A structuration approach to online communities of practice

Howard Rosenbaum
Indiana University, hrosenba@indiana.edu

Pnina Shachaf
Indiana University, shachaf@indiana.edu

Follow this and additional works at: http://aisel.aisnet.org/amcis2010

Recommended Citation
http://aisel.aisnet.org/amcis2010/377

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.
A structuration approach to online communities of practice

Howard Rosenbaum  
Indiana University  
hrosenba@indiana.edu

Pnina Shachaf  
Indiana University  
shachaf@indiana.edu

ABSTRACT

This paper argues that the concept of communities of practice can be usefully grounded in a structuration approach and used to guide investigation into the dynamics of these communities. Points of contact between structuration and communities of practice are explored; the concept of structuration informs processes of identity formation and maintenance in communities of practice, the duality of structure informs dualities of participation and reification in CoP and social practices play a fundamental role in both approaches. The resulting concept is based on an assumption that research on online communities should take into account social, technical, and contextual factors. It adds theoretical depth and richness to sociotechnical approaches to studying online communities of practice.

Keywords

Online communities, Web 2.0, socio-technical approaches, structuration, online communities of practice, mediated communication, social informatics

INTRODUCTION

Online communities have become routine and taken-for-granted fixtures of the Web 2.0 environment. In this paper, we argue that an approach based on structuration theory (Giddens, 1979; 1984) emphasizing the duality of technology (Orlikowski, 1992; 2000) and Wenger’s (1998) concept of communities of practice can be used as a framework to guide investigation into the dynamics of certain types of online communities. This is important because one of the limitations of Giddens’ theory is its lack of discussion of its empirical applications in the social world and in the uses of the concept of communities of practice, structure is typically undertheorized. This approach focuses research attention on the social, technological, and contextual factors that contribute to the trajectories and dynamics of certain types of online communities and adds theoretical depth and richness to sociotechnical approaches to studying these communities.

At first glance, the concept of “online community” seems clear; it is made up of people who gather together and interact regularly in some type of digital space. However, Preece and Maloney-Krichmar (2003, p. 596) explain that the term is contested. They review some common definitions and settle on one, which will be used here; an online community is a:

Social activity that involves groups of people interacting online. Such communities may be long or short term, large or small, national or international, and completely or only partially virtual (Preece & Maloney-Krichmar, 2003, p. 599).

In addition to patterns of online interaction, online communities:

Build up a collective history of information created, discussions conducted, tasks performed, and goals accomplished. Especially in virtual communities, traces of these activities can be found in the many technologies used, like mailing list archives, web pages, and document repositories (de Moor, 2006, p. 1).

As online communities proliferate in the Web 2.0 environment, researchers are asking how they are formed, sustained, changed over time and dissolved; they are using a variety of theoretical and methodological tools to study online
communities, seeking to understand their trajectories and dynamics. Common to these communities are that they are digitally mediated and relatively enduring settings within which people routinely interact, engaging in persistent conversations and constituting and reconstituting their social worlds over time. They have collective histories that accrete over time, and norms and guidelines that develop, shaping the behaviors and interactions of participants. Another common feature is a reliance on sophisticated technical infrastructures both as sites for interaction and as means of access for participants.

The concept of the online community of practice (CoP) is rooted in Lave and Wenger’s (1991, p. 98) concept of “communities of practice,” introduced as part of a discussion of how informal learning takes place in organizations; a CoP is “an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage.” They (1991, p. 29) claim “learners inevitably participate” in a CoP in ways that allow them to develop “mastery of knowledge and skill” as they “move towards full participation in the sociocultural practices of the community” and engage in situated learning about the “activities, identities, artifacts … knowledge and practice.” Wenger, McDermott & Snyder (2002, p. 4) emphasize the social nature of CoPs as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.” Also important in a CoP are “mutual engagement, shared repertoire and a common enterprise” (Tompsett & Alsop, 2003, p. 62). The concept has been adopted widely and has undergone an evolution (for a comprehensive and critical review, see Hara (2009)) and as the Internet has become an integral part of learning and social life, interest in online CoPs has grown among researchers and practitioners (Murillo, 2008). In this paper, we suggest that there is a subset of online communities that can be usefully seen as online CoP and that a structurationally informed conception of CoP can be used to understand their dynamics and trajectories. Because of space limitations, the argument is presented here in a brief sketch; a fuller treatment is available in Rosenbaum and Shachaf (2010, forthcoming).

