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COMMUNITY COMMITMENT: HOW AFFECT, OBLIGATION, AND NECESSITY DRIVE ONLINE BEHAVIORS

Knowledge Management

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Abstract

Online communities have become a major medium for social interaction amongst Internet users. However, communities addressing similar topics often have a considerable overlap in resources, which makes them at least partial substitutes for each other. Given the ease with which these resources can be accessed, why would individuals choose to return repeatedly to one community, and indeed go on to invest additional time and energy in doing the voluntary work necessary to keep that community going? We draw on organizational commitment theory to propose an integrated framework for understanding why community members perform three essential kinds of voluntary behaviors – community citizenship behaviors, content provision, and audience engagement. Commitment theory argues that three kinds of bonds (affect-based, norm-based, and cost-based) may form between individuals and organizations, and we adapt this theory to an online community context. Our results indicate that each form of commitment has a contrasting influence on members' performance of voluntary behaviors in the community. Community citizenship behaviors are driven by affective and normative commitment, content provision by affective and continuance commitment, and audience engagement by continuance commitment alone. Using this established theoretical framework allows us to model and simultaneously test a range of motivations, thereby producing a more integrated perspective that offers greater precision in predicting a variety of important online behaviors.

Keywords: Online communities, virtual communities, virtual groups, commitment, online behavior

“Individual commitment to a group effort – that is what makes a team work, a company work, a society work, a civilization work.” – Vince Lombardi

Introduction

With widespread adoption of the Internet, finding like-minded individuals who share a collective interest has never been easier. Beginning with the birth of Usenet in 1979, the Internet has hosted an ever-increasing collection of tools that help people who share common interests connect with each other. Over time, these tools have led to the creation of online communities, each with its own purpose, leaders, members, social structures, community resources, and norms of interaction. Whether in the form of discussion groups, bulletin boards, chat rooms, list-servers, newsgroups, MUDs, or Wikis, the growth of these online communities has been explosive. For example,

Usenet discussions recently exceeded 2 terabytes a day, Big-Boards.com tracks 1,717¹ large bulletin-board based communities (each with over 500,000 posts), and over 90 million people are estimated to have participated in an online community (Horrigan 2001).

This tremendous growth has inevitably led to the creation of similar communities offering competing bundles of resources. For instance, in 2005 there were 257 Usenet newsgroups dedicated to discussing topics surrounding the Microsoft Windows XP operating system.² Because the information contained in online communities is often freely available, it is easy to imagine individuals surfing from site to site, consuming whatever information is accessible, and then moving on in search of better resources. A simple cost-benefit analysis would suggest that the lure of potentially higher quality information available at little incremental cost elsewhere might draw individuals into a series of fleeting connections that last only until the “best” information available at a given community has been consumed (Pirulli and Card 1999). Yet research shows online communities are not purely transient collections of spectators but instead include relatively stable groups of individuals who voluntarily engage in a variety of behaviors that keep the community functioning (Bagozzi and Dholakia 2002; Lee and Cole 2003). Even those individuals who merely lurk silently at the periphery also tend to gravitate towards a preferred set of communities over time (Horrigan 2001; Nonnecke and Preece 2003).

In a world characterized by low costs of switching between competing groups, such stability seems counter-intuitive. Why would some individuals choose to return repeatedly, investing their energy in one online community when many others – some surely superior – are often available? Further, why would some also choose to invest additional time and energy into doing the work necessary to keep the community going? A comprehensive answer to these questions has important implications for communities that must ultimately rely on individuals’ continued voluntary involvement in order to remain sustainable entities (Butler 2001; Hall 2001; Williams and Cothrel 2000).

A similar puzzle is evident in traditional employment relationships. Given the presence of alternative employers, employees acting as utility maximizers might be expected to leave their current job whenever a more lucrative position becomes available (Williamson 1985). A utility maximization perspective also implies that individuals would only carry out those job functions that they are contractually obliged to perform and for which they are compensated. While opportunistic behavior certainly does occur, the more theoretically interesting questions are why the presence of economically superior alternatives sometimes does not lead employees to change jobs, and why some go beyond what is expected of them by performing uncompensated extra-role work. These questions are even more important in an online community context, where opportunistic behavior amongst community members is more likely as participation is voluntary, alternatives are more abundant, and the costs of leaving (both in terms of effort and disruption) are relatively lower.

One key explanation for relatively low levels of job switching is that an individual’s commitment to his or her organization can result in employment stability even when higher-paying jobs are available, and can also lead to considerable variation in behaviors performed (Meyer and Allen 1991; Meyer and Allen 1997; Mowday 1998). Research in this area has found that three types of commitment (affective, normative, and continuance) offer powerful and unique explanations for the bonds that develop between individuals and organizations (Meyer et al. 2002; Rhoades and Eisenberger 2002). This research provides a particularly appropriate theory base for understanding individuals’ voluntary behavior in online communities, as commitment studies originated with researchers’ desire to explain why volunteers at non-profit organizations varied in their level of dedication to their organization (Meyer and Allen 1997). In this paper, we argue that these three kinds of commitment – affective, normative, and continuance – may also develop between individuals and online communities, and are likely to predict a range of online behaviors.

To adapt commitment theory to an online community setting, we first identify three classes of essential community behaviors: community citizenship behaviors, content provision, and audience engagement. We then build on the Meyer and Allen (1991) theoretical framework to hypothesize how each form of commitment influences each community-supporting behavior. Rather than offering a single explanation for why individuals may remain loyal to their communities, this approach provides a more robust and nuanced framework for understanding membership stability in the presence of abundant alternatives. We test our model with survey and archival data from a well established online community, and present an empirical analysis revealing interlocking patterns of online behaviors

¹ Accessed April 20, 2006 from www.big-boards.com.

² Accessed April 6, 2006 from <http://netscan.research.microsoft.com/>

that provide a rich explanation for the self-sustaining nature of many online communities. We close with a discussion and implications for researchers and community administrators.

