

Chapter 6

Silent Participants: Getting to Know Lurkers Better

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6.1 Introduction

Why do lurkers lurk and what do they do? A number of studies have examined people's posting behaviour on mailing lists (Sproull and Kiesler, 1991), bulletin board systems (Preece, 1998) and Usenet newsgroups (Smith, 2000) but studying lurkers is much harder because you don't know when they are there or why. Although lurkers reportedly make up the majority of members in online groups, little is known about them. Without insight into lurkers and lurking, our understanding of online groups is incomplete. Ignoring, dismissing, or misunderstanding lurking distorts knowledge of life online and may lead to inappropriate design of online environments. E-commerce entrepreneurs are particularly eager to find out why people lurk, in order to understand better how to entice them to participate in commercial interactions.

To understand lurkers better we carried out in-depth interviews with 10 online group members. From these interviews, 117 possible reasons for lurking were discovered. In addition we identified 5 primary lurking activities and a number of key lurking strategies. From this analysis we conclude that lurking is a strategic activity that involves more than just reading posts. On the basis of these findings we propose a new definition for lurking.

6.2 Rethinking Lurking

A generally accepted definition of an online lurker is anyone who reads but seldom if ever publicly contributes to an online group. In many types of online groups, lurking is possible because the technology provides access to group dialogue without being visible or forced into public participation. There are exceptions, such as multi-user dimensions (MUDs) and object oriented MUDs (MOOs), in which members are visible and participation is assumed. However, in email-based discussion lists (DLs, aka LISTSERVs and lists) and newsgroups, one can participate through lurking. This is particularly true of public newsgroups, where formal

membership is not required and access is through a newsreader. DLs are somewhat different as they typically require that individuals join and provide a valid email address. The focus of our work has been on DLs, but many of our findings will be important in understanding lurking in other online contexts.

DLs, newsgroups, and Web-based bulletin board systems (BBSs) have experienced rapid growth as the number of Internet users climbs. As of May 2001, there are more than 177,000 DLs using LISTSERV's server software. The 124,000,000 members of these DLs send in excess of 28,000,000 messages per day (L-Soft International, 2001). Whittaker, Terveen, Hill, and Cherny (1998) cite similarly large numbers for Usenet newsgroups. The growth and prevalence of online groups, coupled with the relative ease of gathering persistent and traceable messages, has made online groups a fertile ground for research. The following are a few of the areas so far studied: the development of friendship (Parks and Floyd, 1996), the perception and quality of community (Roberts, 1998), factors affecting interaction within newsgroups (Whittaker et al, 1998), and the development of empathy in health support groups (Preece, 1998; Preece and Ghazati, 1998). Each of these studies was on the basis of examining individuals participating in public spaces, i.e. those who post. None examined their chosen area from a lurking perspective, even though lurkers are reported to make up over 90% of online communities (Katz, 1998; Mason, 1999).

Given that lurkers are both unstudied and apparently in the majority, knowing more about them will have benefits in many areas. For example, their sheer number suggests they are an important area to study from an e-commerce perspective. As group development becomes an important component of commerce on the Internet, understanding lurkers will become an essential part of doing business. Many e-commerce enterprises present group facilities and a community-oriented face, e.g. the Ask Dr. Weil Web site (Weil, 2001). Every lurker is a potential customer. For example, Amazon.com has been very successful in creating an online retail environment in which lurkers can make purchasing decisions on the basis of how others have purchased in the past and on reviews supplied by other customers. Amazon.com has leveraged the information gained from those willing to post reviews into purchasing-support tools for the lurker and poster alike. From a usability perspective, improvements in tools and group design will fall out of a better understanding of lurkers and their activities. For lurkers and their communities, knowledge of lurking will have the benefit of demystify lurkers' roles, value, and activities.

Researchers also have opinions about lurkers that need to be verified. For example, Kollock and Smith (1996) describe lurkers as "free-riders", i.e. non-contributing, resource-taking members. Knowing more about lurkers and their lurking will show whether this is an accurate description.

Definitions for lurker and lurk provide insight into how lurking is viewed. The online *Jargon Dictionary* (2001) defines the term, lurker, as:

One of the "silent majority" in an electronic forum; one who posts occasionally or not at all but is known to read the group's postings regularly. This term is not pejorative and indeed is casually used reflexively: "Oh, I'm just lurking". Often used in "the lurkers", the hypothetical audience for the group's flamage-emitting regulars. When a lurker speaks up for the first time, this is called "delurking".