**A STRUCTURATION APPROACH TO ONLINE COMMUNITIES OF PRACTICE**

We suggest that research that seeks to understand theoretically and empirically the dynamics of online communities, and specifically online CoPs, should take into account both social and technical factors and their complex interplay (Kling, Rosenbaum & Sawyer, 2005). One approach that may be useful is Giddens’ structuration theory (1979; 1984), particularly as modified by Orlikowski’s (1992; 2000) concept of the “duality of technology.” With the addition of Wenger's (1998) concept of “communities of practice,” this approach provides a systematic, sociotechnically-oriented framework that can be effectively used to study certain types of online communities because it accounts for the technological and social systems that constitute these communities.

Structuration theory is used here because it emphasizes the complex interrelationships among people, the information and communication technologies (ICTs) they design and use, the social practices supported by these ICTs (of which work practices are a subset), and the organizational and social contexts in which they use them (Giddens, 1979; 1984; Orlikowski, 1992; 2000). This theory has “been used extensively in IS (information systems) to help reveal how technical systems can support or hinder human interaction in societal, organizational, and personal contexts” (Evans & Brooks 2005, p. 215). Although researchers in diverse fields have made use of structuration theory in their empirical work, Giddens (1991, p. 213) comments “I like most those usages in which concepts, either from the logical framework of structuration theory or other aspects of my writings, are used in a sparing and critical fashion.” Taking note of this caution, three key concepts - structuration, the duality of structure and social practices - will be used to develop a structurationally informed concept of communities of practice.

First, “structuration” refers to the ongoing, persistent and routine moments during which society and the individual are created and recreated during interaction. Both structure and individual social identity emerge as largely unintended consequences of the structuration process. What makes structuration, and therefore social life, possible is the instantiation of structure as it is enacted in social practices. This involves:

The essential recursiveness of social life is constituted in social practices; structure is both medium and outcome of practices. Structure enters simultaneously into the constitution of the agent and social practices, and ‘exists’ in the generating moments of this constitution. (Giddens, 1979, p. 5)

This is the “duality of structure,” the second concept, which asserts that human agency, as social practices, takes place through and because of structure and is enabled and constrained by the structures within which people act. Structures, in Giddens’ view, are composed of sets of rules and resources that are only instantiated in recurrent social practices.
(Orlikowski, 2000). As people draw upon structural rules and resources to give shape and form to their interactions, they simultaneously recreate (and sometimes change) these components of structure. Technology is a resource drawn upon as people engage in social practices. Orlikowski’s (1992, p. 423) concept of the “duality of technology” assumes that ICTs are structural resources that enable and constrain human action in different ways and is an important step in bringing structuration into information systems research because it is a “[t]heoretical conceptualization of technology, which underscores its socio-historical context, and its dual nature as objective reality and as socially constructed product.” In this way, technology as an artifact is subsumed into the conception of structure with its dual nature preserved allowing it to play an important role in the structuration of the social dynamics of online communities. Orlikowski (2000, p. 407) explains that:

Structures of technology use are constituted recursively as humans regularly interact with certain properties of a technology and thus shape the set of rules and resources that serve to shape their interaction.

The duality of technology implies that as people use various ICTs, for example blogs, wikis and other Web 2.0 technologies, they are creating and recreating themselves and their communities in ongoing moments of structuration. They are developing, maintaining, and sometimes changing the rules and the resources that become the structural media through which they interact with each other and the sources of enablement and constraint over time. Researchers have begun to notice how ICT use in online communities affects both identity formation and management (Farquhar, 2007; Lamb & Davidson, 2005), and the organization of the community (Evans & Brooks, 2005). Evans and Brooks (2005, p. 215) consider the general case of people working together in online communities and argue that the use of structuration theory can lead to a “greater understanding of the underlying structures that emerge from collaboration using new technology.”

The focus on social practices, the third concept, is critical because the “starting point for theoretical thinking and empirical work in the social sciences should … be … the analysis of recurrent social practices” (Giddens, 1989, p. 252). Haythornthwaite and Hagar (2005, pp. 314-315) note the importance of social practices in the shaping of participants’ uses of ICTs, an important structural resource, and in the emergence and persistence of structural rules; this is particularly the case in an online CoP where the “way social technologies … are used arises from group practices, including norms about what is discussed and the languages and genres considered appropriate for communication.” Moreover, these practices are not static; they emerge and evolve in and through participation and reification and “constitute and reconstitute” (Orlikowski, 2002, p. 270) the norms, conventions, and knowledge that become parts of the structure of the CoP.

