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The top five reasons for lurking: improving community experiences for everyone

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Abstract

Even in busy online communities, usually only a small fraction of members post messages. Why do so many people prefer not to contribute publicly? From an online survey that generated 1,188 responses from posters and lurkers from 375 MSN bulletin board communities, 219 lurkers spoke out about their reasons for not posting. While lurkers did not participate publicly, they did seek answers to questions. However, lurkers' satisfaction with their community experience was lower than those who post. Data from 19 checkbox items and over 490 open-ended responses were analyzed. From this analysis, the main reasons why lurkers lurk were concerned with: not needing to post; needing to find out more about the group before participating; thinking that they were being helpful by not posting; not being able to make the software work (i.e., poor usability); and not liking the group dynamics or the community was a poor fit for them. Two key conclusions were drawn from this analysis. First, there are *many reasons why people lurk* in online discussion communities. Second, and most important, *most lurkers are not selfish free-riders*. From these findings, it is clear that there are many ways to improve online community experiences for both posters and lurkers. Some solutions require improved software and better tools, but moderation and better interaction support will produce dramatic improvements.

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1. Introduction

The focus on social computing is raising expectations about the role of online communities in solving social problems (Dourish, 2001). In health, education,

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e-commerce and knowledge management, for example, online communities are seen as the glue that holds people together so that they can collectively solve each other's problems (Preece, 2000). Yet even in many active, successful communities, a small core of participants generates most of the responses. Some people respond only occasionally, and many read and never contribute. There are many reasons why people do not contribute. Some people are selfish in that they get what they want without having to post, but there are other reasons as well (Nonnecke & Preece, 2001). Rewarding those who contribute is a popular technique for enticing participation, but this approach assumes that people free-ride (i.e., take advantage of a discussion without contributing) if they can (Smith & Kollock, 1999). Additionally, this assumption overlooks other reasons for not contributing. Community developers, managers, moderators and community members themselves need to offer better support for those who are afraid to come out in public, for those who cannot make the software work, and for the other reasons for not posting that are discussed in this paper.

This paper presents data and analyses describing the many reasons for lurking and discusses the ways in which online community experiences may be improved for all participants, posters and lurkers. We start by reviewing previous claims about the extent of lurking, why and under what conditions lurking is a problem (Section 2). In Section 3, we present the methodology used in our survey study. Section 4 presents the results of the study, which include: demographics of our survey population in general and the lurkers particularly (Section 4.1); data from a checkbox question in which the 219 lurkers checked all the reasons that explain why they do not post (Section 4.2); and a selection of open-ended verbatim lurker comments that elaborate on their reasons for not posting (Section 4.3). The discussion in Section 5 examines software design and community interaction to more effectively support both lurkers and posters. Suggestions for future research and considerations for online community developers, managers, and moderators are provided.

There are many definitions for lurker. For example, in an earlier study (Nonnecke, 2000; Nonnecke & Preece, 2000) we defined a lurker as someone who has not posted during the last three months. In this paper, we define a lurker as “someone who has never posted in the community to which he/she belongs”. Also, there has been considerable debate about the definition of an online community (Preece, 2000). In this study, we define the participants on a discussion board as an online community.

2. Background

2.1. *The extent of lurking*

Lurkers are reported to make up over 90% of several online groups (Katz, 1998; Mason, 1999). In a more recent study examining lurker rates (Nonnecke, 2000; Nonnecke & Preece, 2000), lurkers made up 45.5% of health support communities and 82% of software support communities. Moreover, it was found that lurking rates were highly variable with some communities having no lurkers, while others

had rates as high as 99%. Clearly there are many lurkers out there, and for some communities, lurking is the norm.

2.2. *Is lurking a problem?*

The term “lurking” casts a pejorative shadow on people who do not actively post in an online community. Indeed, most early studies focused only on people who post, and these people were considered to be “the community” (Beaudouin & Velkowska, 1999; King, 1994; Parks & Floyd, 1996). As the dot.com era evolved, attitudes towards people who do not post hardened, and the notion of lurkers as free-riders (Smith & Kollock, 1999) became more prominent. A primary reason for this was entrepreneurs added the online community feature to enhance the potential for commercial success at their websites. It was believed that lots of participation through message exchanges would create an attractive shopping environment, and they believed that an active online community would draw people to their website and keep them there—a concept known as “stickiness”—and so increase e-commerce sales (Hagel & Armstrong, 1991). The goal was always to have an environment where lurkers would “graduate” to active participation. Hence, lurkers were considered second-class members of the online community.

In our earlier work we challenged the notion of a lurker as a “good for nothing free-rider”. From in-depth interviews we discovered that there are many reasons why people lurk; some are indeed unsociable or even selfish, but many are not, and some even have an altruistic basis (Nonnecke, 2000; Nonnecke & Preece, 2001). Lurking also enables new members to learn community norms, see if their concerns are relevant and obtain vicarious support without disclosing themselves (Walther & Boyd, 2002). Many lurkers empathize so strongly with the stories they read that they identify with the community and think of themselves as members (Nonnecke, 2000), particularly in patient support communities (Preece, 1999a). Furthermore, recent studies show that most members of health support and education support communities accept lurkers as members of the community (Maloney-Krichmar, 2003; Abras, 2003; Abras, Ozok, & Preece, *in press*; Maloney-Krichmar & Preece, *submitted for publication*).