This definition suggests that lurking is the normal behaviour of the majority of the population and that lurking can be defined in terms of the level of participation, either as no posting at all or as some minimal level of posting. In contrast to the *Jargon Dictionary, Merriam-Webster Online* (2001) provides a pejorative definition for the term, lurk:

a: to lie in wait in a place of concealment especially for an evil purpose b: to move furtively or inconspicuously c: to persist in staying

These contrasting perspectives reflect an inadequate understanding of the lurker in online discussion forums. The former definition evokes the image of a benevolent yet responsible Net citizen, but the traditional definition implies something much more sinister. Evidence for the former is anecdotal and, without appreciating the nature of online lurking, the latter definition may be inappropriate.

In studying public participation levels in health and software support DLs, it was found that lurking is “normal” in the sense that everyone is likely to lurk at least some of the time and frequently most of the time (Nonnecke and Preece, 2000). We have also come to understand that describing lurkers from a single point of view, e.g. as free-riders, misses much of the diversity of lurking as will be described in this chapter. Nonetheless, an operational definition for the term “lurker” is helpful in discussing the phenomena of lurking. To that end, we base our definition on whether a person publicly participates in a group or community, i.e. a lurker is anyone who rarely or never participates publicly in online groups and communities. At the end of this chapter, we will revisit the definition and offer improvements.

6.3 Lurkers in Discussion Lists

While lurkers exist in many online environments, our primary focus will be on DLs. DLs were chosen because of their popularity, and just as importantly, for a technical reason which aids the study of lurking. Membership levels can be determined in DLs, something which is difficult to do in other asynchronous group environments such as newsgroups and BBSs. Knowing membership levels is crucial to determining lurking levels as the number of lurkers in a DL is the total membership minus the number who post. In the case of DLs, those who post can be counted by tracking the authors of the posted messages. In order to understand lurking in DLs, the remainder of this section provides a brief overview of how DLs function.

DLs are automatic devices for sending and receiving messages among members of a group. They are also asynchronous communication tools in which members can choose when to view their messages, if at all. DLs facilitate delivery of email to a set of subscribed members using a broadcast model. Anyone who sends email to the central server effectively broadcasts the email to all members of the DL. Individuals can respond to received email via the server, which in turn broadcasts the reply to all members. There may be an intermediate step in which messages are moderated. This can introduce delays in propagation or the elimination of some

email, depending on how the moderation is handled. At the member's option, the email may be received individually or in the form of a digest (a group of messages).

An important aspect of DL messages is their persistence. In this case, "persistence" means the continued availability of messages, often for an indefinite period of time, and not only in each member's email storage but also in private, public, and corporate locations. For example, many DLs keep all messages in a central public archive that can be easily searched. Email may also be intercepted or backed up and held in corporate databases. Being both persistent and dispersed means DL messages are searchable and manipulable, and may be available to non-group members.

DL messages contain header information that includes sender, date, and subject. The header information allows messages to be sorted and managed using a variety of software. For example, users of the email client Eudora can follow a thread by sorting messages by author, subject, and date. In addition, each message contains content and, frequently, a signature. Both the header and message content make great fodder for searching. Searching can range from members searching their own locally maintained email to a researcher searching for quoted text through the use of crawler-based search engines, e.g. Google Search (Google.com, 2001). Because copies of messages may reside in many locations outside the subscriber's control, access is effectively wide open. The messages can be searched for content, originator, or in many other ways.

DL email may be read in isolation and the flow and intent of the messages can be distorted through the redistribution of individual messages or parts of copied messages. For all intents and purposes, email from DLs may be mutated from dialogue to data and back to content, without the originator having control over the process or use. An example of unintended use is the trolling of DLs for the purpose of creating address lists, which are then sold to spammers and legitimate businesses. The copies may also be used in the way they were intended, e.g. as an accessible resource for the group, for finding specific information, and for following conversations.

At the individual level, people manage their incoming email, including their DL email, in many different ways (Whittaker and Sidner, 1996). Some people have high volumes of email, others have low volumes. Some people read all messages and others do not. Some people file messages while others keep all their messages in a central inbox. How people manage their email has an effect on how they manage their DL messages. As a result, it is unlikely that members of a DL see or treat their messages in a uniform manner. This is different from Usenet newsgroups, where messages are viewed in browsers specifically designed for Usenet messages. Usenet differs in another important way; unlike DLs, Usenet groups typically do not require membership. Both of these differences are likely to have an effect on how people interact with a group, e.g. membership in a DL may carry with it certain perceived responsibilities, and using a browser to view messages rather than an email client may be less intrusive on everyday use of email. A fuller understanding of these important differences is beyond the DL focus of this chapter and open to future research.

