

Lurking in Online Communities: A Communication Apprehension Perspective

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ABSTRACT

Understanding what motivates individuals to share has been a primary focus in the online community literature. Lurking, the behavior of those individuals who visit online communities, but infrequently, if ever, contribute content, is an issue closely related to sharing. However, it has received little direct attention, even though lurkers account for approximately 90% of all individuals who utilize online communities. These users are typically characterized as free-riders who take advantage of community resources while selfishly neglecting their contribution responsibility. Theoretical explanations do not stray far from this perspective, attributing lurking to choices made by self-interested individuals regarding the sharing of resources and made worse by a common goods setting.

In this paper, we challenge this resource based view of online behavior, suggesting instead that these choices are as much about communication in a public setting as about resource provision. A communication apprehension perspective is utilized to examine the communicative nature of online communities and the effect aspects of these have on lurking. This perspective states that when faced with the prospect of communicating to a large group of people, individuals experience feelings of apprehension. We propose that characteristics of communicating in online communities tied to the individual (desire for privacy), the community (community hostility), and the individual-community relationship (trust in the community, understanding community norms, and perceived relative expertise) influence communication apprehension, which impacts an individual's decision to lurk.

Keywords: Lurking; Online Community; Communication Apprehension; Sharing; Participation

INTRODUCTION

Advances in technology over the past decade, such as internet connectivity, e-mail, and instant messaging, have revolutionized the way people around the globe collaborate and communicate. These new technologies coupled with individuals' desires to capitalize on the collective interests of similar-minded individuals across a variety of domains, such as software application development (Lakhani & von Hippel, 2003; Lee & Cole, 2003; von Krogh, Spaeth, & Lakhani, 2003), technical support (Smith, Wolczko, & Unger, 1997), financial investments (Campbell, 2001; Porak, 2001), or hobbies (Preece & Ghozati, 1998), have lead to the proliferation of online communities. Of the approximately one billion people who use the Internet (Hof, 2005), more than 84% have used an online community (Horrigan, 2001). Online communities play an integral role as a global knowledge sharing medium, providing people with personal and economic benefits (Campbell, 2001; Kollock & Smith, 1996).

Central to an online community's ability to provide benefits is the willingness of individuals to actively participate in the group by providing content resources. A major focus of online community research has been to understand the factors that influence individuals' resource sharing behaviors. However, this focus on community participation only as resource contribution has created a gap in the literature as it fails to provide an understanding of the largest user group of online communities – lurkers. Lurking is the behavior of those individuals who visit online communities, but infrequently, if ever, contribute content. This group of users typically accounts for over 90% of all individuals that utilize online communities (Katz, 1998; Nonnecke & Preece, 2000, 2001; Nonnecke & Preece, 2003). Despite their abundance, little research exists on understanding these users and the motivations of their behavior (Nonnecke et al., 2001). Existing resource sharing oriented research dismisses lurkers completely or attributes

their behavior to self-centered, self-interested free-riding attitudes of the individual. Without a better understanding of these users and the factors that affect their behavior, our current knowledge of online communities is incomplete.

We challenge the established resource contribution centric explanations of lurking to expand our current knowledge of this major user group. This will be achieved by viewing online contribution behaviors with a communication apprehension perspective. We argue that rather than focusing on resource contribution, factors relating to the act of communicating to a group of people in an online community play a significant role in lurking. This perspective suggests that characteristics of communicating in online communities, which are ignored by existing perspectives, influence communication apprehension and ultimately impact an individual's willingness to – or not to – participate actively in an online community.

The remainder of the paper is structured as follows. First, an overview of current perspectives on lurking, primarily as the absence of resource sharing, and the limitations of this perspective are discussed. We then argue that contribution in online communities is as much about communication as it is about resource contribution. Building on this perspective and drawing from the literature on communication avoidance, propositions are developed that argue that characteristics of communicating in online communities tied to the community (community hostility), the individual (desire for privacy), and the individual-community relationship (trust in the community, understanding community norms, and perceived relative expertise) influence communication apprehension, which impacts an individual's decision to lurk. We conclude with a discussion of the implications of a communication apprehension perspective on lurking for online community researchers, developers, and administrators.

