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Understanding Online Community Effectiveness: The Efficacy of Integrating Group Development and Social Capital Theories

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Abstract

A major challenge in fostering online communities is developing and sustaining communities. This paper integrates social capital and group development theories in order to derive a framework that seeks to explain why some online communities prosper, while others decline and perish. Four facets of social capital – network structure, identification, obligations, and shared vision – are proposed to moderate the relationship between online community development, developmental processes, and effectiveness. It is suggested that online communities who lack a common stock of social capital are more inclined to follow the stage model of group development. In contrast, online communities that have optimal levels of social capital are more likely to follow the punctuated equilibrium model of group development. The paper concludes with implications for theory and practice.

Keywords: Social Capital, Group development, Group Effectiveness

Introduction

The proliferation of information and communications technologies has led to an explosion of online communities. Indeed, we have witnessed the rapid diffusion of collaborative technologies such as email, instant messaging, web logs, wikis, and the like. No doubt that these technologies will continue to penetrate into every aspect of society. As online communities continue to proliferate, there is an increasing need for Information Systems researchers to understand why some prosper, while others decline and perish.

Online communities are online social networks in which groups with common interests, goals, or practices interact virtually to share insight, information, knowledge, and advice, despite being separated by time and space. They are fundamentally different from traditional task-oriented groups. Online communities have very different time horizons and complexity of problems. Their boundaries are more
permeable as they tend to be more distributed, self-organized, and rely a great deal on self-generated resources. More importantly, since participation is voluntary, online communities may continuously form, gather occasionally, disperse, and re-form again. As a whole, these factors pose significant challenges to developing and sustaining communities.

Social network theories have been widely applied in traditional small group and online contexts to explain some of the variance in performance outcomes (Borgatti & Foster, 2003; Chiu, Hsu, & Wang, 2006; Preece, 2000; Wasko & Faraj, 2003, 2005). The social network-performance relationship has been empirically validated for over five decades with demonstrated validity (Bavelas, 1950; Borgatti & Foster, 2003; Guetzkow & Simon, 1955; Leavitt, 1951; Reagans & Zuckerman, 2001; Rosenthal, 1996; Shaw, 1954, 1964; Sparrowe, Liden, Wayne, & Kraimer, 2001). Of all network-based research, social capital represents the biggest growth (Borgatti & Foster, 2003). Social capital is broadly defined as the goodwill derived from the network of relations that can be mobilized to facilitate the pursuit of collective goals (Adler & Kwon, 2002; Lesser, 2000; Nahapiet & Ghoshal, 1998). Although social capital explains the variance in performance as a function of network structure (Borgatti & Foster, 2003), theories of social capital are limited in providing a theoretical explanation as to when in the life cycle and under what conditions networks have their effects.

There is a consensus in the small group literature that groups are not born in their final state; groups form, mature, and evolve over time (Morgan, Salas, & Glickman, 1993). Similarly, there is a life cycle for online communities, particularly in the case where groups seek to form online communities from scratch. However, there is no systematic theory of online community development. As a consequence, group development theory is introduced to supplement social capital theory. Theories of group development explain productivity outcomes as a function of the developmental trajectory of the group. Research on the group development-performance relationship has been empirically validated for over four decades (Arrow, McGrath, & Berdahl, 2000; Gersick, 1988, 1989; Tuckman, 1965; Tuckman & Jensen, 1977). Despite persistent calls for integrating social capital and group development theories (Adler & Kwon, 2002; Balkundi & Harrison, 2006; Kilduff & Tsai, 2003; Walker, Kogut, & Shan, 1997), we know very little concerning how the components of social capital facilitate (or constrain) group development over time.

In this paper, the focus is on integrating prior research on the network-performance and development-performance relationships in traditional small group settings. The findings are then explored in the context of online communities. There are two contributions made to theory and practice. First, while previous efforts have focused on social capital and group development as isolates, this paper strives for integration. A framework is derived that demonstrates that the group development-performance relationship is significantly influenced by the development and maintenance of social capital. This paper also makes a contribution by providing a tool to evaluate and facilitate online community building.

**Conceptual Framework for Analysis**

Although research on social capital and group development appear in separate streams of the literature, it is clear that both social capital and group development theories are intrinsically linked (see Figure 1). For example, in this paper social capital is a story about how embedded resources are mobilized and shared in social networks, whereas group development theory explains how productivity outcomes are influenced by the life cycle of the group. The framework indicates that online community effectiveness is a function of group development moderated by social capital over time. This conceptual framework is descriptive, evaluative, and diagnostic. Therefore, this framework satisfies the principles of group effectiveness outlined in the small group literature (Cannon-Bowers & Salas, 1997). In order to impose
some constraints, the main interest in this paper is on newly formed online communities in voluntary organizations that share common interests or patient centric networks.