Core Community Behaviors

In order to remain sustainable entities, all communities ultimately rely on individuals' continued involvement (Wasko and Faraj 2000; Williams and Cothrel 2000), which can include a wide range of behaviors (Kim 2000). We identified three types of behaviors frequently discussed in the literature as being important for the viability of online communities:

- (a) *Community citizenship behaviors*, or the development and propagation of community norms, and encouragement of socially appropriate conduct (Ahuja and Galvin 2003; Bergquist and Ljungberg 2001; Johnson 1997; Kim 2000; Leimeister et al. 2005; Preece 2004; Preece and Ghozati 1998; Wasko and Faraj 2005).
- (b) *Content provision*, or the contribution of valuable resources in the form of posting information and/or knowledge for public consumption (Constant et al. 1994; Hall and Graham 2004; Kollock and Smith 1996; Lakhani and von Hippel 2003; Lee and Cole 2003; Wasko and Faraj 2000).
- (c) *Audience engagement*, or the consumption and/or use of resources made available through the community (Katz 1998; Kollock and Smith 1996; Nonnecke and Preece 2000; Nonnecke and Preece 2001; Nonnecke and Preece 2003).

In the remainder of this section we describe each of these behaviors in greater detail, noting their importance to community functioning and how each behavior can be instantiated.

Community Citizenship Behaviors

Social collectives often self-organize through the development of norms – that is, jointly held beliefs about what individuals ought to do in certain circumstances (Ouchi 1980). These serve in part to limit individuals' ability to act in purely self-interested ways, which if left unchecked could disrupt community functioning (Wasko and Faraj 2005). Created and shared by members, community norms serve as informal rules and guidelines for appropriate behavior in the community – such as how to make useful, focused comments or ask questions – as well as signaling what is inappropriate – such as spamming, flaming, or making off-topic postings. After repeated exposure to behaviors consistent with these norms, members internalize them and use them in more complex forms of social judgment – for instance, to understand the meaning implicit in a certain rhythm for interaction, or to identify hierarchies of status or expertise (Smith 2002; von Krogh et al. 2003).

The source of community norms is a crucial factor in the success of an online community (Kim 2000). Communities that are able to organically develop a stable set of norms and regulate them through members' efforts are likely to be more successful than those whose norms are imposed by moderators or site owners (Preece 2004). Community citizenship behaviors are the activities through which members develop and propagate community norms, which include both social encouragement and social control. Social encouragement occurs when a member promotes desirable behaviors by recognizing others who contribute especially informative and supportive messages, or who create interesting, useful group activities (Kim 2000). Social control reflects members' efforts to shape others' behaviors in ways consistent with community norms – for instance, by managing disputes, discouraging discussion topics outside the stated focus, preventing exploitation of members, or reprimanding those who engage in inappropriate behavior (Butler et al. forthcoming). Because of the crucial importance of internally generated and broadly accepted community norms (Johnson 1997), community citizenship behaviors that foster and reinforce these norms are key to the long-term viability of a community.

Content Provision

Although individuals are initially drawn to online communities by a desire to interact with like-minded others (Connelly and Thorn 1990; Wasko and Faraj 2000), whether they return is significantly influenced by the quality of the content available through a community (Armstrong and Hegel 1996; Lakhani and von Hippel 2003). High-quality messages, discussions, and archives are crucial. Yet because this content comes from individuals who stand to benefit from others' contributions but not necessarily their own (Connelly and Thorn 1990), the issue of under-

contribution arises (Kollock and Smith 1996). Indeed, whether members are willing to contribute timely, high-quality content is vital to an online community's success or failure (Lee and Cole 2003; von Krogh et al. 2003).

Because content provision creates a resource that has considerable attraction and retention power, it is arguably one of the most important behaviors performed by online community members. Content provision is the behavior by which a member contributes valuable resources in the form of posting information and/or knowledge for public consumption. It can take a variety of forms, such as answering another member's questions, providing useful information, or adding comments to existing conversation threads. While content provision is clearly a function of both quantity and quality, research often focuses on the former and ignores the latter. Yet it is only when content is read by others that contributions provide benefits to others and have the potential to significantly impact the community, while posts that are ignored provide no benefits. Contributions that are read are also more likely to stimulate new conversations and encourage future contributions, both of which contribute to a community's ability to remain viable over time.

Audience Engagement

While the creation of content is essential to a community's success, it is only one side of the communication equation; communities would not exist without members who visit and spend time reading each others' contributions. Audience engagement behaviors are the activities by which an individual consumes (i.e., reads) the resources made available in a community. Having many members who frequently visit a site signals to others that the community is active and vibrant, with a critical mass of like-minded individuals (Markus 1990). It also suggests that others have implicitly affirmed the value of the community by investing their own time consuming its resources, and that there is a diverse population with whom to engage in conversations and establish social bonds.

Although those who only read without contributing are often perceived as a resource drain on a community, reading content is an important aspect of community life. Members are unlikely to expend effort to contribute content if they do not believe it will be utilized (Hall 2001); an audience is therefore necessary to motivate individuals to contribute. Individuals also learn more about others as they consume their content, which can stimulate interactions, build social bonds, and make future conversations more interesting and sustained (Bagozzi and Dholakia 2002). Audience engagement behaviors are thus integral to long term community viability.

Research Model

A central focus of research in organizational behavior has been to provide theories of organizational membership – that is, why individuals choose to join organizations, and once they join, why they stay. Work focused on understanding individual commitment has produced a rich body of research that examines individuals' enduring desire to maintain a relationship with an organization (Mowday 1998). In their seminal work, Meyer and Allen (1991) conceptualized organizational commitment as a psychological link that characterizes an individual's relationship with an organization, and has implications for individuals' decisions to continue or discontinue membership in the organization (p. 67). Meyer and Allen (1991) proposed that commitment was not a uni-dimensional construct. Instead, they argued that most commitment research pursued one of three common themes, namely individuals' feelings of attachment to the organization, their sense of normative obligation to the organization, or their perceptions of the costs of leaving the organization. Meyer and Allen thus sought to settle some of the ongoing debates in the commitment literature by arguing that organizational commitment was best conceptualized as a multidimensional construct consisting of three components: *affective* commitment, *normative* commitment, and *continuance* commitment. Applying this theoretical framework to understanding the relationships that arise between individuals and online communities is a natural extension of this work. Indeed, early commitment researchers were motivated by a desire to explain why volunteers at non-profit organizations varied in their level of dedication to their organization (Meyer and Allen 1997). As online communities also rely heavily on volunteers, this literature provides an appropriate theory base for understanding what motivates the voluntary behaviors that occur in online communities.