In addition to a group's DL, group members are frequently supported through related Web sites, electronic forums such as chat-rooms and BBSs, and frequently

asked questions (FAQs) which are created out of a need to support the group and are seen as a crystallization of the group's wisdom. Web sites are becoming central gateways to a number of different group information and communication tools, e.g. FAQs and BBSs.

6.4 Interviews and Initial Discoveries

To study lurkers, we used in-depth, semi-structured interviews. The primary goals of the study were to understand why lurkers lurk and what they do. We sought to elicit information about lurkers from online community members with the assumption that many of the interviewees would be lurkers as well as participants. The study was intended to provide a better understanding of lurkers and lurking, and was not intended to be exhaustive or by any means the last word on the subject. Rather it was an initial probing, which could become the basis for further work.

The interviews were designed to gain as broad a picture as possible. While generally following a script, questions in the open-ended interviews focused on issues brought up by the interviewee. These new areas of interest would form a background of investigation for subsequent interviews.

Participants were selected at random from two physical communities in which members were known to be Internet users. Given the relatively high incidence of lurkers reported by Mason (1999), it was assumed that the majority of participants would more than likely be lurkers. Ten participants were drawn from 2 locales, 5 men and 5 women, ranging in age from early 20s to early 50s; all had at least one university degree. The intention with the small sample size was to balance for age and gender, rather than examine age or gender issues. All participants were members of at least one online group, and were not pre-selected for lurking or for their level of experience with online communities. All the people asked participated in the study; 3 were well known to the researchers, and 7 were not. Face-to-face or phone-based, open-ended interviews lasted between 45 minutes and 2 hours, and focused on the participant's participation in online groups. Prompting was minimal, and the interviewer did not validate whether a group or topic was worth discussing.

Several things became very obvious after the first couple of interviews. For one, the semi-structured interviews worked very well. By emphasizing the online groups and then having the participant describe their participation in the group, it was possible to understand lurking, not just in terms of lurking behaviour, but also in terms of participation in general. Understanding the types of groups they joined, the reasons they joined, their activities and the duration of their membership painted a very rich picture of their lurking and participation. For most participants, talking about a particular group experience proved to be a good anchor for their discussion.

A number of participants had a very good understanding of why and how they participated. For these participants, it was often easier for them to describe their strategies and then give examples using a specific group. Their approach to explaining their knowledge and experience while different from the anticipated interview structure, in no way lessened the value of their input.

One conclusion drawn from the study is that lurking is a strategic and idiosyncratic activity driven by an individual's needs and background. The participants were well educated and comfortable in talking about their use of the technology and how it affects them, and were in all likelihood more comfortable with the technology than the average online group member. If a different set of participants had been used, then the results would likely be biased in some other way. For example, studying lurking habits of teenagers could lead to very different results. It is likely that teenagers may be much more adventurous in their use of technology and would probably seek different kinds of interaction.

The collection of specific quantifiable information was less important than the exploration of the issues during the interview. Given that this first study was not intended to carry the burden of quantifying lurkers and their behaviours, this was a reasonable approach. A simple count did show that everyone was a lurker. Some participants lurked all the time, some lurked in specific DLs, and others lurked at specific times. Discovering that lurking was so prevalent was an important finding.

The participants' stories of their group participation hold potential for describing lurking in a way that could make the lurking experience more accessible to community developers and tool designers. Given the dearth of lurker information for grounding group and community design, these stories could provide a means of establishing and fostering environments suited for lurking.

Of the groups described by participants, 30 of the 41 were ones in which the 10 participants lurked. These findings support suggestions that lurking is a common activity in online groups. Twenty-five of the 41 groups listed were DLs (Table 6.1). Of this group, 21 were described as DLs in which the participants lurked. (Finding that DLs are widely participated in and that participation is largely in the form of lurking was one of the deciding points in favour of using DLs in a follow-up demographic study; Nonnecke, 2000; Nonnecke and Preece, 2000.)