**Figure 1: Ecological Framework for Analyzing Online Community Effectiveness**

- **Group Development**
  - Classic Stage Model
  - Punctuated Equilibrium

- **Social Capital**
  - Network Configuration
  - Identification
  - Obligations
  - Shared Vision

- **Developmental Processes**
  - Orientation
  - Conflict Management
  - Cohesion
  - Effective communication

- **Outcomes**
  - Productivity
  - Effectiveness
  - Viability

*Note: The X denotes a co-evolutionary relationship.*

**From Group Effectiveness to Online Community Effectiveness**

In the traditional small group literature, group effectiveness is a two-part construct that consists of performance and viability. Group effectiveness is broadly defined as the quantity and quality of a group’s outputs over time (Guzzo & Dickson, 1996; Shea & Guzzo, 1987; Sundstrom, De Meuse, & Futrell, 1990). Performance (e.g., productivity) is defined as the acceptability of outputs by members inside the group and the stakeholders in the external community. Whereas viability concerns members’ satisfaction, participation, and willingness to continue working together in the future (Guzzo & Dickson, 1996; Sundstrom et al., 1990). Drawing on previous research, online community effectiveness is broadly defined as the quantity and quality of the community’s outputs over time. Effectiveness can be evaluated by metrics such as the quantity and quality of knowledge shared and/or goal attainment.

**Group Development and Developmental Processes**

The “life cycle” perspective on groups has been extensively studied as developmental stages (McGrath, 1990). These studies have resulted in various robust models that explain the variance in the performance of small groups (Arrow et al., 2000; Arrow, Poole, Henry, Wheelan, & Moreland, 2004; Chang, Bordia, & Duck, 2003; Gersick, 1988, 1989; Lim & Murnighan, 1994; Morgan et al., 1993; Runkel, Lawrence, Oldfield, Rider, & Clark, 1971; Tuckman, 1965; Tuckman & Jensen, 1977). Although many models of group development abound, scholars tend to agree on two main classes: linear and non-linear perspectives.

Although the classic stage model and PEM appear to be direct opposites, several researchers acknowledge that the approaches are different, yet complementary (Chang et al., 2003; Chidambaram & Bostrom, 1996, 1997; Dennis, Garfield, & Reinicke, 2006). In this study, Tuckman’s classic stage model represents the linear perspective; whereas, Gersick’s PEM represents the non-linear perspective. For instance, Chang et al. posits that the focus on developmental trajectories supports the stage view;
whereas, the focus on temporal awareness and timing supports the PEM. Similarly, Chidambaram and Bostrom (1996) suggested that the stage model focuses solely on developmental patterns of groups; whereas, the PEM model seeks to understand the underlying causes of these changing developmental patterns. Finally, Dennis et al. (2006) found that the PEM model fits established groups whose members have developed shared scripts; whereas, the stage model fits newly formed groups that lack common scripts to guide their behavior.

In order to analyze the development of online communities, four developmental process variables that are linked to the facets of social capital are proposed: orientation, conflict management, cohesion, and effective communication. Developmental processes are defined as mechanisms that inhibit or enable the group’s capacity to combine their capabilities and behavior (Kozlowski & Bell, 2003). There is a focus on the factors that facilitate or constrain group functioning. More importantly, process variables are summary indicators of effectiveness (Kozlowski, Gully, Nason, & Smith, 1999).

**Stage Model – Linear Perspective**

Tuckman’s classic stage model predicts that groups follow a fixed linear sequence of developmental stages: forming, storming, norming, and performing. A fifth stage was later added to include adjourning (Tuckman & Jensen, 1977). Each stage operates in sequence and requires that developmental tensions be adjudicated before moving to the next.

In the forming stage, which is characterized in the preceding framework as orientation, the group comes together and tries to identify some structure. They get to know each other and begin to familiarize themselves with the task. Afterwards, they begin to establish group goals, examine what tasks are to be done, and decide which action strategies are to be employed. During this period, the group is very focused on self and tries to avoid conflict as much as possible; however, there is a high dependence on a leader, as well as unclear roles and responsibility. As a consequence, there are competing interests, ideas, and opinions. These tensions ultimately result in conflict that moves the group into the storming stage.