Lurking may or may not be a problem depending on the perspective from which this behavior is being judged and the goals of those making the judgment. If there is little or no message posting in a community, then lurking is a problem. No one wants to be part of a conversation where no one says anything. Such online communities cannot survive because there is so much happening on the Internet that people do not return to silent communities. In such a situation, community developers need to take action to encourage participation. However, if there is activity then having some people lurk may not be a problem and may even be desirable if the community is large and very active.

This study demonstrates that there is a wide variety of reasons why people lurk. Similarly, there are good strategies for encouraging lurkers to participate and for supporting lurkers and posters that will enhance community experiences for everyone.

3. The study

A diverse cross section of MSN online discussion board communities was examined using a sampling frame from which a stratified random sample was drawn (Andrews, Nonnecke, & Preece, 2003). Size, access and activity criteria were used to further define the study population. The community had to contain over 50 members, be open for public participation, and it had to be an active online community with at least 4–5 people posting within the past 90 days. A random number generator was used to select the communities from the following categories: health and wellness, government, sports and recreation, and organizations. This produced a sample of 375 online communities from a total of 1,304.

The survey consisted of 12 demographic items and 28 primary coded questions integrated with 20 secondary coded and open-ended questions. A pilot test was performed to ensure that the questions were unambiguous and that there were no technical errors that would impede data collection. After the pilot study, a small number of questions were amended to improve their clarity. Invitations to participate in the survey were posted as messages on the selected online discussion groups. Two follow-up “reminder” invitations were then posted 1 week apart to all the groups. All inquiry email, whether sent as a reply to the posting or sent to the survey “webmaster,” was responded to within 24 hours. When a discussion board rejected an invitation posting, another random number was generated, and the process of posting the survey was initiated with the newly selected community. Only 18 communities rejected the initial posting.

1,188 valid responses were received of which 18.4% were lurkers, which we defined as: people who had *never* posted in the community at any time. This represented a 2.3% response rate. Although this response rate is low, we were satisfied with the results because: (1) the total number of valid responses was high (i.e., 1,188 usable survey responses were received averaging three responses per community. 18.4% of the total responses came from lurkers); (2) getting lurkers to respond to surveys is extremely difficult; (3) the respondents were not paid for completing the survey; and (4) the community members surveyed did not know the researchers. The only incentive offered for completing the survey was that those who wanted a copy of the final project report would receive one and the satisfaction of knowing that their participation was helping us with our research.

The 79 reasons for lurking identified in the earlier research (Nonnecke & Preece, 2001) were condensed to 19 possible choices to answer the question: “If you never post to this online group/community, what are your reasons?” as shown in Appendix A. Respondents could choose one or more of these choices. Additionally, participants could enter their own reasons for lurking through a text box. In this paper, we focus on this data.

4. Results

The results are discussed from three perspectives. First, we briefly review demographic and attitudinal data for lurkers and posters to paint a broad picture to

show how our survey compares with a national survey of Internet users (Section 4.1). Second, we examine the reasons that lurkers gave to explain why they lurk from their responses to the checkbox questions (Section 4.2). Third, we discuss comments to the open-ended question in which lurkers were invited to add any other reasons for lurking that were not listed in the checkbox questions and anything else that they wanted to tell us about why they do not post (Section 4.3).

4.1. *The broad picture*

In this section we provide some background information about the demographics and attitudes of lurkers and posters. First, we compare four demographics of our survey respondents with the general population of Internet users (Section 4.1.1). Then, we compare surveyed lurkers and posters for the same four demographic measures (Section 4.1.2). Lastly, we report on some general differences in the attitudes of lurkers and posters (Section 4.1.3).

4.1.1. *Comparison of our survey population with Internet users*

Four demographic variables were examined: educational experience, age, gender, and employment status. These categories were identified from the Pew Internet & American Life Project survey collected from March 2000 through December 2000, which aimed to “catalogue the attitudes and activities of Americans who used the Internet in the year 2000” (Pew, 2000). By comparing these four variables in our survey with the results from the Pew survey, we aim to satisfy a question that is often posed, namely: “how does our survey population compare with the general population of Internet users?”

Participants in the Survey and those in the Pew study had similarly high levels of education: 79.3% of those who participated in the Survey had at least some college education and of those, 37.6% were college graduates compared with 74.9% of the Pew sample in which 37.6% had graduated college. The percentage of participants with only high school education in the Pew study, 25.1%, was only slightly higher than in the Survey, 20.5%. While Survey respondents self-selected to participate in the survey, this does not seem to have biased the sample.

The age distributions of the two populations are normally distributed and are also similar (see Fig. 1).

Differences in gender are a little stronger. There were more women participants than men in our survey (56.3 and 43.3% respectively), whereas the gender balance was almost equal in the Pew survey (50.5 and 49.5% respectively). The majority of participants in both surveys were employed (see Fig. 2). Our survey population had higher percentages of unemployed and retired respondents.

In summary, the demographic composition of the participants in our survey is broadly similar to the general Internet population surveyed in the Pew study. Unlike Pew, more women than men participated, and while the employment demographics are similar, Pew had a greater percentage of employed participants.