Although each form of commitment has a different underlying theoretical rationale (Meyer et al., 2002), they are not mutually exclusive; indeed, individuals can simultaneously possess different levels of each type of commitment. Affective commitment refers to an individual's emotional attachment to, identification with, and involvement in an organization (Meyer and Allen 1991, p. 67). Individuals with high levels of affective commitment like their organization and *want* to continue as employees. Affective commitment may develop through social exchange

processes that lead individuals to trust their organization (Cook and Wall 1980), feel fairly treated (Ricketta 2002), and feel supported by their organization (Eisenberger et al. 1990). It is also more likely to occur when individuals and organizations share similar values (Griffeth et al. 2000; O'Reilly et al. 1991), when individuals feel their contributions are important and valued by the organization, and when they believe they can fulfill their personal needs and goals through the employment relationship (Masterson and Stamper 2005). Such effects may also occur in online communities; for example, an affective bond with a community may be formed when individuals share the community's values, trust its leaders and members, see that they are fairly treated, and find their community involvement to be personally gratifying.

Normative commitment is a second distinct form of commitment that reflects an individual's felt sense of obligation to continue employment. Individuals with a high level of normative commitment feel they *ought* to remain with an organization (Meyer and Allen 1991, p. 67). Normative commitment is influenced through several processes. First, as new members are socialized, they learn about a particular set of values held by others within the organization. These values often stress loyalty (Wiener 1982) and obligation (Ashforth et al. 1998), and may over time become internalized by an individual and adopted as his or her own values. Second, feelings of obligation may result when individuals believe they have received benefits from an organization that exceed what they deserved. When individuals are unable to adequately reciprocate for these received benefits (Gouldner 1960), they can experience a sense of discomfort because they feel indebted, which may in turn produce normative commitment. In an online community context, members may therefore experience normative commitment to an online community if socialization processes instill a sense of loyalty and obligation, or if norms of reciprocity leave individuals feeling indebted.

Finally, continuance commitment focuses on the consequences of an individual's awareness of the costs associated with leaving an organization. Individuals with a strong continuance commitment *need* to remain with their organization because they feel that the net cost of leaving is too great (Meyer and Allen 1991, p. 67). Continuance commitment is a function of individuals' perceptions of the costs (both social and economic) of leaving, the benefits associated with remaining, the alternatives available, and the associated feelings of dependence on the organization. Individuals may believe they have invested too much time and effort developing organization-specific knowledge or status to leave (Whitener and Walz 1993). Believing few viable alternatives exist also increases continuance commitment (Meyer and Allen 1997). Continuance commitment may therefore arise in an online community context as individuals invest their effort into one community, believe that its resources have unique value to them, and develop a felt dependence on that community.

Each type of commitment has been found to produce a unique set of effects across behaviors such as in-role performance (Angle and Lawson 1994; Somers and Birnbaum 1998), attendance (Somers 1995), turnover intention (Jaros 1997), citizenship behaviors (Bateman and Organ 1983; Organ and Ryan 1995), and employee well-being (Thompson et al. 1998). In the remainder of this section, we build on past research to propose that each form of commitment has an equivalent in an online community setting, and that each of these will have a unique pattern of effects on individuals' levels of community citizenship behaviors, content provision, and audience engagement.

Community Citizenship Behaviors

Organizational citizenship behaviors (OCBs) are discretionary individual behaviors that, while not being explicitly recognized by the formal reward system, nonetheless contribute to the effective functioning of an organization (Organ 1998, p. 4). OCBs are key to an organization's success because they shape the organizational and social contexts that support a company's primary activities (Organ and Ryan 1995). In traditional organizations, OCBs include being involved in the socialization of new employees, providing extra help to co-workers, volunteering for special activities, being particularly considerate of co-workers, and providing assistance when problems arise. These resemble several types of behaviors performed in online communities, including welcoming new community members, participating community building activities, praising a member's contributions, or reprimanding other members engaged in inappropriate behavior (e.g. flaming, spamming, or making off-topic posts). As with OCBs in traditional organizations (Podsakoff et al. 2000), the performance of these extra activities by community members has been identified as essential to community functioning (Kim 2000).

Affective commitment has consistently been found to be a strong predictor of OCBs across a broad range of contexts (Meyer et al. 2002; Organ and Ryan 1995). Individuals who like their organization have its best interests in mind and are more likely to go beyond the call of duty when interacting with co-workers and stakeholders. Their emotional connection to the organization leads them to hold at least some of the organization's values and goals as

important (O'Reilly et al. 1991), which may motivate behaviors that will help sustain those values and/or move the organization towards those goals (Meyer and Allen 1991). At the very least, individuals who enjoy their jobs will be more strongly motivated to maintain the status quo than would individuals who do not enjoy their jobs, as the status quo has an emotionally satisfying effect on them that they would seek to preserve.

Affective commitment amongst members of an online community is likely to produce a similar influence on community citizenship behaviors. Members grow to like and enjoy a community for a variety of reasons including the presence of informative and well-organized conversation streams, an engaged member base, and high-quality personal interactions (Preece 2004). Whatever the specific characteristics that produce an affective response – which are likely to vary from group to group – members who like a community will be motivated to engage in behaviors that contribute to maintaining these characteristics over time. Since these characteristics are often perpetuated through social structures and norms, members who seek to sustain the desirable aspects of a community will actively promote its norms and values, both by encouraging behaviors that are consistent with the community's norms and discouraging inappropriate behaviors.

H1: A member's level of affective commitment will positively influence his or her level of community citizenship behaviors.

While the influence of affective commitment has been widely investigated in a range of organizational settings, there has been relatively less attention paid to the impact of normative commitment. In general, studies have found that normative commitment exhibits a similar but somewhat weaker influence on OCBs than does affective commitment (Meyer and Allen 1997; Meyer et al. 2002). Individuals with high levels of normative commitment feel obligated to help others because they believe it is the right thing to do for the organization (Meyer and Allen 1991). The internalization of organizational norms that promote these pro-social behaviors leads individuals to act in ways that appear to be relatively selfless, going above and beyond their job descriptions because of a sense of obligation to assist others, indebtedness, and/or the belief that social norms support such loyal and selfless behavior (Podsakoff et al. 2000).