The storming stage is characterized by intergroup conflict resulting from different perceptions of the task; differences in opinions as to who shall lead the group; as well as general differences in interests, ideas, and opinions. These differences often result in hostility and emotionally charged responses. Those individuals who share similar interests and ideas often gravitate towards each other, resulting in the formation of cliques. As a result, power struggles may ensue. At some point, the members begin to open up to each other and engage in conflict management. Conflict management is defined as the extent to which the community is effectively able to manage conflict that arises from differences in ideas, viewpoints, and debates to clarify positions.

The norming stage is characterized by the development of cohesion which enables the group to work together as a collective unit in order to achieve the group’s goals. They begin to agree on rules, develop shared values and establish norms of behavior. Close ties are developed during this stage, resulting in trust and mutual respect; thereby, creating an environment for the open exchange of information. In online communities, cohesion is operationalized as the extent to which members are attracted to the community, have common interests, and desire to remain in the community.

The group then enters the performing stage. During the performing stage, members work toward achieving the group’s goals and generating quality solutions to problems. In this stage there is an effective communications structure that enables coordination and cooperation (Kozlowski & Bell, 2003). In the framework above, effective communication is defined as the extent to which
communication is open and community members are able to collaborate and exchange information that is clear, relevant, and timely. The final stage in this model is adjourning. Groups enter this stage once the task is completed and the group is ready to disband. It should be noted that ongoing groups do not go through this stage.

In the context of online communities, the stage model provides an understanding of the life cycle of newly formed online communities in which there is little or no developmental history or in the case where the community’s routines are disrupted by the technology.

**Punctuated Equilibrium Model – Non-Linear Perspective**

As a direct challenge to the stage model, Gersick proposed the punctuated equilibrium model (PEM) of group development (Gersick, 1988, 1989). The PEM was adopted from punctuated equilibrium in the field of natural history (Eldredge & Gould, 1972). The PEM predicts that group development occurs in two phases with mid-point transitions that result from revolutionary or deep change. Mid-point transitions are defined as “the moment when the group members made fundamental changes in their conceptualization of their own work” (Gersick, 1989, p. 277).

The first phase is characterized by inertia since not much is accomplished. In Gersick’s account, groups exert less effort when the deadline is distal and more effort when the deadline is in which the group undergoes an abrupt revolutionary change. Gersick suggests that this change is triggered by external forces (e.g., time and awareness to deadlines). In developing the PEM, Gersick (1998) first conducted an inductive qualitative study to generate the theory, followed by a laboratory study to evaluate the theory (Gersick, 1989). In both studies, Gersick found that groups did not progress through a sequence of stages as the stage model predicts. Instead groups underwent a stable equilibrium period that was punctuated by a mid-point transition. As it relates to online communities, the PEM provides an understanding of behavior in the case where a community has a developmental history supplemented by a well developed stock of social capital.

**Social Capital and Developmental Processes**

Janine Nahapiet and Sumantra Ghoshal of the London Business School are noted as providing the first systematic linkage of social capital to organizational studies (Nahapiet & Ghoshal, 1998). They defined social capital as “the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p. 243). Their theory of social capital is based on three dimensions: structural, relational and cognitive. In the preceding framework network structure is a facet of the structural dimension, identification and obligations are facets of the relational dimension, and shared vision is a facet of the cognitive dimension.

**Network Configuration**

Two treatments to the literature emerge regarding whether the network configurations in terms of social interaction ties are internal and external perspectives. Robert Putnam refers to this dichotomy as bonding and bridging forms of social capital (Putnam, 1995). First, the view of social capital that focuses on the internal relations of a collectivity is commonly derived from network closure (Coleman, 1988, 1990). Closure is defined as the extent to which individuals are densely connected within a network.

According to Coleman’s thesis, highly dense networks facilitate cohesion and solidarity. Cohesion is defined as the extent to which members are attracted to the group, the group task, and desire to remain in
the group (Fetining, 1950; Goodman, Ravlin, & Schminke, 1987; Seashore, 1954). Cohesion facilitates open communication and provides a safe environment to publicly test assumptions, beliefs, and “half-baked” ideas (Adler & Kwon, 2002). Additionally, cohesion acts as a buffer to conflict. Finally, cohesion facilitates the effective communication, cooperation and collaboration necessary for effective organizing and the pursuit of collective goals (Adler & Kwon, 2002; Coleman, 1988; Sparrowe et al., 2001).

Closed networks also have important implications for knowledge management and viability. For example, research suggests that highly dense networks are more conducive for the transfer of complex knowledge (Hansen, 1999). In addition, closed networks have a stronger effect on viability which is important for the long term function of the group (Balkundi & Harrison, 2006).