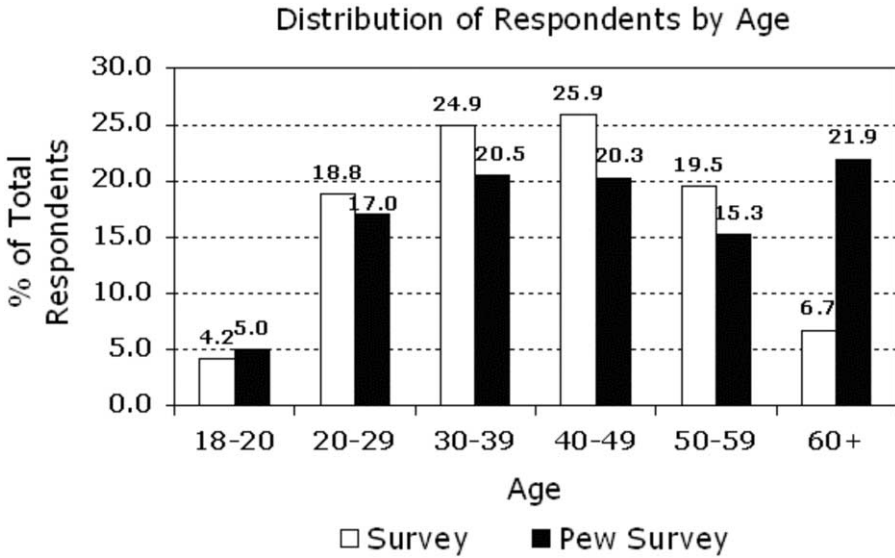


Fig. 1. Distribution of respondents by age.

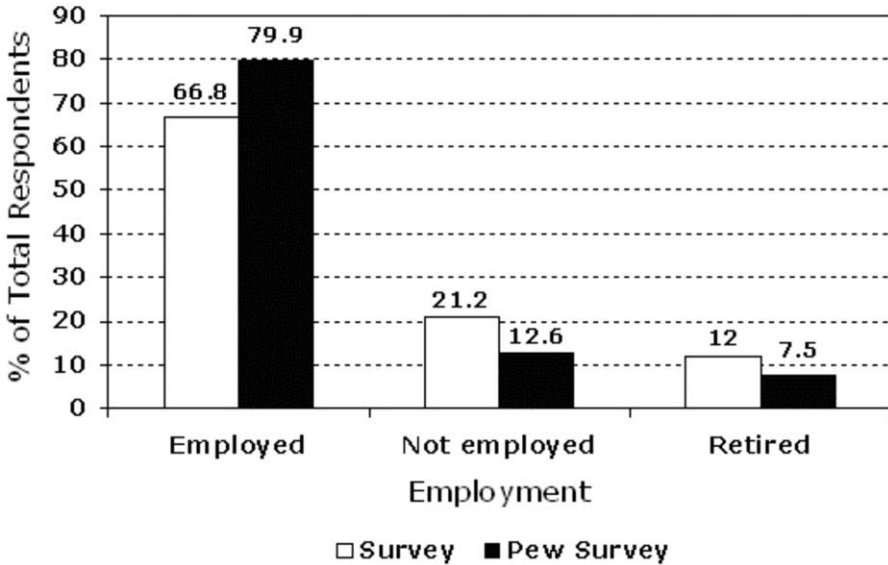


Fig. 2. Employment of respondents.

4.1.2. Comparison of lurker and poster demographics

A comparison of the demographics of lurkers and posters within our survey responses revealed that the two populations were very similar, and there were no significant differences between them across any of the four variables: age

(Chi-square = 0.52, $P = 0.47$), gender (Chi-square = 0.13, $P = 0.72$), education (Chi-square = 0.00, $P = 0.96$), and employment (Chi-square = 0.83, $P = 0.36$).

4.1.3. Comparison of lurker and poster attitudes

Seven questions in the survey were analyzed to investigate differences in attitudes between posters and lurkers, and these are summarized in Table 1. The results suggest a number of differences in attitude between those who post and those who don't. Chi-square analyses were performed to show the significance of these comparisons at $P = 0.05$.

The results of the analysis indicate that posters and lurkers go online for similar reasons, usually to improve their understanding of the topic. Getting support was also a strong reason for joining the health support groups. While lurkers did not publicly ask questions, they mostly wanted answers to questions. However, the percentage wanting answers was lower for lurkers than for posters, 62.1 vs. 70.3%. Lurkers were less enthusiastic about the benefits of community membership, with 41.8% indicating they received less than the expected benefit and only 8% indicating that they received more benefits than expected. In contrast, only 16.3% of posters received less benefit than expected and 36.6% perceived a greater than expected benefit. Posters have a greater sense of belonging to a community than lurkers. They also tend to like interaction more. Similarly posters respect other posters more than lurkers respect posters, and posters have a generous view of lurkers and consider them to be members of the community more than lurkers consider themselves to be

Table 1

Participant attitudes	
Research question	Finding
Is the primary reason for joining an online community different for lurkers and posters?	Both join for personal reasons. (Chi-square = 1.959, $P < 0.162$)
What are the main attractions to the online community, and are lurkers and posters attracted to online community for different reasons?	Both come to get a general understanding (Chi-square = 0.002, $P < 0.963$)
Do the online communities meet the expectations of lurkers and posters?	Posters feel their needs are better met. (Chi-square = 114.5, $P < 0.001$)
Do lurkers and posters perceive different levels of benefits from their community?	Posters perceive more benefit. (Chi-square = 97.75, $P < 0.001$)
Do lurkers and posters differ in whether they feel like members of their online community?	Lurkers can feel like members, but posters feel a greater sense of membership. (Chi-square = 199.5, $P < 0.001$)
Do posters and lurkers view members who post differently?	Lurkers have less respect for posters. (Chi-square = 79.91, $P < 0.001$)
Do posters and lurkers view lurker membership differently?	Posters consider lurkers to be members more than lurkers do. (Chi-square = 15.37, $P < 0.001$)

members (an expanded discussion of these results is presented in Nonnecke, Preece, & Andrews, in preparation).