Among the outcomes of routine interactions in online communities are the creation and recreation of structures that enable and constrain social interaction and practices within the community. This is one side of the duality of technology: people’s actions and interactions reinforce and can sometimes change the ICTs they use. On the other side of the duality of technology, participants, as they use ICTs, are enacting social practices through which they develop, maintain and change their identities in the community. Among certain types of communities, the emergence and routinization of social practices and occurrences of identity formation can lead to the emergence of communities of practice (Baker-Eveleth, et al., 2005; Wenger, 1998).

These three key concepts from structuration theory (structuration, the duality of structure, and social practices) can be used to analyze online communities of practice. Structuration can help to explain the fundamental dynamism of these communities by sensitizing researchers to the ways in which these communities are created, recreated, and changed as people engage in social practices within them, drawing upon the rules and resources of the community’s structure. These structural components enable and constrain the social practices of participants whose actions and interactions reconstitute the community’s structure. ICTs are structural resources and as such, have a fundamental duality that allows them to influence and shape the social practices of the participants using them while being influenced by this use. Out of the duality of technology comes the shape of the community and the identities of those participating in it.

**STRUCTURATION AND COMMUNITIES OF PRACTICE**

By using concepts of structuration, the concept of “community of practice” can be grounded theoretically extending the reach of the approach, particularly in terms of the role of structure in community dynamics and enhancing its empirical value. This move benefits both approaches because structuration has been criticized for not dealing adequately with its empirical applications in the social world and CoP has not been explicitly anchored in a larger social theory. This move makes sense because of a convergence between CoP and structuration, particularly in terms of the basic assumptions that they share. For example, Warren (2004, p. 27) has noticed this overlap, claiming that Lave and Wegner’s (1991) treatment of the concept of
CoP “draws on Giddens to some extent (as well as a wide range of other theorists).” In fact, Wenger (1998, p. 23) places his work within the domain of structuration in a footnote, explaining “Though my purpose is not to address directly the theoretical issue of the structure-action controversy, I will work within assumptions similar to Giddens.” In what amounts to the main contribution of this paper, these largely tacit assumptions will be made explicit.

There are three significant points of contact between communities of practice and structuration theory that facilitate the grounding of the former into the latter. These include: 1) the central role of social practices, 2) the importance of a fundamental duality (of participation and reification) through which the processes and structure of the community are maintained and changed over time, and 3) the extent to which identity is a critical outcome of the interactions among participants in the community.

1) Ongoing and routine practices are at the core of a CoP and, according to Wenger (1998, p. 47), the concept of practice involves action and interaction, but should not be seen in isolation. Members of a CoP always engage with each other in historical and social contexts that provide structure and meaning to what they do. For Wenger (1998, p. 47) “practice is always social practice.” Engagement in practices involves participation, which Wenger (1998, pp. 55-56) sees as "both action and connection" with “the possibility of mutual recognition ... [w]hat we recognize has to do with our mutual ability to negotiate meaning.” Engagement in practices also involves reification, or “the process of giving form to our experience by producing objects that congeal this experience into ‘thingness’,” an outcome that “is central to every practice” (Wenger, 1998, p. 58). In a CoP, therefore, practices are enacted within contexts that include structures and meanings that are created, maintained and sometimes changed by the community’s participants (Baker-Eveleth, Sarker & Eveleth, 2005). Social practices are therefore the first point of contact between structuration theory and CoP, playing a central role in both.

2) The second point of contact involves the presence of fundamental dualities in both structuration and CoP. In the case of the latter, participation and reification form two sides of the duality through which the processes and structure of the community are maintained and changed over time; this duality echoes the duality of structure described above and, according to Wenger (1998, p. 65),

… is a fundamental aspect of the constitution of communities of practice, of their evolution over time, of the relations among practices, of the identities of participants and of the broader organizations in which communities of practice exist.

Wenger (1998, p. 56) describes the duality more clearly focusing on the action and interaction that takes place in a CoP noting that “participation in social communities shapes our experience, and it also shapes those communities, the transformative potential goes both ways.” As a consequence of participation, when we interact with others in a CoP, we “recognize ourselves in each other” (Wenger 1998, p. 58), in fact, “our engagement with the world is social even when does not clearly involve interaction with others” (Wenger, 1998, p. 55). However, as members interact with each other, there is something else that is occurring that represents the other side of the duality. When we shape our experience through participation, we also “project our meanings into the world and then we perceive them as existing in the world, as having a reality of their own” (Wenger, 1998; 58). This is reification, an unintended consequence of participation that “produces abstractions, tools, symbols, stories, terms, and concepts that reify something of that practice in congealed form” (Wenger, 1998, p. 8). In this sense, reification has a dual nature as process and product, shaping our experience “in very concrete ways” (Wenger, 1998, pp. 59-60). As participants interact with each other and engage in informal situated teaching and learning in a CoP, the process of structuration is unfolding and, as Adler (2005, p. 12) points out, the “key point to remember about the co-constitution of agents and structures … is that it occurs in and through practice. CoPs, therefore, play a crucial role in the mutual construction of agents and structures.”