RESOURCE BASED VIEW OF LURKING

Kollock and Smith (1996) describe lurkers as free-riding, non-contributing, resource-taking members who *never* make contributions. Nonnecke and Preece (2000), in one of their definitions, identify individuals as lurkers when they make *minimal* levels of contributions (postings) over a period of time. These definitions of lurking reflect the dominant resource based view of online communities, which equates participation to content contribution. However, offering another perspective, Nonnecke and Preece (2000) suggest lurking is not as simple as contributing or not contributing, but rather a function of how visible an individual appears in the minds of other members of the community. This suggests that a resource based view may not fully explain lurking behaviors. While content contribution is important for online communities, a resource based view of communities and contribution does not reveal much, if anything, about *why* or *how* the overwhelming majority of online community users interact with them.

While accessing and using the content of a community is a relatively low cost transaction contributing content is not. An individual incurs costs, in the form of time, effort, and energy, when contributing content to a community. A transaction cost perspective suggests that these costs serve as disincentives to contribute – especially in the absence of any direct benefits for individual contributors. As such, the negative imbalance between costs and benefits drives individuals motivated by their self-interests to choose to be free-riding lurkers who never contribute content.

The literature posits that the public content of online communities is subject to a common goods dilemma (Kollock et al., 1996). Characteristics of the online community environment that create this issue are that the consumption of the public goods (i.e. content) by one individual does not decrease the accessibility or amount of resources available for use by others.

Additionally, it is impractical to prevent people from utilizing the goods, even if they do not contribute to them. In the presence of these factors, individuals would be expected to free-ride because they are able to enjoy the benefits of the public good without contributing to its establishment or maintenance (Fulk, Flanagan, Kalman, Monge, & Ryan, 1996). Online communities are reliant on the collective effort of individuals to create and maintain resources. However, lurkers, whose self-interested goals of receiving benefits at no cost are in conflict with the communal objectives of creating sustainable content available to all, lead to a tragedy of the commons (Hardin, 1968).

Running contrary to economic, self-centered, cost-benefit analysis based perspectives, another stream of literature examines pro-social influences on sharing and its alleged converse – lurking. Individuals contribute content as they believe it helps the community reach its collective goal (Hall, 2001; Hall & Graham, 2004; Wasko & Faraj, 2000) as well as serve an important function towards the community’s continued existence (Wasko et al., 2000). Reciprocity (Constant, Kiesler, & Sproull, 1994; Hall et al., 2004; Wasko & Faraj, 2005), altruism (Lakhani et al., 2003; Wasko et al., 2000), and empathy (Preece, 1999; Preece et al., 1998) are some of the major factors that have been found to influence contribution. Additionally, community oriented benefits, such as positive feelings of openness, co-operation, loyalty, trust, and camaraderie (Hall et al., 2004), have been associated with contribution behaviors. These perspectives imply that those who lurk in online communities are devoid of these pro-social attributes and focus only on themselves.

These predominant explanations of lurking share a resource based view of participation, which suggests that content contribution is strictly a resource sharing behavior. Additionally, it suggests that the non-contributing behavior of lurkers is driven by their self-centered, self-

interested nature, which influences these individuals to shirk their responsibility and withhold resources from the community. However, this established resource based perspective contains several important assumptions that may actually impair our understanding of lurking.

An implicit assumption underlying existing perspectives of content contribution is the sole focus on *quantity* (number of contributions) while completely neglecting notions of *quality*. However, the balance between quantity and quality is imperative to an online community as the amount of constructive content is a crucial factor in a community's ability to achieve success (Hall et al., 2004; Lee et al., 2003; von Krogh et al., 2003). Focusing on quantity and neglecting quality can lead to information overload, making it more difficult to find useful information amongst the undesirable content (Malhotra, Gosain, & Hars, 1996). This imbalance is ultimately detrimental to the long-term well-being of the community (Nonnecke et al., 2000). As such, diligent members may refrain from contributing rather than contributing something that could diminish overall quality, such as making a contribution that is potentially off-topic, unhelpful, or too similar to existing content. However, this conscientious behavior would still appear as though these lurkers are shirking their responsibility to the community as a whole by not contributing, while in fact they are doing something to help sustain the community.