The positive view of posters' attitudes to lurkers appeared in two other recent studies. In a multi-layered ethnographic study of a bulletin board patient support community, we found that the members of the community that we interviewed also held quite supportive attitudes towards lurkers and accepted them as community members (Maloney-Krichmar, 2003; Maloney-Krichmar & Preece, submitted for publication). In another survey in which we asked participants to give their opinions about what the characteristics of a successful online community are, the majority of respondents recognized lurkers as members of the community (Abrams, 2003; Abrams, Ozok, & Preece, in press).

To summarize, the broad picture that emerges from the data so far is as follows:

- The demographic composition of our survey participant population is similar to the much larger Pew survey population of Internet users, except that our population had slightly more women, retired and unemployed people.
- The demographic population of lurkers and posters is similar.
- The reasons for going online are similar for lurkers and posters.
- The major differences between lurkers and posters are in their attitudes. Posters are more positive: posters feel they get more from the community; posters have a greater sense of belonging to the community; posters' opinions about other posters and lurkers are more favorable; and most posters accept lurkers as members of the community.

With this background information in mind, we now move on to examine the reasons that lurkers give for not posting.

4.2. Lurkers' responses to the checkbox questions

As stated earlier, a checklist of reasons for not posting was presented to survey participants. Multiple reasons could be checked. These items were derived from a previous study in which we interviewed lurkers and posters (Nonnecke & Preece, 2001). In addition to the checklist, survey participants had the opportunity to comment on their lurking behavior and to give any additional reasons using an open-ended textbox (Section 4.3). Two hundred and nineteen lurkers answered these questions.

The most frequently selected reason for lurking was "just reading/browsing is enough". Over half of the lurkers checked this item (53.9%), followed by "still learning about the group" (29.7%) and "shy about posting" (28.3%). This last item was less significant for these respondents than in our previous study, which involved more students, so perhaps age and life experiences have an influence on shyness (Nonnecke & Preece, 2001). The fourth ranked item was "nothing to offer" (22.8%), and the fifth was "no requirement to post" (21.5%). All five of these responses were indicated by over 20% of the lurkers in this survey.

The next group of items was given by between 10 and 20% of respondents and includes: "Others respond the way I would" (18.7%); "Want to remain anonymous"

(15.1%); “Had no intention to post from the outset” (13.2%); and “Of no value to me” (11.0%). The remaining items were indicated by fewer than 10% of the 219 lurkers.

These results provide a valuable insight into why lurkers lurk. Interestingly, only 13.2% of lurkers indicated they intended to lurk from the outset. This implies that the majority of lurkers become lurkers through their interaction with the community. This also ties in with one of the main findings reported in Section 4.1.3, which suggests that lurkers are, in general, more negative about their community experiences. Both findings raise the issue: what happens online that deters lurkers from participating as they intended?

We have classified these findings into five broad categories as shown in Table 2 to help online discussion board community developers, managers, moderators and community members themselves to improve their communities. Our intention in

Table 2
Reasons why lurkers don't post

Reasons why lurkers did not post [brackets indicate % of respondents (N = 219)]

Didn't need to post

Just reading/browsing is enough (53.9)

No requirement to post (21.5)

Had no intention of posting (13.2)

Needed to find out about the group

Still learning about the group (29.7)

Thought I was being helpful

Nothing to offer (22.8)

Others have said it (18.7)

Couldn't make the software work

Not enough time (9.1)

Do not know how to post (7.8)

Too many messages (4.6)

Didn't like the group (poor dynamics[fit])

Shy about posting (28.3)

Want to remain anonymous (15.1)

Of no value to me (11.0)

Messages or group low quality (7.8)

Wrong group (7.3)

Long delay getting response (6.8)

Concern about aggressive responses (5.9)

Fear of commitment (4.1)

New members treated poorly (1.4)

Other

Other reasons (1.4)

doing this is to translate the findings from the survey into “requirements” for improving and developing better communities. The identified categories are displayed with the responses for the individual checklist questions that relate to the category. The five categories are: *Didn't need to post*; *Needed to know about the group*; *Thought I was being helpful*; *Couldn't make the software work*; and *Didn't like the group (poor dynamics/fit)*. A sixth “catch-all” category, *Other*, is included to acknowledge that a small number of other reasons were also given, but these do not contribute to our story and they are not discussed further.

The value of our classification is that it presents clear categories of issues for online community developers, managers, moderators, members and software designers. Cluster analysis would offer an alternative method for examining the relationships between these concepts, which will be examined in future work. In the next section we examine what the lurkers said in their free-format text answers.