Reasons for lurking were varied, with participants providing 117 reasons, and what lurkers did while lurking was equally varied. The most obvious conclusion to be drawn from the interviews is that lurking cannot be characterized by the single

Table 6.1. Group types and whether lurking occurred

Participant	Group type					Lurked/total
	DL	BBS	Newsgroup	Chat	MOO	
P1	LLL		LLL			6/6
P2	LLLL					4/4
P3	L					1/1
P4	LLLLL		L		P	7/8
P5	LLLL-PP					4/6
P6	L	L-P				2/3
P7	L-PP	L				2/4
P8		LL		PP		2/4
P9	L	P	P	P		1/4
P10		L				1/1
Lurked/total	21/25	5/7	4/5	0/3	0/1	30/41

L, lurked in a group; P, posted in a group.

behaviour of not posting. Neither can lurking be described as reading without posting, as lurking frequently occurs without the reading of individual messages. For example, lurking can take the form of culling and organizing messages for later use. Rather, lurking is a complex set of actions, rationales and contexts, i.e. situated action. It would be convenient for designers and community builders if specific reasons for lurking could be cited as more important than others; however, the participants in this study painted a very broad picture of why they lurked. Individuals appeared to be guided by their own reasons, needs, and stage of membership. By examining their stated reasons for lurking, it is possible to get a sense of the issues involved.

6.5 Why Lurkers Lurk

There is no single answer to why lurkers lurk. For example, one participant belonged to a broad range of DLs, having joined them for both personal and business reasons. The motivations for joining each DL was different (e.g. as part of a hobby or required by work), participation in the DLs was for the most part limited to lurking. Lurking was comfortable and enabled him to attain his goals given the nature of the DLs, each DL having high volumes of quality postings representing both depth and breadth of knowledge. In neither group was the participant motivated to post for information. Instead, he took a more general wait-and-see approach. Participants described their needs/wants met by lurking. The following were mentioned by at least 50% of the 10 participants (the number in brackets indicates the number of participants citing a particular need):

- conversations/stories (8)
- entertainment (7)
- access to expertise/experience (6)
- information without interaction (5)
- community (5).

The following reasons for lurking were mentioned by at least 50% of the participants:

- they wished to preserve their anonymity in order to ensure privacy and safety (8)
- there were work-related constraints preventing them from posting (8)
- the volume of messages was too low or too high (5)
- the quality of messages was poor (5)
- they were shy about posting (5)
- they had limitations on their time (5)

And, they lurked while

- leaving the group (6)
- getting to know the group (5).

To understand better why lurkers lurk, the 117 given during the interviews collected and then aggregated. This resulted in a set of 8 categories that will now be used to discuss why lurkers lurk:

- satisfy personal needs
- satisfy information needs
- learn about the group
- leave a group quietly
- maintain privacy and safety
- reduce noise and exposure
- act within constraints
- act in response to group dynamics

6.5.1 Satisfy Personal Needs

When DLs were joined for personal reasons there was a correspondingly strong motivation to get as much out of the DL as possible. Entertainment was a common theme and took a variety of forms. Just as some people enjoy receiving snail mail, several participants enjoyed receiving email, indicating they liked having new email in their inbox. This gave them a sense of connection and also something to do in their free time. Others mentioned being attracted to controversy and debate, including watching flaming from the sidelines. Curiosity and learning were high on many peoples' list of reasons for joining and lurking in a DL. Humour was also appreciated and for several participants was the primary reason for belonging to specific DLs. Anecdotal evidence suggests that membership of this kind leads to much out-of-group communication, although this was not specifically mentioned by these participants.

Others joined DLs with many of the same members as their non-electronic-based organizations. In their opinion, this complemented and strengthened relationships. DLs also provided a convenient way to track events and announcements. One participant who belonged to such a DL read all messages and deleted all but the announcements for physical meetings. This brings up an important distinction between DLs and distribution lists. DLs foster group communication, whereas distribution lists are used to disperse information from a single source and typically do not include the functionality for list members to interact publicly.

Some participants are attracted to health-support DLs as a source of empathy (Preece, 1998). At least one participant in our study felt empathy strongly while lurking. DLs can also act as a mechanism for putting people in contact with one another through more private channels. For example, peers, expertise, and finding people beyond a local geographic community were described as reasons for joining a DL. Topics of specific interest to participants also drew them into joining DLs. Participants often described members of DLs as interested and focused. Relationships developed out of belonging to the DL, although no long-lasting friendships were reported, as found elsewhere (Parks and Floyd, 1996). Several participants indicated they developed a sense of community through lurking.

6.5.2 Satisfy Information Needs

Satisfying information needs was important to the participants. In some cases, information was more important than interaction. In addition to email-based

messages, archives were used by several participants, especially if they were readily searchable. In a more passive way, the turnover of information through members' dialogue was also informative. In this way, participants were able to identify experts and if need be, seek expertise directly from these individuals.

Participants sought three types of information: factual information (e.g. job postings or solutions to technical problems); different viewpoints arising from different levels of expertise; and access to personal experiences of others. Participants also mentioned breadth and depth of expertise as being important, as was finding "authentic" information on the basis of an individual or group experience. Timely information was also considered quite important both in the sense of it being current, and that it meet the participants' immediate needs. Getting information from people living in the Middle East during the Gulf War was given as an example of timely information.