Another limitation of the resource oriented perspective is the view that lurking is the polar opposite of sharing. While this perspective may seem accurate due to the appearance of the behavior (not contributing vs. contributing), these actually are two different behaviors. As such, the factors that affect sharing may not have the equivalent inverse influence on lurking behaviors – or even be the same set of factors. In fact, the sparse literature that has explicitly examined lurking supports this notion that the factors that drive lurking are different than those

influencing content contribution (Preece, Nonnecke, & Andrews, 2004), which highlights the need to gain a better understanding of the antecedents of lurking.

Finally, one of the primary benefits associated with online communities is an individual's ability to capitalize on the benefits derived from communicating with a large collective of others. This benefit highlights the most relevant aspect of contribution neglected by a resource based view of participation. Contributing content to an online communication is an act of communication that must be performed to a large group in a public space. The characteristics of communicating in an online community have relatively little, if anything, to do with the sharing of resources, but rather are likely to be about communicating a message. As such, attempting to understand factors related to the communication process, and specifically understand why individuals may attempt to avoid communication, could provide a better understanding of why individuals decide to lurk. In the follow section, we posit that the choice to lurk, and not to contribute, is as much about communication in a public setting as about resource provision.

A COMMUNICATION APPREHENSION PERSPECTIVE OF LURKING

While there are a broad set of technological platforms to support a variety of community infrastructures (e.g., list-servers, newsgroups, discussion groups, MUDs, chat rooms, bulletin boards, or Wikis), a commonality that exists among them is that they allow individuals to communicate with one another. Unlike e-mail, the benefit of these tools is they are not designed to facilitate one-to-one private communication, but rather designed for one-to-many *public* communication. These tools allow individuals to make information or points of view visible and available to others in a public domain (Slevin, 2000). In no small part, these tools have helped to create a new type of public space, or a virtual public, embodied by “symbolically delineated computer mediated spaces, whose existence is relatively transparent and open, that allow groups

of individuals to attend and contribute to a similar set of computer-mediated interpersonal interactions” (Jones & Rafaeli, 1999, p. 1).

A fundamental aspect of contributing content in these virtual public spaces in online communities is the individual’s requirement of creating and communicating a message. Several key characteristics associated with this public communication process have implications for lurking. First, the message is communicated and able to be viewed by a large, and potentially unknown, group of community users. This is compounded as the unrestricted access to the community and message increases the public aspect of the communication (Goffman, 1963; Slevin, 2000). Secondly, through reading the message, community members will assess the meaning and credibility of the message’s content and, in doing so, make judgments about the person who created it. Finally, the message possesses a sense of permanence as it is stored on a community’s server, allowing it to be able to be read for an indefinite length of time by unknown future audiences. These factors support the notion that content contribution is a form of public communication. As such, understanding factors that influence an individual’s desire to avoid communicating are likely to provide additional insight into why individuals choose to lurk.

A rich body of literature dating back to the 1930’s focuses on understanding individuals’ reluctance and avoidance of communication in various contexts. These feelings of reluctance and avoidance have been found to be created by feelings of anxiety and fear related to speaking (McCroskey, 1997). This body of literature has proposed several theories to explain an individual’s desire for communication avoidance, especially in public settings, including stage fright (Clevenger Jr., 1959) and audience sensitivity (Paivo, 1964). Reticence (Phillips, 1965, 1968), another explanation, suggests that while a desire to avoid communication exists, it is at times influenced by an individual’s consideration of the potential rewards associated with

speaking or to remain silent. It is argued that the potential rewards can be greater if one remains silent, and this contributes to one's comfort with and decision to speak (or not). However, unlike economic transaction cost arguments made for the cause of lurking, the implied rewards and costs with respect to reticence are associated with an individual's feelings of anxiety associated with communication.

The zenith of the communication avoidance literature is the theory of communication apprehension. This theory argues that individuals can experience anxieties associated with either real or anticipated communication with another person or groups of people (McCroskey, 1976, 1977, 1978). Utilizing this perspective, the prospect of communicating a message via a post to a large community in the public space of an online community creates feelings of apprehension. These feelings of apprehension then influence an individual's decision to lurk.