4.3. What lurkers said

Around 490 comments were recorded. Forty-eight of these comments do not provide any useful information; they are comments such as: “see above”. “I have nothing to add”, and “already indicated my reasons”. A few of the comments from the health support communities also indicate that at times people lurk because they are too sick to post, for example: “*the reason I do not post on a regular basis is that I am in a lot of pain on a daily basis and some days are really bad*”, and another person said: “*I am not well and pass on it at times*”

In the following discussion, we present a selection of comments to illustrate the motivations, concerns and attitudes of the lurkers. This qualitative, descriptive data provides supplementary evidence that helps to explain the checklist data. Each comment is presented as it was written. When authors' remarks are added, they are placed in parentheses. Together these two types of data (questionnaire checklist data and informal comments) present a rich picture of the reasons why lurkers do not post.

4.3.1. Didn't need to post

A large number of lurkers feel they do not need to post because they get what they need. Examples of two typical comments are:

“I DO NOT REALLY FEEL A NEED TO”

“Will start posting in the future if I feel the need to”

Others just wanted information. They didn't want to engage in communication and did not feel it was necessary to reciprocate, for example:

“I have gained the insight I needed from this community”

4.3.2. Needed to find out about the group

The need to get to know the group before posting was expressed by several participants directly. Some also talked about the need to develop trust in the community, which can be interpreted as needing to get to know the group more. Indeed, as previous studies have indicated, many people lurk to get a feel for the ambiance and communication style of a community (Nonnecke, 2000; Nonnecke & Preece, 2001). This enables them to decide if the group is for them, learn, and gain confidence about the best way to engage with its members. Some example comments include:

“This whole community thing is new to me. I am just ‘getting my feet wet’”

“I just joined this group today”

“I am not ready to post yet. I am still collecting information”

“still testing the ‘waters’”

“Like to lurk for awhile while learning more about the group. Post to other groups where I know the people better”

“To begin with I read and absorbed everything I could, but posted nothing. Later I had questions about medications and began to post infrequently. I was searching for other peoples experiences. As time went on and my fear subsided, I continued to read”

Shyness is also a problem for some people as in face-to-face communication:

“I am very shy”

“I don’t know what to say”

“I’m not a big joiner”

“I am slightly boring”

“If I am not completely confident about sharing my posting then I dump it”

Others have language problems:

“difficulties with language”

Some people need time to learn about the topic:

“I am still learning about the topic”

“Lack of knowledge”

“Also I think that most of the members probably know more about the questions that are asked than I would”

“I really don’t know what to say in response to the messages and replies that I read. Most of them are way over my head”

“IF COULD HELP I WOULD DO IT MORE.I AM STILL LERANING”

4.3.3. *Thought I was being helpful*

Some people thought that by not posting they were contributing to the well-being of the community. For example, this person thinks that being a good listener is virtuous:

“I have always been an advocate of being a good “listener” as opposed to being a good “talker””

Others only believe in speaking up if they have something worthwhile to say:

“So far I have had nothing to post about”

“Never felt that I had enough to share or anything of enough importance to ask”

“If I cannot offer a solution to a problem, I don’t offer just talk”

“I will post when I have something to offer”

One person did not wish to mislead by appearing to be an expert when s/he is not:

“Don’t wish to look like I’m coming off as an ‘expert’ on a subject I know little about. I would have to state I am stating an opinion only. Even then, not wanting to have those more knowledgeable criticize. Also, the permanent nature of online group posting”

4.3.4. *Couldn’t make the software work*

Poor usability caused problems for the participants and may explain why some of them did not post. Some people had difficulty getting into the community or didn’t like the process:

“Every time I try to post MSN gives me a message that I have to “sign in” but I am already signed in so then it says “sorry, someone already has that ID””

“I can’t get anything past the MSN Passport”

“don’t like the login requirements”

“Pain in the ass to get into the community”

Others did not know how to post a message or couldn’t make it happen:

“I wanted [to post] but I couldn’t”

“I just plain don’t know how!”

“I have tried t post a message but for some reason havent been able too”

“I currently have a post that I wrote which is minimized on my computer because I haven’t figured out how to send the message”

Time was an issue for some people, which suggests that interacting with the software may be cumbersome and time-consuming:

“I post to another group that is smaller and I don’t have time to post to them all”

“I am just to busy most of the time with this and other groups that I belong to”

“It takes time to respond to many of the posted messages and I for one would like to respond to them all but time limits prevent that”

One person was working with an old computer (or more likely the delay mentioned was due to a slow dial-up line):

“i have a t-rex model computer and it takes forever for me to post lol”

4.3.5. *Didn’t like the group (poor dynamics/fit)*

There were many comments that referred to poor group dynamics. Several people also felt they did not fit in the community or they would not be accepted into the community:

“the other people in this group are alot older than me and seem like a big family that i am not a part of”

“Made to feel like an outsider.I’m not in the “group””

“It just seems that the same group of people are the one’s that has everyone’s attention or interest over and over again and so on”

”It just seems too hard to break in to the main group of people”

Others were not motivated, which may also be influenced by group dynamics:

“If actively interested I can interact with this group”

“If I have questions or comments, I will post them when appropriate”

Many people were disappointed by the quality of the discussion and particularly that it was not more active. Because of this, they were not motivated to participate:

“This isn’t a very active community”

“This community is not very active and I belong to others where I am very well known now”

“there is little effort from the community owner and very few posts from other members (to respond to or which indicate what the focus or interests of this community are)”

“From what I’ve observed there seems to be little dialog on this board. Most threads are one or two messages long. a few have made it to double digits. I figure, what’s the point?”