Professional needs, such as keeping abreast of conferences and work being done by peers and colleagues, were cited. Understanding who is doing what and where appears to be an important part of keeping abreast of a professional community.

6.5.3 Learn About the Group

Half of the participants lurk on joining a group and use this time to evaluate the group for its fit or value to them, and to come up to speed on the individuals in the group, dialogue styles, the language of the group, and its rules (implicit and explicit). The following is a list of group attributes which lurkers use to understand a group:

- terminology or special language
- posters (players and archetypes)
- rules (implicit and explicit)
- responsibilities related to being a member of the DL (implicit and explicit)
- style(s) of interaction, e.g. confrontational, humorous, etc.
- response of members to delurkers
- style and intrusiveness of moderation
- response time to messages
- volume and quality of postings.

For these participants, lurking was a preferred method of doing this. For many, it reduces the risk of making a faux pas or being rejected.

Group characteristics and behaviour can effectively act as filters to the public posting and thus have an effect on lurking. For example, a new group member may join a DL with the intention of observing before deciding on their form of participation and whether to remain a member. If there was a mismatch between their expertise and that of the group, then this initial period of lurking was used to determine this before unsubscribing or remaining subscribed. Participants wanted to know whether they would be able to add value to the DL, or whether postings by others would make their contribution redundant.

Several participants mentioned watching how others were treated on posting for the first time, i.e. on delurking. Several aspects of the delurking process stood out

for them. One is how the delurker carried out the delurking action, i.e. how they presented themselves to the group for the first time. The other is how the group received them. It is interesting to note that lurkers evaluated the welcoming quality of the group on the basis of the public response. They knew little if anything of the private responses engendered by the delurking. This points out how important these public spaces are to both lurker and poster alike, especially in the initial phase of joining when the group is being evaluated for its fit to the participant.

Most participants described the process of understanding the DL as a period of intense reading of most, if not all, posts. This occurred whether the posts were available as separate emails, digests, or archives. In several cases, reading of current posts was supplemented by searching and reading archives. During this period, which ranged from days to months, participants worked at identifying the topic or topics of the DL and determining whether this was a good fit for their needs.

In the process of doing the interviews, it became obvious that knowing a group and the individuals in it was very important to several of the participants. These participants were able to describe their tactics in detail. These included looking at previous posts by an author (using archives or other means), examining email addresses for personal or corporate information, following threads to understand the nature of the discussion and participants, and using signatures and related Web sites to find out more about posters.

6.5.4 Leave a Group Quietly

In contrast to lurking after joining there is lurking when leaving a group. Participants were asked to describe both current and past groups. As a result, a glimpse into why they left groups emerged. Six of the 10 participants indicated that they lurked in the process of leaving a group. None of the participants mentioned publicly saying goodbye to the group; rather, the leaving took the form of reduced public participation and reading of messages. Many indicated that a lack of time was an important element in leaving a group. However, groups cited as largely information interchange houses (e.g. software application help groups) were frequently left because they no longer supplied information in sufficient quantity or quality. This was largely a result of groups repeating topics, and the participants becoming more expert in their knowledge. Others left because they were less in need of what the group could offer. For one participant, belonging to a health-support group was less important once his health was no longer an issue. At that point he started to pay less attention to the group, to the point of not reading posts. This points out how lurking can change depending on the stage of membership, i.e. intense reading of posts in the beginning and virtually no reading at the end. Because the participation is in the form of lurking, this change in participation may go unnoticed in the group. For some participants, the practice of lurking makes leaving a DL easier. For these participants, public posting is an implicit pledge to ongoing participation, and if no such pledge exists, leaving is simpler as no explanation is required.

6.5.5 Maintain Privacy and Safety

Participants were generally aware that messages in many DLs can persist indefinitely through publicly accessible archives. In addition, maintaining privacy is generally up to the list member, e.g. through the use of secondary anonymous email accounts. Unlike the participants in this study, less technically knowledgeable DL members may be unconcerned with these issues. The persistence of messages and a lack of built-in privacy in DLs inhibited posting of personal information by most participants, and in one case, a participant's employer prohibited posting for these very reasons. For some individuals, their notoriety makes posting problematic, e.g. few government officials post to public DLs.

Members and potential members of a DL should have a clear understanding of the implications of posting, i.e. loss of privacy. Part of that understanding lies in knowing whether the DL is publicly archived, whether there are membership criteria that have to be met in order to join the DL, and whether a list of members is publicly available. At present the majority of DLs do not provide membership lists.

