UNDERSTANDING USER’S SUSTAINED PARTICIPATION IN SOCIAL RESEARCH NETWORK SITES

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Abstract

Recently, a new form of social network site focusing on researchers has emerged and attracted worldwide users. In addition to basic functionalities of SNSs, social research network sites (SRNS) combine multiple research-specific tools, such as knowledge management tools, citation management, and paper recommendation engines, supporting researchers to collaboratively structure, coordinate and conduct their work online. However, scholars are not interested in social networking as an end in itself, they networks to enhance productivity. The turnover rate of users remains a great challenge for the viability of SRNS. Therefore, exploring the determinants that impact members’ continued participation behavior in SRNS is critical to both scholars and practitioners. From the perspective of group commitment, we attempt to address the following two questions. First, what factors would cultivate different forms of commitment of members to a virtual group. Second, how would these different forms of commitment impact members’ continuance intention in SRNS. Based on the target-behavior commitment model, we proposed the preliminary model for understanding continued knowledge sharing (from contributing and seeking perspectives) in SRNS. The expected contribution of this study is discussed.

Keywords: social research network sites (SRNS), commitment theory, sustained participation, target-behavior commitment model.
1. INTRODUCTION

Emerging social networking sites (SNSs) have created a new world for users to communicate, collaborate, and cooperate in their personal networks. As a subset of virtual communities (VCs), SNSs emphasize the individual profile information, the people and groups that the individual is connected to, and the explicit representation of relationships. These elements determine the individual’s role, involvement, and employ of SNSs compared to traditional VCs where the emphasis is on public discussions (Gangadharbatla 2009).

Recently, a new form of social network site focusing on researchers has emerged and attracted worldwide users. Mainstream websites include ResearchGate and Mendeley in the USA, as well as ScholarMate in China. In addition to basic functionalities of SNSs, social research network sites (SRNS) combine multiple research-specific tools, such as knowledge management tools, citation management, and paper recommendation engines, supporting researchers to collaboratively structure, coordinate and conduct their work online (Renken et al. 2011). Communication and social interaction between researchers will accelerate knowledge transfer and creation, SRNS have achieved success in the past few years. For example, ResearchGate currently has 1.4 million researchers from 192 countries, over 12000 questions were answered in their topic discussion forums in 2011. On the organizational level, the Max Planck PhDnet, the International Academy of Life Sciences, and the European Science Foundation have employed ResearchGate as their communication platform.

As a faithful user base and user-generated content are fundamental to SRNS, their survival and development rely heavily on members’ continuous participation and knowledge contribution. However, cloning Facebook’s success has proven difficult for managers eager to develop an academic networking site: scholars are not interested in social networking as an end in itself, they networks to enhance productivity (Wiener 1982). The turnover rate of users remains a great challenge for the viability of SRNS. For example, Labmeeting was launched in 2008 as a social network for scientists and received $500,000 in seed funding. Labmeeting tried to “change the way information in biomedical research and the medical community is distributed and retrieved”, but it has closed in 2011. Although ScholarMate has millions of registered users, most accounts are dormant. In the context of online service, as compared to attracting new members, retaining existing members is a more cost-effective manner (Kim 2009). Therefore, exploring the determinants that impact members’ continued participation behavior in SRNS is critical to both scholars and practitioners. This purpose composes the objective of this study.

Previous related research has identified that commitment is critical factor leading to sustained participation in a particular virtual communities. This study focuses on the relationship between the individual and the group inside a community, concerning “why would people sustained participation in a particular group”. From the perspective of group commitment, we attempt to address the following two questions. First, what factors would cultivate different forms of commitment of members to a virtual group? Second, how would these different forms of commitment impact members’ continuance intention in SRNS?

This study in progress is expected to make several potential contributions. First and foremost, to the best of our knowledge, it is the first study trying to empirically investigate user’s sustained
participation in SRNS. Second, we contribute to commitment theory by extending the commitment framework to virtual group context.