Normative commitment is likely to produce similar effects amongst members in an online community setting. It may arise through formal processes, such as sub-forums that are specifically intended to socialize new members, semi-formal interventions by moderators to reinforce norms, or informal norm reinforcement by other members as they recognize quality contributions or reprimand individuals who behave inappropriately. All but the very newest members have been exposed to others' community citizenship behaviors at some point during their tenure in a community. Through these interactions, members learn and internalize these norms of (often selfless) assistance, and may over time grow to believe that just as they have been helped in the past, it is their obligation to help others in the future. Through this sense of obligation, normative commitment is likely to lead individuals to engage in community citizenship behaviors that help to satisfy their felt obligation to the community.

H2: A member's level of normative commitment will positively influence his or her level of community citizenship behaviors.

Research into the effect of continuance commitment on OCBs has reported mixed results, with some finding no relationship (Meyer and Allen 1997; Meyer et al. 2002) and others suggesting a negative relationship (Shore and Wayne 1993). In an online community context, individuals whose primary rationale for remaining part of a community is one of net costs and benefits are unlikely to be motivated to increase their costs by engaging in community citizenship behaviors. Indeed, a pure effort/reward calculation would lead members to seek maximal benefits while minimize their own efforts (Hardin 1968). Particularly because many of the benefits associated with a community are available to members regardless of whether they engage in community citizenship behaviors, those with a strong continuance commitment are likely to invest little time and effort in behaviors they deem to be unnecessary. A high level of continuance commitment is thus likely to lead to lower levels of community citizenship behaviors.

H3: A member's level of continuance commitment will negatively influence his or her level of community citizenship behaviors.

Content Provision

Content provision, whether in the form of posting replies to existing threads or starting new threads, is one of the central activities in any online community. Communities that fail to provide interesting discussions, answers to

questions, or social support in response to stated needs will be unable to provide the benefits that individuals seek (Butler 2001). Contributing content is thus a central part of what it means to be an active participant in an online community. This type of community work parallels that of in-role job performance in traditional organizations, which affective commitment has consistently been found to predict (Angle and Lawson 1994; Meyer et al. 2002; Somers and Birnbaum 1998). Individuals who like their organizations are more apt to take responsibility for performing their job functions well, as a way of securing their ongoing relationship with the organization. This positive association would also be expected to exist in an online community setting. Members who like their community wish to maintain their enjoyable relationship with it, which will motivate them to work to sustain the group and maintain their involvement as a visible member – that is, contributing to the ongoing dialogue that constitutes the community.

H4: A member's level of affective commitment will positively influence his or her level of content provision behaviors.

Normative commitment reflects an individual's desire to do what is right, and it has a positive effect on job performance (Meyer et al. 2002). Similarly, a range of related pro-social constructs that tap into this idea of doing what is best for the greater good have been found to influence contribution behaviors, including empathy (Preece and Ghazati 1998), altruism (Lakhani and von Hippel 2003; Wasko and Faraj 2000), and reciprocity (Constant et al. 1994; Wasko and Faraj 2005). Individuals are more likely to contribute their own information when they have a sense of normative obligation or loyalty to the community. Further, members who have received benefits from the community often feel obliged to reciprocate (Hall and Graham 2004). Members who believe that being part of a specific community is the right thing to do, as a result of being socialized into community norms and values or through a felt obligation to reciprocate, are more likely to contribute content to the community.

H5: A member's level of normative commitment will positively influence his or her level of content provision behaviors.

The opportunistic perspective that drives continuance commitment holds calculations of cost and benefits as determinants of whether an individual will remain in an organization or leave it. In an online community setting, similar calculations may drive behavior (Kollock and Smith 1996), although the nature of costs and benefits would differ. For instance, one of the primary benefits associated with using an online community is access to its content and information (Lakhani and von Hippel 2003). There is an incentive to free-ride by consuming information without contributing any of one's own, as contributing takes time and effort (Connelly and Thorn 1990). The effort required to contribute content serves as a disincentive to potential contributors who have a strong continuance commitment. As a result, such individuals are likely to avoid behaviors that increase their costs without producing beneficial effects. Content provision behaviors are thus likely to be avoided by individuals who have high levels of continuance commitment.

H6: A member's level of continuance commitment will negatively influence his or her level of content provision behaviors.

Audience Engagement

Online communities are public forums for communication that function only when there are both content providers and individuals who use the content (i.e., an audience). Though a single individual can be both a provider and consumer of content, the role of audience member is vital for completing the online conversation equation. Being an audience member involves both being present and reading the content generated by others, and both these behaviors are more likely when they are enjoyable. Affective commitment is a strong predictor of voluntary organizational attendance (Hackett et al. 1994; Meyer and Allen 1997), and a similar association is likely between affective commitment and frequency of voluntary visits to a community. Further, individuals who enjoy being part of a community have developed positive affect over time through their utilization of community resources, and their positive expectations will lead them to continue these enjoyable encounters in the future. Together this suggests a positive association between affective commitment and audience engagement behaviors.

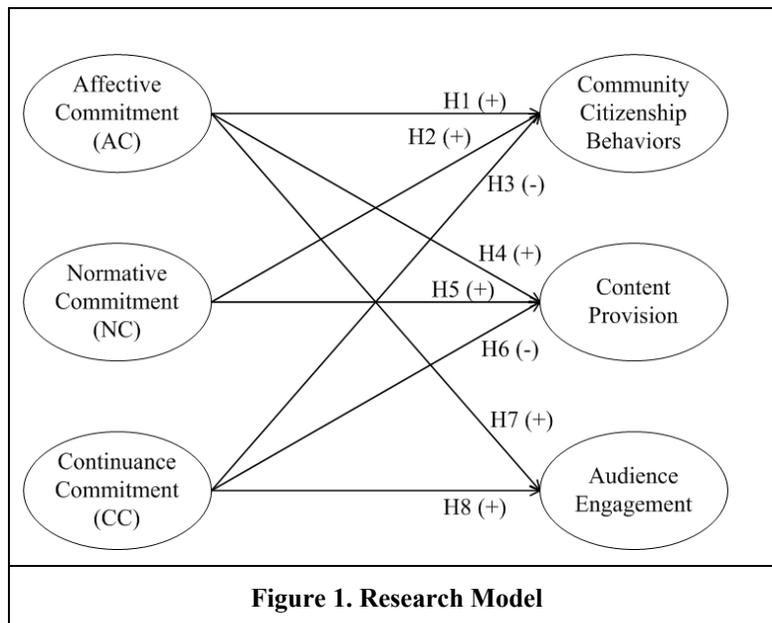
H7: A member's level of affective commitment will positively influence his or her level of audience engagement behaviors.