Safety is also a concern for some lurkers. Participants who had concerns about safety expressed it at two different levels. The first relates to a fear of violence, i.e. that someone or some agency can use posted information (or mere membership in a DL) to find someone or something about someone. The second relates to the fact that if you don't post you can't offend, and therefore will not become a target of flaming. The safety and privacy issues are different, but they both result in lurking.

One option for ensuring privacy and safety is the use of anonymous email hosting services such as hotmail.com. These services provide mechanisms for anonymously posting and receiving messages. There is a conundrum; participants were interested in maintaining their own privacy yet wanted to know more about other members. For example, a poster's address and signature were mentioned as a means of understanding the poster, and one participant wanted to find DL members of a similar age and gender.

6.5.6 Reduce Noise and Exposure

As one participant expressed it, when you lurk, you can have curiosity without exposure. In contrast, several participants indicated that it is much more difficult to lurk in chat-rooms than DLs as chat-rooms are synchronous environments where participants are normally visible and thus approachable.

Some DLs discourage lurking, at least at the outset, suggesting in their introductory message that newcomers should provide a description of themselves and post it to the DL. Other DLs specifically state that posting is not required. In either case being aware of the rules of the DL is often an important part of participation. However, where to find the rules is not always self evident. In some DLs, a related web site will be linked at the bottom of each message. However, few of the participants in this study indicated they read the rules or guidelines. This does not appear to be a case of rule intolerance, as lurking was cited as a way of understanding the groups discourse norms and standards of etiquette.

Most participants realized that DLs and other online forums are regularly pilfered for email addresses, which are then sold or used directly to spam. Not one participant said they look forward to receiving spams. Spammers can obtain messages directly from the messages themselves or by querying the DL server for a list of members.

As a first level of defence, members' addresses should be made difficult to access. Owners of DLs can easily restrict access to the DL membership list. Similarly, DL server software can be set up to prevent the distribution of email from non-members. Some DL members take their protection one step further and provide incorrect return addresses in their email. This may foil spamming, but it also makes legitimate communication, such as side-posting, more difficult.

6.5.7 Act within Constraints

Apart from the areas already discussed, such as the stage of the membership and the fit between member and group, constraints on lurkers' activities were primarily related to time or work. These constraints are largely external in nature. For example, one person was prohibited by his employer from posting and another participant belonged to a group because it was part of his job. In this latter case, the employer did not require or even expect the participant to post.

Like anything else in life, when someone is busy in one area, the time available for another area is reduced. Being involved with a community through posting can take more time. In recognition of this, several participants mentioned that they did not post because they knew that it would likely lead to a dialogue, which in turn would require them to continue. There is an awareness that posting has responsibilities. One participant indicated he was uncomfortable when someone would post to a group and a response was not forthcoming. They mentioned this was a situation in which they considered delurking or sending a private response. Several participants made the interesting observation that it is much easier to ask a question than to respond to one. This was particularly true in a group that was technical in nature. This would suggest that a member of a group may lurk as a respondent and post as a questioner.

One constraint that is typically under the control of both the DL owner and the member is the format in which the messages arrive. The participants who mentioned receiving DL messages in digest format indicated the digests were more difficult to follow and less exhaustively read. A digest could therefore be considered a barrier to participation in all its forms, not just to posting.

6.5.8 Act in Response to Group Dynamics

There are two other points related to the behaviour of the group that have an impact on lurking. The first is related to groups in which there are periods of posting followed by mass lurking with only a small proportion of the group posting. It is as if the group collectively lurks during lulls in posting and collectively rallies into a posting frenzy on a periodic basis. From at least one

participants' perspective, these lulls are useful as the high levels of posts take a fair amount of work and are generally quite valuable. The other point is that large groups appear to be easy to lurk in. This is certainly true in groups that are synchronous such as MUDs and MOOs. In a follow-up demographic study (Nonnecke, 2000), lurking levels in DLs were shown to increase as membership levels increased.

For many, lurking is a methodical process and substantial effort can be invested in managing, selecting, and reading messages. How this takes place is dependent on the individual and the group. For example, individuals with little or no time are less likely to read all messages from groups with high message rates. In describing acceptable message rates, several participants suggested that more than half a dozen messages a day is too many. It is not clear that this is the case for all users or for all types of lists.