Proposition 1. An individual's communication apprehension positively impacts the individual's lurking.

Feelings of communication apprehension have been partially attributed to an individual's trait predispositions towards communication. However, they have also been found to be influenced by situational dependent characteristics related to the context of the communication (McCroskey, 1997). Specifically, characteristics associated with communicating in the public space of an online communities related to the individual (desire for privacy), the community (community hostility), and the individual-community relationship (trust in the community, understanding community norms, and perceived relative expertise) influence an individual's level of communication apprehension and, ultimately, impact lurking.

Desire for Privacy

Privacy is associated with an individual's ability to personally control information about oneself (Stone, Gardner, Gueutal, & McClure, 1983). Attempts to maintain privacy can be achieved through limiting access to one's space or information or letting others access one's space or information only after receiving permission (Dinev & Hart, 2004; Mason, 1986; Westin, 1967). On the surface it may appear that the virtual, faceless nature of online communities ensures an individual's privacy and anonymity. This may partially explain why compared with offline social networks, social computing environments are often "vaster and looser" in regard to the disclosure of information (Gross & Acquisti, 2005 p. 80). However, privacy cannot typically be achieved if one contributes content to an online community, even if maintaining privacy is desired. The attempt to maintain privacy faces several barriers, including the collection of personal information, unauthorized secondary use, and improper access to personal information (Smith, Milberg, & Burke, 1996).

A direct way users divulge private information is when they supply limited personal information to a community administrator in order to gain access to a community. In order to post a message in an online community, users often must become registered members. During registration, the personal information is collected. For example, listservs require members to submit a name (or username) and a valid e-mail address. Computer administrators typically keep this information confidential and use it only for content distribution. A less direct disclosure of private information occurs when a user decides to communicate with the community by making a contribution. In this situation the individual's online identity is revealed to the entire community. This is common with the use of bulletin boards and chat rooms. However, this can

be a privacy related issue for some, regardless of the level of anonymity provided, as they also wish to maintain the privacy of their online persona (McWilliams, 2000).

Compounding the disclosure related issues of privacy, internet identifiability theory (Douglas & McGarty, 2002) suggests that when an individual contributes to an online community one leaves suggestive clues about oneself with respect to his or her real identity, including gender, age, race, and geographic location. These clues are conveyed through information contained in their username as well as the words and messages they use when they communicate (Douglas et al., 2002). Due to the fact that information available in an online community is typically freely accessible to anyone (non-members), individuals potentially lose control of this information as the trustworthiness or morality of others cannot be governed (Ware, 1984). As such, information made available in a community can be utilized in identity theft or stalking.

Individuals believe that they own their private information, and create metaphorical boundaries to govern the maintenance of this privacy (Petronio, 2000). However, as individuals are often unsure who could eventually see and use their personal information (Jonas, Boos, & Sassenberg, 2002), individuals can feel uncomfortable about posting messages in the virtual public that is an online community (Katz, 1998). For individuals who have an unwillingness to have personally identifiable information available to others, the discomfort from the prospect of posting can increase their fear of and anxiety towards the communication process in online communities.

Proposition 2. An individual's desire for privacy is positively associated with an individual's communication apprehension.

Perceived Community Hostility

As mentioned the ability to communicate and collaborate with unknown individuals is one of the primary benefits of online communities. However, the relatively anonymous nature of online communities is partially responsible for the creation of an environment conducive to actions and forms of communication individuals would not consider performing in face-to-face environments (Alonzo & Aiken, 2004; Jonas et al., 2002). A common example of this type of behavior is flaming, which consists of comments posted to a community that are hostile in nature. The flaming posts are those that contain derisive insults aimed at other users, extreme sarcasm, and/or obscenities. A related troublesome behavior is that of trolling. Trolling is when a user of a community intentionally attempts to disrupt the community by posting messages aimed at provoking other members (Donath, 1999), both newbie and established.