A strong continuance commitment reflects an individual's belief that leaving an online community would result in a costly forfeiture of informational and social benefits. While there is some evidence suggesting individuals may

derive personal benefit from participating in other ways, the majority of individuals obtain benefits by reading an online community’s content, messages, and discussions (Butler et al. forthcoming). For such individuals, continued access to these benefits is a strong motivator of their ongoing engagement with the community. The same kind of logic that motivates them to stay is also likely to lead them to try to maximize those benefits by being regular and engaged audience members. Therefore, continuance commitment is likely to predict how frequently a member visits the community and consumes its content.

H8: A member’s level of continuance commitment will positively influence his or her level of audience engagement behaviors.

Finally, we considered the possibility that normative commitment would predict audience engagement, but a detailed reading of the organizational commitment literature provided no strong support for either a positive or negative effect. We therefore do not hypothesize an association between the two, but did model normative commitment as a control variable predicting audience engagement to validate the lack of association between the two. The remaining eight hypotheses are depicted visually in Figure 1.



Research Method

Data to test the research model was collected at BroadForum (a pseudonym), an online community with 54,198 registered members, 3,427,761 posts contained in 232,768 threads, that together have been viewed a total of 42,367,003 times at the time of our study. BroadForum operates on a commercial bulletin board platform (vBulletin), and promotes itself as a true “general discussion” community with the goal of attracting and bringing together a diverse group of individuals. The breadth of discussions on BroadForum reflect this goal, covering a diverse range of topics, such as: current events, entertainment, fashion, politics, technology, anime, as well as many others topics. The BroadForum owner/administrator cooperated with this research and actively endorsed it to his membership to mitigate issues related to our survey invitation being perceived as unsolicited spam, which is a common problem in studies of online communities (Andrews et al. 2003; Ridings et al. 2002). Subjects were solicited to participate via an invitation message made in a new thread posted to several BroadForum forums (as recommended by Andrews et al. 2003). The message included a description of the project, an endorsement by the BroadForum administrator, and an invitation to complete an online survey in exchange for the chance to win a gift certificate from a popular online retailer. Follow-up postings were made by the BroadForum administrator after 7 days and by the researchers after 4 more days. In total, the survey data collection period ran for 14 days.

Respondents

Of the 741 individuals who accessed the survey site, 324 went through the entire survey. We removed those who left a large number of questions unanswered, and those under 18 years of age (instructions requested that only adults participate), resulting in a final dataset of 192 adult community members. Following established procedures for calculating response rates in surveys of online communities (Ridings et al. 2002) produced a response rate of 25.9% of individuals who accessed the survey site. Respondents ranged in age from 18 to 53 years of age, with a mean age of 23.5. Tenure as a registered member of the community ranged from 6 to 671 days, with a mean tenure of 360 days. Eighty-four percent of respondents were male. The largest proportion of respondents reported spending between 2 and 4 hours daily using the Internet and online communities.

Measures

We developed a survey instrument for measuring four of the constructs shown in Figure 1 following Dillman's (2000) approach. Items measuring affective, normative, and continuance commitment based on Meyer and Allen's (1993) established commitment scale were adapted to an online community setting. Items measuring community citizenship behaviors were adapted from Butler et al. (forthcoming) in the form of measures of social encouragement and social control. Following Bagozzi and Heatherton (1994), we averaged responses to the items used to measure social control and social encouragement to produce two combined measures that could be used to directly model community citizenship behaviors. All attitudinal items were measured on a 7-point Likert scale anchored on "1 = strongly disagree" and "7 = strongly agree". All items in the instrument were first vetted and refined by the three authors, and then were pre-tested via a card sort procedure (Moore and Benbasat 1991) administered to 5 business school PhD students. The revised items were then further refined in a pilot study performed in three different online communities, with a total of 285 completed responses. The final items used in this study are shown in the Appendix.

We gathered non-subjective archival data from logs produced by BigForum's servers 16 weeks after the completion of the survey; all data spanned these sixteen weeks only, and not for any prior period. Measures of the content provision construct were (a) number of threads started by a member, (b) number of replies posted by that member, and (c) number of times others viewed a thread started by that member. Measures of the audience engagement construct were (a) number of times a member visited the community and (b) number of threads viewed by that member. These non-subjective measures of content provision and audience engagement were used as individual indicators of their respective constructs. We also gathered demographic data about all respondents (gender, age, tenure), and included these variables as control measures by modeling them as antecedents of the three dependent variables.

These data were employed in a simultaneous test of structural and measurement models using Partial Least Squares (PLS Graph, Version 3.00). We assessed the adequacy of the measurement model using three common tests of convergent validity (Chin 1998; Hulland 1999). First, after dropping three items that loaded poorly (CC1, CC2, and NC3), all loadings of the remaining items on their intended constructs were greater than 0.7, indicating that there was more shared variance between a construct and measure than error variance (Carmines and Zeller 1979). Second, we assessed the internal consistency of each construct using composite reliability (Werts et al. 1974), and found that the lowest to be 0.86, well in excess of Nunnally's (1978) 0.7 guideline. Third, we calculated average variance extracted (Fornell and Larcker 1981) for each scale, which measures the average amount of variance that a construct captures from its indicators relative to the amount due to measurement error. All scales exceeded Chin's (1998) guideline of 0.5, meaning that at least 50% of variance in indicators was accounted for by its respective construct. Table 1 provides the results of these measurement model analyses.³

³ Archival data (number of replies, number threads started, number replies on threads started, number visits, number threads viewed) was highly skewed, as is typical in community user data (Butler 2001); we therefore calculated the logarithm of these variables.