“I post regularly (several times a week) at my more active communities”

“It doesn’t seem that many people are posting, reading posts, so I don’t bother much now” “Other sites offer more responses to posts”

“Nobody replies!!!!”

“...the delay in reponse to posting. It has been over 1 month and still no response”

A few people commented about the potential for aggressive responses:

“This community has had no manager for quite some time now, and it took only one aggressive, insulting person to ruin the whole community for everyone else”

“I find this particular group to be devoid of any cohesion as a community, many of the postings are either rude, offensive, off subject or simply childish and ignorant of the basics in the field they are supposed”

“After a couple of months of observing the conversations, I rarely post other than to correct or reprimand an out-of-line posting. Otherwise the arguments

get a little too passionate and sometimes too one-sided for me to care to invest energy into”

Or people feared the responses they might receive:

“Received a rude response to a past post”

“I feel like I will just post something stupid”

“Fear of rejection which has happened or being insulted which has also happened”

“fear of harm” (because of being identified)

The low quality of messages was also a problem that deterred contributors:

“do not see expert type answers”

“to much BS”

“Topics of discussion are generally shallow”

The data presented in this and the previous subsection indicate that:

- There are many reasons why lurkers do not post; 19 of these were itemized from the checkbox questions, and others emerged from the open-ended text questions.
- The data was classified into five categories, which provide requirements for online community developers, managers, participants and software designers to improve online community experiences for lurkers and posters alike. The five categories are: *Didn't need to post*; *Needed find out about the group*; *Thought I was being helpful*; *Couldn't make the software work*; and *Didn't like the group (dynamics/fit)*.

5. Discussion: issues for developers and others

Here we examine possible strategies for supporting lurkers. Some of these strategies encourage lurkers to post because it is clear that, in some circumstances, lurkers would really like to post. However, for the reasons indicated above, lurkers do not feel comfortable posting or they do not feel they need to post. There are also times when it is advantageous for the community to have more people contribute. Communities fail when there is insufficient activity to make visiting the community interesting. Most of the issues raised by lurkers as reasons for not posting can be corrected or ameliorated to create a better environment for both lurkers and posters.

Problems that require a change to the software are obviously the responsibility of software designers and developers. However, problems concerned with creating a good environment for communication and social interaction are primarily the responsibility of the moderator, community manager and the community members themselves. Who does what varies from community to community.

5.1. *Didn't need to post*

Over half of the lurkers that responded to our survey said they lurked because “just browsing is enough” (53.9%). They got what they wanted, and there was no need for them to post. Some respondents also said that there was “no requirement to post” (21.5%), and 13.2% said they had no intention of posting. These are the people that some researchers refer to as “free-riders”: people who take and do not give back (Smith & Kollock, 1999). While this description may apply to some, the reasons for this behavior may be more complex. Perhaps people who say “just browsing is enough”, also fear making a commitment or having their comments mocked. Another frequently held assumption about lurking is that everyone lurks, and often for good reasons; therefore, lurking should be recognized as a bona fide activity and supported more effectively.

5.2. *Encouragement to post*

There are various ways of encouraging lurkers to post ranging from enticement messages to contribution rewards.

5.2.1. *Explicit comments*

Lurkers who believe there is no requirement to post might contribute if there was a clear policy statement telling them that their comments would be welcome, for example:

‘We welcome your participation. Our community exists because members contribute ideas, comments and questions, so please join in the discussion.’

This could be included in a statement of purpose, or in a mission statement, or in a welcome statement or as netiquette. It should be visible at all times, if possible, as people are known not to read policy pages (Nielsen, 2000).

5.2.2. *Moderators' encouragement*

Moderators could encourage participation by raising provocative issues when more or more diverse posting activity is needed. Using tracking tools, moderators could send individual private messages to non-posters encouraging them to contribute. Another strategy would be to introduce new members or invite them to introduce themselves so they are made to feel welcome.

Mentoring might also be helpful so that new members know what to expect from the community and feel supported by other community members. For example,

Activeworlds.com has an “immigration officer” who checks with visitors to make sure they know how to move around the worlds and communicate with others. This appears to involve a simple mechanism of asking questions and making suggestions about the kinds of things that newcomers might find useful or might not know. Some e-commerce sites have developed more sophisticated mechanisms such as online sales agents, who ask the customer questions or answer customer queries. Another technique is to allow people to visit with their friends. For example, Landsend.com has the service “Shop with a FriendTM” where two people can view the same online pages and chat simultaneously. Also, an avatar with the same measurements as the shopper models the clothes so customers and their shopping friends can see and discuss the look and fit before purchasing.