Community hostility is defined as the degree to which the tone of a community is perceived to be unsupportive, conflictive, and combative. These hostile tones can cause individuals to feel uncomfortable and can create feelings of anxiety and fear in an individual that he can become directly involved in a confrontation or be the target of harsh or judgmental comments. These feelings can lead to increased communication apprehension on behalf of a potential communicator and subsequently a decision to lurk silently rather than contribute to the group.

Proposition 3. Perceived community hostility is positively associated with an individual's communication apprehension.

Trust in the Community

Online community contribution involves communicating with initially unknown people in an unfamiliar space. Before becoming comfortable enough to participate, users need to be

convinced of a community's usefulness, safety, and security. Trust is one of the key factors that helps make users comfortable and transforms a group of individuals into a community (Andrews, Nonnecke, & Preece, 2003). Traditional conceptualizations of trust incorporate risk, vulnerability, expectation, confidence, and exploitation (Corritore, Kracher, & Wiedenbeck, 2003). Drawing upon these, trust in the community is defined as the belief and expectation that others will behave in a manner that will not betray one's confidence by exploiting potential vulnerabilities.

Trust in an online community relates to three factors: trust in the community operators, trust in the content of the community, and trust in other members of the community (Andrews et al., 2003). With respect to community operators, individual's need to feel that their personal information will be kept confidential or not used for unauthorized purposes (Andrews et al., 2003). In regard to trust in the community's content, individuals need to be confident that it is accurate and will not be at a disadvantage should they use it. With respect to group members, trust "reduces social complexities as it compensates for the lack of ability to monitor on the one side and for lack of knowledge and understanding on the other side" (Lechner & Schmid, 2001). A trust deficiency in any of the objects can create an environment in which individuals feel vulnerable. Faced with such an environment, individuals feel increased fear and anxiety about the communication process and decide to refrain from communicating within the community.

Proposition 4. An individual's trust in the community is negatively associated with the individual's communication apprehension.

Understanding Communal Norms

Communal norms are the informal rules and guidelines for acceptable behavior in the group which are shared amongst members (McKenna & Green, 2002). They signal to members

how they should behave in the community, such as how to make useful comments, ask questions, use community specific terminology (Nonnecke et al., 2003), or style exchanges appropriately (Weigand, de Moor, & van den Heuvel, 2000). Communal norms also signal to members what they should not do, such as making off topic postings, spamming, or flaming (Kim, 2000; McWilliams, 2000). In addition to using norms to guide personal conduct, community members utilize communal norms and their past experiences to establish a sense of rhythm for interaction, as well as to determine a community's leaders and fools (Smith, 2002). Overall the type and degree of structure suggested by communal norms can influence how individuals feel about the group (Jarvenpaa & Staples, 2001).

Understanding communal norms is defined as the degree to which an individual is aware of and comprehends norms in a specific community. At a minimum it is important for individuals to understand the characteristics of a community (e.g. terms of use, general information and medium, protocols) and its values prior to becoming an active contributor (Ahuja & Galvin, 2003; Lechner et al., 2001). Being uncertain about the proper way to interact with the community can lead individuals to experience anxiety about rejection by the community as a result of inappropriate communication.

Proposition 5. An individual's understanding of communal norms is negatively associated with the individual's communication apprehension.

Perceived Relative Expertise

Users of online communities possess a wide range of knowledge including neophytes looking to communities for their first exposure to a particular domain to those with mastery levels of experience. A user's level of expertise can be assessed by other users in the community through the evaluation of contributions. Furthermore, an individual can self-assess his own level

of expertise by comparing his contributions to others' contributions. This self-judged level of knowledge on a given subject matter is defined as perceived relative expertise.

When individuals believe they possess high levels of expertise compared to others in a group, they experience increased confidence (Katz & Benjamin, 1960). As was demonstrated experimentally, this increased confidence can lead to increased participation in group communications (Thomas-Hunt, Ogden, & Neale, 2003). Those with higher levels of perceived expertise have higher levels of participation than those with lower levels of perceived expertise (Thomas-Hunt et al., 2003). Conversely, individuals who believe they possess low levels of expertise are often reluctant to share what they know because they are uncomfortable with their relative levels of expertise (Wasko et al., 2000). This can be attributed to fears of appearing ignorant or potentially having to deal with the arrogance of other members (Katz, 1998). These feeling of reluctance and fear, coupled with any initial discomfort with their perceived level of relative knowledge, create a situation where an individual can experience higher levels of anxiety when faced with communicating with a group. These factors culminate in increased communication apprehension.