Of the 10 participants in this study, at least 4 were predisposed to lurk in all of their online environments. This suggests that no matter how groups present themselves, there will be a portion of the members who will lurk. On the other hand, there appears to be a class of members who are predisposed to post publicly. It is certainly the case in many DLs that there is a constant discourse by many of the same people. Anyone who has spent time in a DL will be able to tell you approximately how many participants post daily. They may even be able to name these individuals. How concentrated this group of primary posters is in terms of overall membership levels is not known, and is likely to vary between online communities.

6.6 What Lurkers Do

Lurking involves many different activities. It is not just reading of posts and perhaps sending an occasional post, as suggested by the *Jargon Dictionary*. If this group of participants is representative of the general online population, management of messages is a very important lurking activity. The activities described by the participants are not passive in the sense that the reader waits for email and then responds, but involve strategies for determining what to read, delete or save. In general, activities were goal driven and somewhat idiosyncratic. Some of the idiosyncrasy may be a result of variation in tools (email-clients). For example users of non-GUI email clients such as Pine (on UNIX operating systems) tended to not use folders or secondary mail boxes, but instead deleted messages on a regular basis. Variation in lurking also appears to be related to the skills of the lurkers and their goals.

It is clear that lurkers' activities are carried out methodically and that individuals are capable of explaining not only their methods, but also the strategies they employ. For example, none of the participants read all messages all the time, and depending on the experience within the community they might not read any of the messages. Some participants were able to describe an overall set of strategies that they employed, e.g. delete all messages except for those related to announcements. Others appeared to be much more dependent on the context of their lurking. For example, if they were short of time, they would delete whole threads, confident that the information would come up again at a later date.

Participants had other priorities in their lives; DL reading/following was frequently not the most important task of the day and certainly not the one in which they wished to spend most of their time, or even a good portion of it. In the context of their lives, lurking in a DL is one of many activities filling their day. Participants employed the following strategies to deal with messages:

- maximize return on effort
- keep information manageable
- identify DL email amongst other email
- follow threads
- decide to read or not to read

The next five sections will discuss each of these activities as they relate to lurking.

6.6.1 Maximize Return on Effort

In general the participants were interested in getting the most out of the time they had for lurking. Even if they lurked to entertain themselves, they still wished to do this as efficiently as possible. This typically meant spending less rather than more time with DLs. They used a number of methods to do this. If they belonged to more than one DL, they limited themselves to the number of DLs they could handle. It was clear that too many DLs meant that the value of one or more of the DLs would be reduced.

The asynchronous and persistent nature of DLs means that lurkers can go back through archived messages at any time and either search for particular information or browse the messages. For some lurkers this is an efficient way of finding pertinent information.

Although many of the DLs described by participants had 20–30 messages/day, participants were generally happier with fewer messages. Factors affecting the amount of time required to lurk on a DL include the quality and size of the messages, the motivation in belonging to the DL, the volume and type of email received from other sources, and the time available. In the examination of a number of introductory messages provided by DLs and related web sites, none mentioned how many messages a subscriber might expect.

6.6.2 Keep Information Manageable

Manageable meant different things to different participants, but was often related to comfort. For several participants, comfort came from keeping their inbox small, i.e. they were able to see all retained messages at once. The process of picking through the messages was an important part of their management process. Not surprisingly, understanding how inboxes are used is critical to developing design solutions.

Filters to sort messages into secondary mail boxes was not commonly used by participants. A number of reasons were stated: not trusting the effectiveness of

the filters, potential burying of important email, and no knowledge of filtering tools or the process of creating effective filters. Filtering mechanisms should be examined with an aim to making them verifiable, trustworthy, and simpler to learn and use.

6.6.3 Identify DL Email Amongst Other Email

Identification of DL messages is an important mechanism for scanning and processing email in the inbox and elsewhere. Differentiating one DL's messages from another, and those in turn from non-DL email was an effort for participants. Recognizing this as a problem, some DLs use an identifying prefix in the subject header to indicate that a message is from a particular DL, e.g. the MORE cycle DL prefixes all subject headers with "more:". The current ad hoc approach of using prefixes may be good enough, but could be improved upon. A related issue, although not raised by the participants, is the use of prefixes to identify different types of messages, e.g. "Q:" for question. The use of prefixes helps identify a message's origin and intent, but it may also make the subject heading more difficult to read.

Existing header information is sufficiently descriptive to be used in separating messages from different DLs and non-DL email. However, filtering tools remained largely unused by the participants. Whittaker and Sidner (1996) found the inbox to be an important repository for messages. Their findings suggest that the low use of filters may not reside solely in the act of filtering, but on other factors, such as the fear of losing track of important information.