5.2.3. *Reward quality and quantity of contribution*

Various techniques are being adopted for rewarding the quantity and quality of participant comments. Many communities of practice (COPs), technical support communities and e-commerce sites are particularly eager to identify and reward their best contributors because these people can play a vital role in the success of their communities. For example, managers of large companies and government agencies know that the knowledge and skills of their personnel are their most important assets (Wenger, McDermott, & Snyder, 2002). COPs can have an important role in information flow. Established “experts” and “mentors” can advise newcomers on work practices and information sources. COPs may also be a useful way of transferring valuable knowledge from older, retired personnel, who are sometimes prepared to moderate or advise younger, less experienced employees from the comfort of their home computer system. Software and service providers are also eager to involve knowledgeable users as advisers and trouble-shooters for their less savvy customers. To do this, they must first identify prolific contributors who provide quality advice. Tools are needed to find these gems among the many thousands of participants.

Various ways of tracking and rewarding participants have been developed that may provide incentives to lurkers. A simple technique used by the Linux community involves posting a list of the top contributors each week with the number of messages that each has sent. CNN’s discussion community abuzz.com takes this approach one step further and provides participants with a table showing the number of replies to each post and invites participants to rate the value of the posts. However, this idea falls down if there are not enough participants to make the comments interesting. A table with an empty column of cells marked “no comment” is not very inviting.

Amazon.com and e-Bay.com both have recommender systems that allow buyers to comment upon and rate their purchases and/or their seller. In the case of Amazon, anyone can write a book review and rate it. The reviews are displayed for all to see, and the rating contributes to an overall rating for the book. Potential buyers are then asked to rate how useful each review is to them. The problem with such systems is that authors may get their friends to write reviews, or worse still, anonymously write critical reviews and give poor ratings to authors who compete for the same readership. Monitoring is needed to stop these types of abuse.

For technical product development companies like Microsoft, the payoff is high for developing active communities in which expert users help novices. Work is directed away from over-worked telephone help-lines, and, if managed well, customer satisfaction may be dramatically increased. Therefore, it is important to identify the most active posters who also provide the good comments so their answers can be acknowledged and rewarded. Various techniques are being tried to accomplish this including Smith's activity maps (Smith, in press).

5.2.4. Support for browsing

There is another perspective in which lurking is viewed as a normal activity that should be encouraged as lurking is a valuable way of getting to know a community (Nonnecke & Preece, 2001). Others lurk in some communities but not other communities, which suggests that many lurkers practice a form of general reciprocity (Preece, 2000). It is therefore reasonable to support lurking by providing effective tools for reading, finding and browsing community information. However, when these tools work well, lurking levels may actually increase more than in community environments where they are poorly implemented and hard to use (Nonnecke, 2000). In less rich lurking environments, lurkers may leave the community, as their primary needs may not be easily met. In any case, effective archive browsing tools should also benefit posters.

5.3. Needed to find out about the group

People lurk while getting to know the community. They want to judge the ambiance of the community to anticipate the character of responses to their posts. Lurkers want to see who posts the most frequently and how these posters respond to newcomers. Just as in face-to-face environments, some people may also be shy, taking longer to become comfortable enough to participate.

To help newcomers, established members could be encouraged to take on the role of the archetype "greeter". Other strategies could include guided tours, mentoring, and discussion summary pages. Personal information pages and links to individuals' home pages or a who's who directory may also encourage newcomers to feel more empathy (Preece, 1999b) towards group members.

5.4. Thought I was being helpful

As stated in the findings, some people avoid posting because they think they are being helpful. In busy communities, participants may not want to add to an already cluttered, confusing interface, particularly if there are many deep threads. The underlying intention of these people is often altruistic. However, it is possible that the community is missing out from an interesting alternative or more subtle explanation. Furthermore, it might be useful for the community to know how many people have similar ideas or to hear other opinions if particular participants dominate discussions.

One way to involve these altruistic lurkers is to provide software that reduces the cluttered and confusing interface usability problem. People need to register their opinion without crowding and complicating the interface. One solution might be for

participants to add a vote to the opinions with which they agree. Another would be to radically redesign bulletin board interfaces so that they provide better overviews of the activity and allow users to zoom in and out of conversations of interest to see more detail (e.g., who contributed and what they said) or gain overview (e.g., how many messages are present and when they were contributed). The zooming interface concept is well established in a variety of other interfaces (Bederson, et al., 1996) and has found its way into products such as MapQuest.com.

5.5. *Couldn't make the software work*

Usability was a problem for some users as we stated in the findings. Good interaction design depends on usability testing (Preece, Rogers, & Sharp, 2002). Providing clear instructions about how to register, log into a community, read messages, post replies and initiate new discussion is absolutely required, and designers need to make sure that their designs are as intuitive as humanly possible (Preece, 2000). Also, systems must be fully tested with representatives from the target user population as well as heuristically with experts.

5.5.1. *Usability support for newcomers*

Of particular note in the findings is that 7.8% of the lurkers were unable to post because they did “not know how to post to the group”. While a 7.8% tool usage failure rate may not seem high, it nonetheless suggests usability studies are needed and that learning materials may also be helpful. It may be that tool failure for posting will vary among communities and their audiences, e.g., non-technically sophisticated communities may be more affected. This suggests that community managers need to understand the capabilities of both their audiences and the community tools chosen for the community. This may be an issue for any predefined community structures such as those found in MSN communities. In any case, it is an important community design issue.

5.5.2. *Dealing with too many messages*

As mentioned earlier, techniques for getting an overview of busy discussions and navigating around to see what is there are needed. Zooming interfaces that enable users to view a map of the contents and zoom into areas of their choice are needed to ameliorate problems caused by there being too many messages. Another strategy would be to divide the community up into more people-friendly units, which might form permanent or ephemeral sub-communities. This scaling issue has been posed many times, but as yet techniques for gracefully facilitating a scaling mechanism have not been developed.