Table 1. Convergent and Discriminant Validity

		# of Items	Response Mean	Std. Dev.	Cronbach's Alpha	Internal Consistency	AVE	1	2	3	4	5	6	7	8	9
1	Affective Commitment	5	4.70	1.40	0.92	0.94	0.76	0.87								
2	Normative Commitment	4	3.50	1.64	0.90	0.93	0.78	0.52	0.88							
3	Continuance Commitment	3	5.13	1.42	0.81	0.89	0.72	0.51	0.30	0.85						
4	Community Citizenship Behavior	2	4.87	1.13	0.67	0.86	0.75	0.27	0.12	0.22	0.87					
5	Content Provision	3	n.a.	n.a.	0.90	0.95	0.87	0.51	0.39	0.35	0.24	0.93				
6	Audience Engagement	2	n.a.	n.a.	0.96	0.98	0.97	0.19	0.05	0.16	0.13	0.76	0.98			
7	Gender	1	0.84	0.36	n.a.	n.a.	n.a.	0.00	0.01	-0.08	-0.07	0.28	0.40	1.00		
8	Age	1	23.5	7.37	n.a.	n.a.	n.a.	-0.03	0.00	0.04	0.00	-0.17	-0.26	-0.39	1.00	
9	Tenure (days)	1	360.0	208.7	n.a.	n.a.	n.a.	0.13	0.09	0.02	0.04	0.16	0.35	0.33	-0.17	1.00

¹ Diagonal elements are the square root of Average Variance Extracted

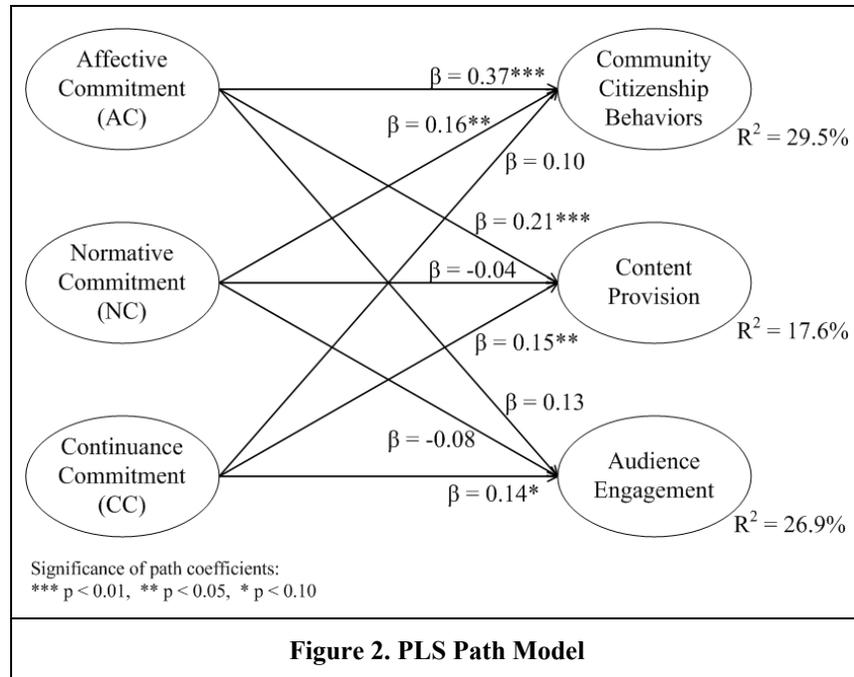
² All correlations less than -0.16 or greater than 0.16 are significant at the p<0.05 level

To assess discriminant validity, we examined the correlations of items with their intended constructs and found that all items correlated most strongly with their intended construct. We also noted that the square root of AVE for each construct (see Table 1) exceeded all respective inter-construct correlations, providing further evidence of discriminant validity.

Data Analysis and Results

We tested our hypotheses by examining the size and significance⁴ of structural paths in the PLS analysis and the percentage of variance explained. These results are reported in Figure 2.

⁴ PLS produces standardized regression coefficients for structural paths. Bootstrapping techniques, a nonparametric approach for estimating the precision of paths, were used to test for significance using 500 re-samples.



First, the model explained 29.5% of the variance in community citizenship behaviors. Affective commitment (H1, $\beta = 0.37$, $p < .01$) and normative commitment (H2, $\beta = 0.16$, $p < .05$) both significantly influenced community citizenship behaviors as hypothesized, while continuance commitment did not (H3, $\beta = 0.10$, n.s.).

Second, the model explained 17.6% of the variance in content provision. Affective commitment (H4, $\beta = 0.21$, $p < .01$) and continuance commitment (H6, $\beta = 0.15$, $p < .05$), both significantly influenced content provision. Surprisingly, the effect of continuance commitment was positive, which was opposite to the negative effect hypothesized. Normative commitment did not influence content provision (H5, $\beta = -0.04$, n.s.).

Lastly, the model explained 26.9% of the variance in audience engagement. Only continuance commitment (H8, $\beta = 0.14$, $p < .10$) significantly influenced audience engagement, as hypothesized, while affective commitment did not (H7, $\beta = 0.13$, n.s.). While we did not hypothesize an effect of normative commitment on audience engagement, we did test for this possibility and confirmed that there was no significant relationship between the two ($\beta = -0.08$, n.s.).

Control variables were significant in some instances; gender significantly predicted content provision ($\beta = 0.26$, $p < .01$) and audience engagement ($\beta = 0.30$, $p < .01$), but not community citizenship behaviors ($\beta = -0.06$, n.s.). Tenure significantly predicted audience engagement ($\beta = 0.23$, $p < .01$), but neither community citizenship behaviors nor content provision. Age did not significantly influence any dependent variable.

Discussion and Implications

Online communities produce benefits to individuals and organizations (Cothrel and Williams 1999) through their members' voluntary efforts. The possibility that affect, norms, and costs might influence these voluntary efforts has been noted – often tangentially – in the literature, but these have not previously been conceptualized as individual-community bonds that motivate specific behaviors. In addition to integrating these into a framework of community commitments, our study also highlights the importance of investigating a broad set of online behaviors. By theorizing the effects of affective, normative, and continuance commitment on three different types of online behaviors, we expanded on past research to offer a more comprehensive model of individuals' relationships with their online communities. We also demonstrated that each form of commitment has unique explanatory power, and that these are not simply alternate explanations for the same thing. Indeed, past studies of online communities may well have over-stated the breadth of influence of each of these lines of motivational logic; in contrast, this study had produced highly discriminating results by clearly identifying which motivations produce particular kinds of online behaviors. In the remainder of this section, we discuss their unique patterns of effects across the three types of

behaviors, and suggest implications for community administrators and for researchers who investigate online communities.