Whereas, bonding social capital focuses on internal relations of a collectivity; the focus of bridging social capital is on external relations. This approach focuses on the externalities that are derived from structural holes (Burt, 1992). In the orientation phase, members of the group get to know each other, learn the rules, and understand the leadership structure.

As a resource, bridging ties aid in information search and provide access to non-redundant information. More importantly, structural holes have transformative properties and provide brokerage opportunities in a network. Brokering or boundary spanning allows actors to form new relationships with central actors in other groups. By interacting with other groups, boundary spanners are able to bring new information and ideas back into their central group. For instance, Ancona and Caldwell (1992) found a positive relationship between external communication and team performance. Researchers have also found that bridging social capital is most effective in the early life of groups (Walker et al., 1997).

Identification

Nahapiet and Ghoshal (1998) noted that “identification is the process whereby individuals see themselves as one with another person or group of people” (p. 256). This concept is also related to cultural identity. Cultural identity is the extent to which an individual feels that they belong to a group (Hall & Du Gay, 1996). Moreover, cultural identity is influenced by such factors as place, gender, race, and religious beliefs to name a few. In the context of online communities, identification refers to whether or not an individual feels that they actually belong to the community. Furthermore, cultural identity is significantly influenced by socio-cultural factors that individual members share in common. As such, high levels of identification can be expected to facilitate each of the developmental processes (i.e., orientation, conflict management, cohesion, and effective communication).

Obligations and Expectations

Coleman (1998) uses the metaphor of a credit slip to theorize obligations and expectations as a form of social capital. Coleman notes that, “if A does something for B and trusts B to reciprocate in the future, this establishes an expectation in A and an obligation on the part of B” (p. 102). Similarly, Nahapool and Ghoshal (1998), note that “obligations represent a commitment or duty to undertake some activity in the future” (p. 255). In the context of online communities, it is suggested that obligations and expectation are linked to commitment and contributions. In online communities, where commitment is high, and the network is highly dense, it is expected that the network of relations is relatively balanced. Unbalanced networks may signal social loafing and present significant barriers to the long-term functioning of the community (i.e., viability).
Since the beginning of time, shared vision has been an important antecedent to collective action. For instance, a well known passage in the Bible reads “where there is no vision the people perish” (Proverbs 29:18). Tsai and Ghoshal (1998) note that shared vision “embodies the collective goals and aspirations of the members of an organization” (p. 467). They further indicate that common goals, values, and visions that are shared by members will assist them in understanding and appreciating the value of their contributions (Tsai & Ghoshal, 1998). Furthermore, shared values and goals bind members of communities together and facilitate cooperation (Cohen & Prusak, 2001). It is well known in the online community literature that shared values, goals, vision, and common interest are important to the functioning and well being of a community. In online communities, the vision is shared during the orientation phase. Not only do members get to know each other, they also get to learn the community’s goals, values, and norms of behavior. This will help avoid possible misunderstandings and mitigate self-interest behavior.

The objectives thus far have been to explain to understand when and under what conditions social capital is most influential in the formation of an online community. In summary, social capital is the oil that lubricates the developmental processes. Bridging social capital is most effective in the orientation phase of an online community considering the tasks are mainly informational. Bonding social capital, however, is more conducive in the latter stages of online communities in order to manage conflict, foster cohesion, and facilitate effective communication. Hence, we can conclude that online communities who lack a common stock of social capital are more inclined to follow the stage model of group development. On the other hand, online communities with optimal levels of bonding and bridging social capital are more likely to follow the punctuated equilibrium model of group development.

**Discussion**

Given the proliferation of online communities, there is an increasing need to understand how to develop and sustain communities. However, there is no systematic theory of online community development to inform community building or the design of information systems. Therefore, a goal of this paper was to integrate two prominent paradigms in small group research and pave the way for future theoretical approaches that seek to explore development and effectiveness in online communities. This paper demonstrated that the classic stage and PEM are different, yet complementary models of group development. In addition, this paper demonstrated the value of both bonding and bridging forms of social capital. On the whole, social capital has strong implications for understanding online communicative development and the subsequent variance in online community effectiveness.

**Implications for Theory and Practice**

There is a general consensus that online communities, similar to humans, are not born in their final state. Therefore, it is important to take an ecological approach when examining online communities. Since a systematic theory of online community development remains elusive, this paper offers what may be the first approach in IS research that seeks to integrate the group development and social capital theories. Finally, this research is significant for practitioners who need to understand the developmental processes of an online community in order form a community and help the community evolve to its fullest potential.
References


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