Proposition 6. An individual's perceived relative expertise is negatively associated with the individual's communication apprehension.

The theoretical framework developed above proposes that a better understanding of lurking can be gained by recognizing the communication aspect of contribution, specifically focusing on communication apprehension and the characteristics associated with communicating in the public space of an online community. These specific characteristics tied to the individual (desire for privacy), the community (community hostility), and the individual-community

relationship (trust in the community, understanding community norms, and perceived relative expertise), are depicted in the theoretical framework modeled in Figure 1.

Insert Figure 1 about here

DISCUSSION

In regard to contribution in online communities, the established resource based perspectives and the communication apprehension perspective argued for in this paper create contrasting depictions of lurking and its antecedents. Additionally, these two perspectives create differing profiles of lurkers. Established perspectives suggest lurkers are nothing more than self-centered individuals shirking their responsibility of sharing. From this perspective lurkers will never share with the community as the personal costs incurred outweigh any potential benefits. However, this does not seem to be fully plausible. Existing resource based perspectives cannot account for the fact that some individuals share in one community, but not in another. In other words, lurkers do not necessarily lurk in all of the communities they visit. This behavior suggests that an investigation that looks beyond a purely contribution as a resource view is necessary.

We argue that existing explanations of lurking are flawed because they overlook a critical characteristic – contributing content is a form of communication. Conceptualizing contribution to an online community as communication allows one to consider the feelings a potential contributor may possess in regard to communicating in the community. The act of communicating in these environments may not be emotionally easy and non-fear inducing, which could be assumed due to the relatively nameless and faceless situation afforded by the

virtual environment. On the contrary, it is argued that online communities are more public than previous work acknowledges. In fact, communicating in this environment is more public than individuals typically find themselves communicating in. This is in part due to the size of the audience. As such, communicating one's thoughts and opinions in this setting can create anxiety.

In this paper we recognize the human communication side of contribution in an online community using a communication apprehension perspective to provide insight into these feelings of fear and anxiety. This perspective accounts for the different behaviors of one individual across communities as it argues that characteristics of the community, the individual, and the individual-community relationship affect an individual's community apprehension, which in turn affects lurking.

Implications for Research

Despite their prevalence in online communities, there have been relatively few studies (Nonnecke et al., 2000, 2001; Nonnecke et al., 2003; Preece et al., 2004) that specifically focus on understanding lurkers and what motivates their behavior. In the absence of such research, the literature on content sharing serves as an ill-fitting surrogate and is the predominant source for explanations of lurking. Researchers have assumed that the findings on contributing and sharing in an online community can simply be reversed to describe lurking, which is exhibited by a lack of contributing and sharing. For example, if one who contributes is pro-social, the research assumed that one who does not contribute and lurks is anti-social. Utilizing the surrogate instead of directly attempting to understand what influences lurking paints an incomplete, and potentially distorted, picture of online communities. In this paper, we seek to paint a fresh

picture of online communities by explicitly examining the issue of lurking and its antecedents through a perspective that recognizes the public communication aspect of contributing.

In this paper we make several contributions to our collective understanding of the largest user group of online communities, lurkers, and the dynamics of online communities. First, we highlight and challenge a few of the unspoken, but key, assumptions underlying established resourced based views of participation. Specifically, we discuss the sole focus on quantity of contributions, the theoretical view of lurking as equal to the absolute inverse of sharing, and the conceptualization of contribution as neither related to nor impacted by aspects of the communication process. The focus on quantity is challenged by suggesting that focusing on quantity ignores quality. Lurking can partially be explained as the diligent behavior of conscientious members looking to maintain quality. While operationally it appears correct, the view of lurking as the opposite of sharing is challenged by arguing that contribution and lurking are different behaviors motivated by a different set of antecedents. Most importantly, we confront the disregard for the communication process and the communication aspects of online communities with respect to contribution. This work stresses the fact that an individual's contribution in an online community is about more than an evaluation of a transaction with the goal of reduced costs and increased benefits, the view largely held by existing perspectives.