Community Citizenship Behaviors

Our findings paint a picture of community citizenship behaviors as being driven by two distinct forms of individual-community bonds. Members with a strong affective commitment report an emotional attachment that motivates them to shape others' behaviors in ways that support continued operation of the community. In addition, members' normative sense of obligation to the community also leads them to propagate community norms. Interestingly, our analysis indicates that – at least in the BroadForum community – affective commitment ($\beta = 0.37$) had a stronger influence on community citizenship behaviors than did normative commitment ($\beta = 0.16$). Members' identification and emotional bond with a community led them to offer more social encouragement and control than did their sense of obligation to the community. This suggests that attempts to promote social encouragement and control behaviors will be more effective when accomplished indirectly. Rather than trying to directly instill a sense of obligation in members, administrators might be more successful if they focus their efforts on building members' emotional sense of connection with the community. For example, this might be achieved by encouraging mutual respect and accountability to foster trust amongst members, focusing the community on an elevating vision or goal, and/or promoting a sense of group identity to which individuals can connect.

Audience Engagement

In contrast to citizenship behaviors, audience engagement was influenced by neither affective nor normative commitment. However, as hypothesized, audience engagement was associated with continuance commitment. To expand on this finding, we conducted several post-hoc regression analyses (omitted due to space limitations) to tease apart effects on individual archival variables, and found continuance commitment to have a strong effect on the number of posts viewed by an individual ($\beta = 0.18$, $p < 0.05$), but no significant effect on the number of visits ($\beta = 0.11$, n.s.). Members who value a community primarily for the net benefits it provides did not visit more frequently than others, but when they did visit, they were more likely to read broadly. Taken together these results suggest the decision to participate in a community as an audience member is linked more tightly to the benefits a member receives than to larger social consideration of the community as a whole.

Content Provision

As predicted, affective commitment positively influenced members' content provision behaviors. Individuals who had a stronger sense of group membership and an emotional connection with the community were more inclined to participate in the community's ongoing conversation. Post-hoc testing revealed that such individuals started more threads ($\beta = 0.17$, $p < 0.10$) and replied to more posts ($\beta = 0.19$, $p < 0.05$). Their affective bond with the community led them to create more content, both unsolicited and in response to others' requests and prompts. Individuals with higher affective commitment also started threads that were read more often by others ($\beta = 0.19$, $p < 0.05$), suggesting that their threads may have been seen as more relevant or interesting by other members. Whether this is due to a greater attention to others' interests and needs, a greater willingness to customize contributions to those needs, or greater visibility or credibility of these individuals within the community, this implies that the content contribution efforts of individuals with higher affective commitment are more tightly embedded within the community as a whole.

Interestingly, we found that normative commitment had no influence on content provision behaviors. This contrasts with research that has found that feelings of obligation – empathy (Preece and Ghazati 1998), altruism (Lakhani and von Hippel 2003; Wasko and Faraj 2000), and reciprocity (Constant et al. 1994; Wasko and Faraj 2005) – influence sharing behaviors in online settings. On one hand, methodological variation may account for the different findings, with the self-reported contribution measures and self-reported reasons for contributing typically used in other studies perhaps being biased towards the socially acceptable association of obligation and contribution. Our use of archival behavior data may therefore explain some of this discrepancy. More substantively, studies also differ with respect to the focal point of an individual's sense of normative obligation (another individual versus a specific group or community versus generalized altruism or reciprocity without a focus). While these differences complicate comparison across studies, they also raise questions about the interplay between different types of normative obligations. For example, it may be that normative obligations incurred at the individual level do not transfer to the community as a whole, or that this transference may be mitigated by other factors (e.g. affective commitment to the

community). Improving our understanding of this potentially complex interplay remains an intriguing challenge for future research.

Most surprisingly, our results indicated that continuance commitment *positively* influenced content provision behaviors. Initially, this finding seems to contradict the idea that individuals motivated to maximize benefits and minimize costs will tend to free-ride and hence be unlikely to contribute content. However, post-hoc analyses revealed a more nuanced explanation. Continuance commitment predicted how frequently a member posted a new thread ($\beta = 0.19, p < 0.05$), but not how frequently he/she replied to messages ($\beta = 0.13, n.s.$) or how frequently others viewed threads started by him or her ($\beta = 0.12, n.s.$). The contribution behaviors of individuals high in continuance commitment therefore differed substantially from those with high affective commitment. Similar to its effect on citizenship behaviors, affective commitment may lead individuals to be more sensitive to the needs of the broader community, and as such their contributions are more likely to be situated in the community as a whole. Alternately, continuance commitment seems to be associated with contribution behaviors that are more likely to be unsolicited and unrecognized, suggesting that they are more closely linked to the needs and interests of the individual, and hence have more in common with audience engagement behaviors. High affective commitment is associated with behaviors that are done *with* or *for* the community, while high continuance commitment is linked with activities that are done *in* the community.

Limitations

This study is subject to several important limitations, the first of which concerns methodology. While two of the three dependent variables used in this research were derived from archival data collected after respondents completed the survey, one of the dependent variables was self-reported. The results for H1 – H3 are therefore subject to the typical limitations of cross-sectional, survey-based research. More generally, the fact that data were gathered from a single online community (albeit a general interest community) calls into question the generalizability of our results, which only repeated replication in other communities can determine. Similarly, our sample of active community members was made up of self-selected respondents, and may not be representative of all community members. In particular, it is possible that our sample may be biased towards members who are highly committed to the BroadForum community. However, since respondents vary significantly in terms of their commitment scores, community involvement behaviors, and time with the community it seems unlikely that the results arise purely for this reason. Finally, while we know nothing about individuals who read the invitation but chose not to access the survey web site, our ability to track how many times invitations were viewed, and surveys started and completed allowed us to calculate a reliable response rate, thereby providing better metrics than is typical in online data collection efforts (Andrews et al. 2003).

