level theory grounded in the atypical case of TimeZone.com. Journal of Management, 3(Aug), 297-312.

Rheingold, H. A. (1994). A slice of life in my virtual community. In L. M. Harasim (ed.) Global Networks: Computers and International Communication, 57-80. MIT Press , Cambridge, MA.

Preece, J. (2002). Supporting community and building social capital. Communication of the ACM 45(4), 37–39.

Raport, J. F. and Jaworski, B. J. (2001). e-Commerce. International ed. McGraw-Hill/Irwin, Singapore.

Rothwell, J. E. (1998). In mixed company: Small Group Communication, 3rd Edition. Harcourt Brace , New York.

Spitz, H., and Sadock, B. (1973). Psychiatric training of graduate nursing students. N. Y. State Journal of Medicine, June 1, 1334-1338.

Thibaut, J. W. and Kelly, H. H. (1959). The Social Psychology of Groups. Transaction Books, New Brunswick, NJ.

Tuckman, B. W. (1965). Developmental sequence in small groups. Psychological Bulletin, 63, 384-399

Tuckman, B. W. and Jensen, M. C. (1977). Stages of small-group development revisited. Group and Organization Studies, 2, 419-427.

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

Wellman, B. and Gulia, M. (1999). Net surfers don't ride alone. In B. Wellman (ed.) Networks in the Global Village. Westview Press, Boulder, CO.

Williams, R.L. and Cothrel, J. (2000). Four smart ways to run online communities. Sloan Management Review, Summer, v41, i4, p81.

Windahl, S., Signitzer, B., and Olson, J.T. (2009). Using Communication Theory: An Introduction to Planned Communication, 2nd Edition. Sage, CA.

Yin, R. (1994). Case Study Research, Design, and Methods. Sage, CA.