2. THEORETICAL BACKGROUND

2.1 Social research network site

A social research network site is defined by Bullinger et al. (2010) as “a web-based service that allows individual researchers to 1) construct a public or semi-public profile within a bounded system (identity), 2) articulate a list of other researchers with whom they share a connection and communicate (communication), 3) share information with other researchers within the system (information) and 4) collaborate with other researchers within the system (collaboration).” According to 24 case studies and in-depth interviews with the founders of ten SRNS, Bullinger et al. identify four basic functionalities of SRNS: identity and network management, communication, information management, and collaboration. SRNS thus can be classified into the following four types: research directory sites, research awareness sites, research management sites, and research collaboration sites. Research directory sites identify researchers based on several criteria; research awareness sites enable researchers to master dynamic information in their social network and research field; research management sites offer productivity tools to assist researchers’ work; while research collaboration sites support virtual collaboration by facilitating a joint research process. SRNS do not exclusively belong to one type, but have a dominant type (Bullinger et al. 2010). Leading SRNS include ResearchGate, Mendeley, Academia, and ResearcherID, etc.

Different from hedonic-oriented SNSs, SRNS aim to support research collaboration, while group is one of the fundamental components of collaboration. To facilitate collaboration, SRNS platform will recommend other researchers and groups matching user’s research interests. Users can join virtual groups in different topics, or build their own subject groups. “Following” these virtual groups, researchers can express their perspective in a forum, create collaboration sharing files and writing together through collaborative web software (Giglia 2011). The notion of virtual group in our study is approximated by another concept, virtual team, we here highlight the distinctions between them. A virtual team is a self-managed group of individuals that are geographically dispersed and collaborate via information technologies to accomplish a specific organizational goal (Shin 2004). In contrast to virtual team’ rigid structure which is set by hierarchical decision, virtual group in the SRNS is self-organized and established by a bottom-up approach. There are no obligatory tasks, knowledge exchange are social exchange activities driven by a social norm (e.g., reciprocity). Members joined voluntarily to a group, the ties among them are informal and relative weak.

2.2 User participation in virtual communities

A virtual community is an aggregation of individuals who interact around a shared interest, where the interaction is partially supported by information technology and guided by some protocols or norms (Porter 2004). User participation behavior in virtual communities usually refers to sharing with and obtain information, experience, and knowledge from others, which has been explored based on two streams in IS research: motivation and commitment.
Knowledge sharing in virtual communities is driven based on a mechanism of reciprocity or “gift-giving”, where knowledge is regarded as a public good that is free to all (McLure Wasko et al. 2000). Studies from motivational perspective have revealed a range of explanations for why members contribute knowledge in virtual communities with no explicit organizational reward. Some explanations focus on personal motives such as sense of self worth (Lin et al. 2009), enjoyment in helping others (McLure Wasko et al. 2000), enhanced reputation (Wasko et al. 2005), and learning (Daugherty et al. 2005). Other explanations highlight social motives such as community advancement (Chiu et al. 2006), sense of belonging (Wasko et al. 2005), and reciprocity (McLure Wasko et al. 2000). These studies provide a sound understanding of why people share their knowledge in virtual communities in general.

Because a person may behave differently in different communities, a few researchers have studied why people sustained participate in a particular community from the commitment perspective, focusing on the psychological attachment between the individual and the community. For example, drawing on typologies of organizational commitment, Bateman et al. (2011) explored how each form of commitment to an online community influences a member’s particular engage behaviors. They found that each form of community commitment has a distinct influence on each behavior, with continuance commitment predicting thread reading, affective commitment predicting reply posting and moderating behaviors, and normative commitment predicting only moderating behavior. However, existing research is still at its infancy stage, focusing on organizational level community commitment. Owing to the coalitional nature of organizations leads user commitment to be multidimensional, their continuance intention cannot be sufficiently explained by virtual community commitment alone. Therefore, it is imperative to investigate different level commitment in virtual community context.