Implications for Research

Our research confirmed the importance of affective commitment but also provided strong evidence for the significance and impact of continuance commitment – the latter being something that has typically been ignored or seen as far less valuable in the literature. Additionally, the effects of normative commitment seemed considerably weaker than a reading of the literature on reciprocity and online social norms would have predicted. Together these results raise a variety of questions about the nature and impact of commitment in online communities. The analysis presented above treated the different forms of commitment as largely independent factors in shaping individuals' participation in an online community. In particular, affective commitment and continuance commitment may be associated with very different styles of community involvement. However, this leaves unanswered questions of how these types of commitment interact to shape individuals' behavior. Does affective commitment and its associated approach to community participation override continuance commitment and an individually focused involvement style? Perhaps continuance commitment and its associated style of community engagement precede the formation of an affective bond. Additional research is needed to better understand how these types of commitment interact to shape an individual's participation in a community. As communities are fundamentally collective enterprises, research is also necessary to understand the interaction between collections of people having these different kinds of motivations and engagement styles, and how this may in the aggregate contribute to the operation of a community as a functioning whole. In particular, there seems to be some parallel between our findings and the core-periphery structure that is often commented on in discussion of online communities (e.g. Kim 2000), suggesting important connections between social network studies and our social psychological approach.

For scholars interested in modeling and explaining the development of online communities, these results are important because they suggest that instead of theories of community based on relationships, norms, and costs/benefits being in competition, they are instead complementary. While it is common for scholars to treat these three approaches as competing (relational vs. normative vs. economic), these results suggest that attempts to explain individual behavior in communities and its impact on the health the community as a whole will be incomplete unless it considers all three.

Looking forward, a natural extension to this study would be to examine the factors that influence the formation of various kinds of community commitment. Potential antecedents could include the existence of shared values between individuals and the community, the level of trust in the community or the community's supportiveness. Additionally, the impact of community commitment on a variety of outcomes important to communities – such as members' satisfaction with the community, their intention to leave, and intention to continuing using the community – could be examined to build a more complete nomological network.

Implications for Community Administrators

These results highlight the complex problem faced by community administrators seeking to build a stronger member base: how to balance efforts to build different kinds of commitments and sustain the interests of members with different forms of primary commitment, as each brings different kinds of value to the community. Building affective commitment is clearly important, with affectively committed individuals forming an essential core of a community. However, such relationships may well be more difficult to develop and foster, especially on a large scale. Members primarily motivated by continuance commitment are also important as they serve as an audience, and are probably easier to attract. However, they are less likely to make substantive contributions the community beyond what is linked to their interests and needs. These individuals make up the periphery of a community – members who are still learning about what it takes to be an active core member, and whose posts are still largely driven by their own needs. The value of such individuals to the community might not be as clear as that of core individuals with high affective commitment. However, community administrators who can appreciate their contributions as part of the diversity necessary to keep a healthy community growing are likely to do a better job of ensuring that the community's conversation does not become too introspective and exclusionary.

One implication of this diversity is that a healthy online community is characterized by several different kinds of members, and maintaining a balance of types may be crucial to its success. Rather than trying to understand the “ideal member” of an online community, as much past research has done, our results suggest that there may be various important types of members, each motivated by different kinds of bonds. A community benefits from having a mixture of these individuals, which seems to produce an interlocking pattern of self-reinforcing behaviors. Understanding the effects of different kinds of commitment thus provides community administrators with a new perspective on their members, which may help focus their efforts to strengthen their community. Administrators may be able to indirectly stimulate a range of desirable behaviors by influencing specific member beliefs and attitudes. Importantly, it is not necessary to try to encourage individuals to perform all the major kinds of behaviors that keep a community functioning; instead, different kinds of people may be more easily encouraged to take up each important type of behavior. Our results support a useful framework for examining these challenges and may help community administrators better understand the kinds of psychological connections that can be nurtured to encourage the behaviors that will help improve their communities.

Conclusion

Why are people prone to build longer-term attachments to online communities, ones that are strong enough to motivate them to invest considerable effort in ways that may well not be directly repaid? Our research suggests that commitment theory provides an important framework for understanding the different kinds of bonds that can arise between an individual and an online community. By theorizing how affective, normative, and continuance commitment influence three core forms of community behaviors, we have provided a new perspective on communities as interlocking sets of synergistic behaviors that arise from common sets of motivators. We hope that this research will help to build bridges between the organizational and community literatures by showing how established theories can be adapted to an online community context, and that this research may serve as a foundation for future efforts to enhance our understanding of individuals in online communities.

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Appendix

Survey Items

Affective Commitment

- AC1 I feel like a part of the group at this site.
- AC2 I have a real emotional attachment to this site.
- AC3 This site has a great deal of personal meaning for me.
- AC4 I feel a strong sense of belonging to this site.
- AC5 I feel a strong connection to this site.

Normative Commitment

- NC1 I feel an obligation to continue visiting this site.
- NC2 I would feel guilty if I stopped visiting the site now.
- NC3¹ This site deserves my loyalty.
- NC4 I keep coming to visit this site because I have a sense of obligation to it.
- NC5 I visit this site partly out of a sense of duty.

Continuance Commitment

- CC1¹ I am sure that there are other sites where I could find the same content and services that I get at this site. [r]
- CC2¹ I keep coming to this site because there are few alternative sites available.
- CC3 If I stopped coming to this site, it would take me a long time to find a site that could replace it.
- CC4 There are very few other places where I could find the kind of useful content and services that I get from this site.
- CC5 The content of this site is too valuable for me to stop visiting.

Community Citizenship Behavior

Social Encouragement

- CIT1SE I praise other users when they post an informative message or comment.
- CIT2SE I praise users when they are supportive towards others.
- CIT3SE I encourage users to tell others about this site.

Social Control

- CIT4SC I try to settle disputes between users.
- CIT5SC I encourage users not to post messages that are off-topic (i.e. hijack) from the original thread.
- CIT6SC I reprimand other users inappropriate behavior.

GENDER

What is your gender?

1. MALE
2. FEMALE

AGE

What is your year of birth?

¹ Items dropped from final analysis.