The duality of structure is an essential component in the life of a CoP and can account for its dynamism in terms of stability and change. The structure of the CoP is composed of rules and resources that are instantiated when participants draw upon them as they engage in routine social practices and “emerges from the engagement of members” (Baker-Eveleth, Sarker & Eveleth, 2005, p. 8). As a consequence, CoPs have stability because of the “reproduced relations between actors or collectivities, organized as regular social practices” (Berends, Boersma and Weggman, 2003, p. 1039). Dougherty (2008, p. 423) reinforces this insight, observing “people work naturally in communities of practice if they have ‘seeding structures’ such as rules, symbols, and perspectives that act as focal points around which they can identify and interact...” However, CoPs do change and one resource, knowledge, is deeply implicated in this process. Østerlund and Carlile (2003, p. 16) find that “in the everyday unfolding of practice … new structures continuously emerge, such as socially distributed repositories of knowledge.” The potential for change is an attribute of the background knowledge that constitutes CoPs and which can be drawn upon and instantiated as members engage in the participation and reification that characterize their social practices. As
the background knowledge on which individuals draw changes, they modify their understandings of their realities and discourses and thus may be able to form and participate in new practices. CoPs thereby help create, diffuse, select, and institutionalize knowledge that becomes the background of new practices (Adler, 2005).

3) A third point of contact between structuration and CoPs includes the processes of identity formation and maintenance, that provide the “glue” that holds these communities together (Hara, 2009) and are at the core of CoP. These processes play a role in structuration a basic assumption of which is that a largely unintended outcome of the structuration of social life is the development of individuals’ identities. Particularly when considering identity, Warren (2004, p. 27) sees a link between structuration and CoPs because the “development of a practice requires the negotiation of identity through engaging with and being acknowledged by a set of actors in a particular area of activity.” Østerlund & Carlile (2003), address this point of contact more directly, arguing that as participants interact within a CoP and carry out the social practices that characterize the community, they are negotiating and renegotiating their identities.

Taken together, these three points of contact indicate that an integration of CoP into structuration theory can provide a framework for empirical analysis of certain types of online communities.

CONCLUSION

There is much more socio-technical complexity to many digital spaces, such as online communities, than is often realized (Kling, Rosenbaum, and Sawyer, 2005). Such complexity means that the ICTs that support online communities and are used by participants are not isolated from the organizational and social contexts in which they are embedded. In fact, there is a strong bi-directional relationship between participation in online communities and the technologies on which participants and communities depend, similar to the bi-directionality described by Wenger (1998) who describes a mutual shaping and interdependence between participation in a CoP and, through reification, the community’s structure. In this sense, the structuration approach can provide insights into the mutual shaping between structure, seen here as technology, with its dual nature, and agency, seen here in the activities of participants, in the social context of the online community. Structuration theory provides a framework for understanding complex networks of people, ICTs, organizations, and their structured interrelationships and assumes that such a network can be best understood through the processes (rather than results) of social interactions among its heterogeneous components.

Using a structurational approach to ground the concept of communities of practice enhances researchers’ abilities to study online communities because they are sensitized at the outset to the dynamic interplay between structure and agency in digitally mediated social worlds. This is sensible because online communities can be seen as ICT-based CoPs within which heterogeneous components interact. Invoking the duality of structure, both in terms of a structurational conception and in terms of the participation and reification that characterize interaction in CoPs, researchers can attend to the sets of rules and resources that are relevant in these settings, seeking to understand the range of ways that people draw upon and enact these sets as they routinely interact, and to understand how people shape and are shaped by structural rules and resources. Invoking the duality of technology, a particularly significant structural resource in digital social spaces, researchers can look for instances in which people alter the ICTs they use and can attend to the ways in which ICT use shapes online interaction and the structure of online communities. They can also focus on the ways in which ICT use contributes to the persistence of online communities, enabling and constraining what people do in these communities.

REFERENCES