2.3 Commitment theory

Commitment has been regarded as “one’s inclination to act in a given way toward a particular commitment target” (Oliver 1990). Organizational commitment is the relative strength of an individual’s psychological bond with an organizational, consisting of three components: affective, normative, and continuance commitment (Meyer et al. 1991). Continuance commitment is defined as “an awareness of the costs associated with leaving an organization” (Meyer et al. 1991), reflecting the need (have to) to persistent in a relationship. Affective commitment is “the employee’s emotional attachment to, identification with, and involvement in the organization” (Meyer et al. 1991), reflecting a desire (want to) to maintain the relationship. Normative commitment refers to “a feeling of obligation to continue employment” in the organization (Meyer et al. 1991), reflecting an obligation (ought to) to stay in the relationship. Affective and normative commitment has been proved to be positively associated with work performance and satisfaction (Becker 1992), while continuance commitment has been proved to be negatively associated with work performance and satisfaction (Konovsky et al. 1991; Meyer et al. 1993). Employees will experience three forms of commitment simultaneously, their behaviors are anticipated to be affected by the interaction of all these forms of commitment. Therefore, it is necessary to consider the three forms of commitment as a whole than exclusive types (Meyer et al. 1991).

Commitment theory is a widely applicable theory since it does not depend on the nature of the organization, but on the psychological bond that an individual towards a particular commitment target. The focus of commitment (i.e., what an employee is committed) in the workplace has multiple forms,
Organizational Commitment Questionnaire (OCQ) has been modified successfully to assess commitment to other entities, such as team and supervisor (Scott et al. 1994; Vandenberg et al. 1992).

Commitment research initially dedicated to investigate why volunteers at non-profit organizations varied in their level of dedication (Becker 1960), making it a suitable theory basis for understanding individuals’ voluntary behavior in virtual environment. Commitment theory has also been employed in information system research. For example, using a commitment-based model, Li et al. (2006) investigated how an individual’s continuance intention to use a web site is affected by his or her commitment toward that web site and the vendor that supports it. The empirical results demonstrated that affective commitment, continuance commitment, quality of alternatives, and trust significantly related to an individual’s continuance intention to use a web site.

3. THEORETICAL DEVELOPMENT

3.1 Limitations of the three-component model of organizational commitment

Meyer and Allen (1991) have proposed the three-component model (TCM) of organizational commitment for more than twenty years, it is by far the dominant model in organizational commitment research. However, increasing research has indicated that the TCM is inconsistent with empirical findings (e.g., Meyer et al. 2002). Solinger et al. (2008) have summarized the empirical criticism of the TCM. First, continuance commitment usually relates slightly negatively or not at all with affective commitment, important affective or attitudinal relatives, and important work-related outcome variables, which suggests that continuance commitment lacks convergent validity. Second, normative commitment has consistently been found to relate strongly with affective commitment. The difficulty in distinguishing normative commitment from affective commitment suggests that the discriminant validity between the two is very low. Some scholars have attributed the empirical inconsistencies to underlying concepts contradiction.

Comparing to normative and continuance commitment, affective commitment is the most reliable dimension of organizational commitment, having the strongest validity (Brown 1996; Meyer et al. 2002). Affective commitment also correlates significantly with the widest range of outcome variables, such as work performance (Bishop et al. 2000b), resource sharing and quality concerns (Randall et al. 1990). Further, affective commitment shows strongest correlations with relevant behaviors among the three dimensions. This has been confirmed in a meta-analysis, where the weighted average corrected correlations of affective commitment with performance, absence, and organizational citizenship behaviors are much higher than normative and continuance commitment (Meyer et al. 2002). Considering affective commitment is at the heart of the TCM, many studies have regarded it as the sole indicator of organizational commitment (e.g., Bishop et al. 2000a; Hashim et al. 2012). These imbalances may be attributed to the conceptual inconsistency in the TCM of combining an attitude toward a target with an attitude toward a behavior (Solinger et al. 2008). For instance, when using the TCM to investigate employees’ knowledge contribution by their normative commitment, the researcher is forced to explain knowledge contribution by an obligation to remain in the organization. In other words, Behavior A (knowledge contribution) is inferred by the normative pressure to perform Behavior B (staying). Similarly, continuance commitment is defined as the perceived cost to leave the organization, which reflects an attitude toward behavior (i.e., leaving), not
toward the target (i.e., the organization). It's not surprising that in their meta-analysis, Meyer et al. (2002) reported continuance commitment has insignificant relationships with organizational citizenship behaviors, since Behavior A (organizational citizenship behaviors) is explained by the irrelevant Behavior B (leaving). Obviously, an attitude toward a target (i.e., the organization) is suitable for a larger scope of behaviors than for a specific behavior (i.e., staying or leaving), affective commitment is thus correlated with larger scale of behavior variables than the two other dimensions.