Contributing is as much about communication as resource sharing. Factors related to communication in a public space weigh in on the individual's communication apprehension. To gain a better understanding of lurking, as well as contribution, future research needs to not only recognize, but more strongly incorporate, communication related factors as an important aspect impacting the dynamics in online communities.

Implications for Community Developers and Administrators

Existing resource based views provide limited guidance for community developers and administrators interested in motivating content contributions. For one, this body of work focuses on individuals who do share. Thus prescriptive recommendations are aimed at attempts to generate more sharing from this small user group that already shares. Additionally, existing perspectives identify few changes to aspects of the community which the administrators have control over. Essentially administrators are offered two alternatives – provide more benefits to induce more sharing or passively rely on the pro-social nature of the individual to contribute more. These have little or no impact on the ability to motivate the large, untapped source of potential content – lurkers.

In this paper we address the need for prescriptive recommendations held by developers and administrators. The propositions outlined provide a framework that has the potential to provide community developers and administrators with new explanations as to why members may not be contributing to their community. Furthermore, we identify specific aspects related to the community contribution process that administrators have some control over and the ability to manage, so as to reduce a member's apprehensive feelings towards communicating in the community.

To ease users' privacy concerns, administrators can clearly communicate that community owners are cognizant of potential privacy concerns and act in ways that balance the benefits from the disclosure of information and the privacy concerns over the personal information (Culnan & Armstrong, 1999). From an infrastructure perspective, controls that allow members to set their own privacy settings (Patil & Lai, 2005) can also help. Finally, administrator should reach out to members to learn more about their privacy concerns, as privacy is perceived differently by the

users of the systems than the designers (Patil & Kobsa, 2005). To manage the perceived hostility in the community, administrators can forbid anonymous postings, actively moderate discussions, and ban members who make personal insults towards other members (Katz, 1998). With respect to trust of the community, administrators can disclose information about themselves, as well as provide references in order to increase trust in the community operators. Additionally, the implementation of rating systems, both with respect to content and members of the community are other potential infrastructure tools available to administrators. Providing ratings is one way of creating a reputation system (Rashid et al., 2006; Resnick, Zeckhauser, Swanson, & Lockwood, 2006). With respect to increasing members understanding of communal norms, administrators can assist new members during their acclimation to the norms of the community by providing a summary of the guidelines for acceptable behavior. Distributing this to new members when they join can also create a designated area within the community where new users can interact with community mentors without fear. These examples illustrate a few aspects community administrators can manage to make their community more conducive to participation by addressing factors that impact an individual's feelings of fear and anxiety with the online community communication process.

Conclusion

Attempting to understand lurkers inarguably has important implications for everyone interested in the phenomenon of online communities. One of the fundamental principles underlying the spirit of online communities is that they represent a space of inclusion where diverse groups of individuals can gather to exchange ideas on a variety of topics. However, lurkers are often viewed as pariahs to online communities, a viewed supported by the resource based perspectives of contribution. Community members also express disgruntlement through

insulting or condemning comments posted to the community (Hall et al., 2004). Negative feelings can be instigated and augmented by these comments and by a continued lack of understanding of the causes of lurking. By ignoring, ridiculing, or marginalizing lurkers, obstructions are created that prevent online communities from realizing their true potential. Without the input from lurkers, the tone, style, and agenda for an online community is dictated by a small group of users. This exclusion restricts the full range of potential perspectives, hampers the full exchange of ideas, and distorts arguments. These factors can combine to further drive away lurkers.

By attempting to obtain a better understanding of what influences lurking, we can potentially identify mechanisms for increasing the inclusion of this large disenfranchised group (Katz, 1998). Doing this can play a significant role in addressing many problems of interest commonly experienced in online communities, such as obtaining a critical mass of members (Hall, 2001), obtaining new content, replacing members lost to community turnover, and community ownership.

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FIGURE 1

A Communication Apprehension Framework of Lurking