5.6. *Didn't like the group (poor dynamics or fit)*

When the interaction in online discussion communities is low, a common response from developers and researchers is to look for technology solutions that would more

closely mimic face-to-face interaction: for example, high-resolution avatars that might help compensate for missing body language cues. While such solutions may improve interaction in some communities, they often do not (Abrams, 2003). Our results suggest that there may be a range of other ways to alleviate poor interaction problems, many of which involve human interaction from moderators or community members themselves.

The checklist data contained more items in this category than any other category, and there were many open-ended comments that support this finding. In the discussion that follows, we identify five main types of problems that moderators, community participants and software developers can address.

5.6.1. *Shy about posting*

Over a quarter of the survey respondents (28.3%) gave shyness as a reason for not participating. Various approaches could be adopted to support shy people, and some of these have already been mentioned above. For example, “meeting and greeting” new members might be helpful, or offering a mentor or online buddy to support the new member.

5.6.2. *Want to remain anonymous*

Over 15.0% of participants said they want to remain anonymous, and another 4.1% said that fear of commitment discouraged them from posting. Some communities now encourage their members to adopt login names and personas, which give them a reliable online identity that is separate from their real life identity. From a community’s perspective, it doesn’t matter what identity members take online as long as it is consistently used. For example, as a member I want to know that “smiley cat” is the person who talks about her weight problem in an honest way and always offers me and others support and that the “blue bird” is the negative person who complains in most of his messages. I don’t need to know that “smiley cat” is Sue Brown from Alexandria and “blue bird” is Jack Straw from Little Oak. Making participants aware of the subtlety of having a reliable online identity, which enables them to keep their real life identity anonymous, is an important job for community moderators and managers.

5.6.3. *Wrong group*

Some lurkers discovered that the group was not a good one for them (7.3%) and was of no value (11.0%). The solution to this problem appears to be straightforward. The community needs a name and statement of purpose that clearly articulates the community’s goal and is prominently located on the discussion board and website (Preece, 2000).

5.6.4. *Fear of being treated poorly*

Concerns about aggressive responses (5.9%) and of being treated poorly as a new member (1.4%) were not strong reasons for lurking. However, anecdotal reports from a moderator from Slashdot (Katz, 1998) suggest that fear of ridicule and aggression by members of this technical community strongly inhibits many people from participating.

In a study of lurking in discussion lists, Nonnecke (2000) discovered that lurking rates are significantly higher in communities that do not respond to new posters,

which suggests that special attention to acknowledging and responding to new members is important. Other studies also report that community members want a strong moderator who stops aggressive and other inappropriate comments (Abrás, 2003; Maloney-Krichmar, 2002).

Tools are available to filter abusive comments and spam. Strong and prominent statements about netiquette are also needed backed by decisive moderation policies that are upheld.

5.6.5. Poor quality interaction

Fewer than 10% of the lurkers cited low quality messages (7.8%) or an uninteresting group and long delays in getting responses to their messages (6.8%) as reasons not to post. Moderators may have a role in ensuring that messages receive responses; either they can make it their job to reply or they can identify other members of the community to take on this role. Ensuring high quality messages is a bit more difficult. Providing a role model might be helpful. However, people who are slow or poor writers or whose native language is not English need support so that they are not discouraged from participating, as this would be discriminatory.

6. Conclusions

Two strong conclusions can be drawn from this work. First, there are *many reasons why people lurk* in online discussion communities. Second, and most important, *many lurkers are not selfish free-riders*; there are a host of other reasons why lurkers lurk. The implication from this study is that there is much that we can do to make the community a more interesting, satisfying and comfortable environment for both lurkers and posters.

Some solutions require improved software and better tools, but moderation and better interaction support are also critical to the overall success of online communities. Further research is needed to investigate the significance of integrating the strategies and design changes that we propose in online community environments. While quantitative measures and metrics are needed, the challenge for researchers is how to obtain these measures without disturbing the organic development and ambiance of the communities they study; particularly when community members themselves resist change (Maloney-Krichmar & Preece, submitted for publication). However, many “so-called” communities more closely resemble digital ghost towns than communities. The level of their dysfunction is so high that they do not articulate opinions, and it is these communities that stand to benefit the most from researchers’ findings. Documenting the growth of new online communities and the effect of carefully planned strategies for revitalizing faltering online communities is a good first step towards better understanding what makes online communities successful for both posters and lurkers. Developing and refining heuristics for evaluating online communities from the perspective of community members themselves is another approach (Abrás, 2003; Abrás et al., in press).

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Appendix A: The checkbox question

Q: If you never post to this online group/community, what are your reasons?

- Just reading/browsing is enough
- Want to remain anonymous
- Shy about posting
- Others respond the way I would
- Had no intention to post from the outset
- If I post, I am making a commitment
- Nothing to offer
- Wrong group for me
- Do not know how to post to this group
- Still learning about the group
- There are too many messages already
- Poor quality of messages or group/community
- No requirement to post
- Group treats new members badly
- Concern about aggressive or hostile responses
- Long delay in response to postings
- Of no value to me
- My work does not allow posting
- Not enough time to post

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