The concept of commitment and the TCM has also been applied to IS research. Affective commitment has still been considered as the core dimension of commitment and has been used as the only indicator of commitment by many scholars (e.g., Hashim et al. 2012; Wang et al. 2011). Different from traditional organizational commitment literature, IS scholars select online services and technology as main study objects, and there is generally only one dependent variable: continuance intention (e.g., Wang et al. 2009; Zhou et al. 2012). In virtual context, user continuance intention is similar to traditional employee turnover. Emphasis on continuance intention in previous studies is not misplaced, since when using the TCM, IS scholars are forced to focus on one particular behavior (i.e., using), a variety of behaviors relevant to the commitment have to be excluded. Bateman et al.'s (2011) research is an exception, each form of commitment to an online community is hypothesized to affects a member’s particular participation behaviors (reading threads, posting replies, moderating the discussion). Although these hypotheses are supported, the correlation sounds strained: moderating discussions is explained by the normative pressure to continue visiting the site. Interestingly, although not hypothesized, affective community commitment also significantly influenced moderating behavior. This might be well explained by the above discussion: an attitude toward a target is suitable for a larger scope of behaviors than for a specific behavior. In conclusion, the TCM is inconsistent in focus: affective commitment reflects an attitude toward a target, while continuance and normative commitment reflect attitudes toward a behavior.

3.2 The target-behavior commitment model

The most important contribution of the TCM is to accommodate different mental states (i.e., mind-sets of desire, cost, and obligation, representing the three commitment dimensions) within a model to evaluate behaviors. To extend the scope of behaviors explained from commitment perspective, we distinguish commitment towards target from commitment towards behavior, dividing commitment into three parts: target affective commitment, continuance behavior commitment, and normative behavior commitment. Target affective commitment refers to a bond between a person and a particular target that is based on the person’s emotional attachment to that target; continuance behavior commitment refers to a bond between a person and a particular behavior that is based on the person’s belief that his or her behavior provides net benefits that are not easily available elsewhere; and normative behavior commitment refers to a bond between a person and a particular behavior that is based on the person’s sense of obligation towards that behavior. For each behavior, a specific commitment model can be developed based on the target-behavior commitment model. The TCM thus can be regarded as a specific model for investigating employee turnover. Figure 1 shows the target-behavior commitment model.

To illustrate this approach, Figure 2 and Figure 3 depict the preliminary model for understanding continued knowledge sharing (from contributing and seeking perspectives) in SRNS.
Figure 1. The target-behavior commitment model.

Figure 2. Preliminary model for understanding continued knowledge contributing in SRNS.
4. EXPECTED CONTRIBUTION

1. This is one of the first study to investigate people’s continued participation in SRNS.

2. This is the first study to investigate the particular groups in a VC from integrated commitment perspective. VC commitment and VG commitment are different concepts, the person who feels attached to a specific VG may be more committed to this VG than to the VC as a whole. We develop the integrated framework of virtual group commitment, including antecedents and outcomes. Although some scholars argue that users can switch to any other virtual community with little cost and without violating obligation; so continuance commitment and normative commitment play a very small role in these circumstances, we highlight the importance of three forms of commitment as a whole than exclusive types.

3. Previous research almost entirely confined to factors that are internal to an isolated VC, ignoring the external context within which communities exist. In fact, communities do not reside in a vacuum, users’ continuance decisions may largely influenced by the availability of alternatives and the benefits that alternative communities can offer (Wang 2007). For instance, LinkedIn may lose a large number of users to the rising Facebook. This viewpoint has been supported by earlier research. In the context of three large virtual investing-related communities (VICs), Gu et al. (2006) demonstrated that these communities compete against each other for users, both network externality and information quality are important factors in the competition. We follow this argument and expand our horizon to the external alternative groups.

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**Figure 3. Preliminary model for understanding continued knowledge seeking in SRNS.**

- **Knowledge seeking continuance commitment**
  - **Seeking intention**
  - **SRNS affective commitment**
  - **Knowledge seeking normative commitment**
  - **Alternative**
  - **Perceived cost**
  - **Perceived usefulness**
  - **Social relationship**
  - **Subjective norms**
  - **Subjective norms**
  - **Subjective norms**
  - **Subjective norms**
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