6.6.4 Follow Threads

A thread is a conversation of multiple messages linked by a repeatedly used subject header. Participants were able to follow threads in newsgroups and BBSs because these systems were designed with threaded conversation in mind. Participants used threading either to follow a particular discussion or to determine whether a line of discussion was worth reading. This particular facility is poorly implemented or non-existent in most email clients. In addition, threading in email clients is different from that in newsgroups or BBSs. Even when messages can be sorted by subject header in an email client, the results are presented as a list of messages related by subject header. In both BBS and newsgroups, messages are related in a tree like manner, with the relationships between individual messages being apparent to the user. For this reason, email-based threading might better be called clumping.

For threading to be of value in email clients, threading must be effectively represented in the UI, e.g. threading on the basis of subject header and date, and keeping the most active threads in the most visible position in order for the thread activity to remain observable to the user. GUI-based email clients can show threading on the basis of the subject headers, but the results are frequently cumbersome and confusing. Alternative solutions need to be examined.

Additional problems occurred when receiving DLs as digests. Digests reduce message clutter in the inbox, but they eliminate thread visibility. Current email

clients are unable to show threading in digests although specialized digest readers such as Digester (TECHWR-L, 2001) show promise in this area.

6.6.5 Decide to Read or Not to Read

Determining what to read is an important activity for any lurker. Deciding whether a message was worth reading differed between participants, and for a given participant often differed between DLs. The following criteria were described:

- read all if participant is new to the DL
- read if the subject heading shows potential value
- read if the author is known
- read all messages in a thread if the middle message of a thread is interesting
- read messages if thread is long (i.e. quality of messages and thread is somehow related to the length of the thread)
- read messages with confusing subjects
- read or not read an obvious flame

Several participants deleted all or most messages (read or not read) as a matter of course, whereas others kept messages, either by leaving them in the inbox and relying on the read flags to indicate their status, or by manually placing them in secondary folders. The delete process was most common among users of text-based email clients.

A rich set of cues was used in deciding whether to read a message. The fact that messages are persistent and asynchronous means that a message does not have to be read at the time of receipt. It also means that the decision as to whether a particular message is read will often be on the basis of other messages, e.g. other messages in the thread or the quantity of messages in the inbox.

6.7 Lurkers as Participants

We find that the subject of lurking has strong universal appeal to researchers and non-researchers alike. That appeal no doubt comes from the fact that each and every one of us has either lurked, is lurking, or will lurk in the future. As one researcher said, “you’ve got it wrong, lurking is normal, it is the people who post who are abnormal” (B. Wellman, personal communication, May, 1999). Taking that perspective, it is difficult to equate lurkers with free-riders. Earlier in this chapter, it was mentioned that Kollock and Smith (1996) described lurkers as free-riders, which classifies them for their lack of public participation and their use of resources without giving back to the group. Even when lurking is narrowly defined, e.g. one post per month or fewer, the vast majority (81%) of DL members are lurkers (Nonnecke and Preece, 2000). This being the case, one might ask how do online groups survive in the face of almost universal free-riding?

One explanation is that lurking is not free-riding, but a form of participation that is both acceptable and beneficial to online groups. Public posting is only one

way in which an online group can benefit from its members. Members of a group are part of a large social milieu, and value derived from belonging to a group may have far-reaching consequences. For example, information supplied in health-support groups may end up enlightening a member. When the group member then uses that information to seek better medical care, physicians and other health-care professionals also benefit from this knowledge. The online group is just one way in which the member communicates with others. Online groups are one of many places for interaction, and although it may not seem like it from a research perspective, life for most members is more than life in the online group.

A second explanation is that a resource-constrained perspective may not apply to online groups where the centralized cost of servicing 100 members is not much different from that of serving 1000, or even 10,000. In large DLs the danger could be in not having enough lurkers. If everyone posted in large DLs, there would be a flood of messages that could make interaction very difficult. Thus, an important topic for future research is to examine how critical mass of membership is associated with lurking. An important question will be “what is the optimum number of posts to number of lurkers in any particular online community?” The following are but some of the reasons for valuing lurkers:

- **Lurkers work at knowing the group:** Participants described putting substantial effort into understanding a group. This work benefits both the group and the lurker by providing the lurker with the knowledge of whether the group is a good fit for them and provides the lurker with an understanding of the social dynamics of the group. These are important considerations taken by the lurker.
- **Lurkers try not to add to the chaos:** Many of the participants found that groups can be chaotic environments. Examples of this chaos include high levels of posts, duplicate posts by different authors, and irrelevant or inflammatory comments. Lurking is a form of participation that does not add to the chaos.
- **Lurkers extend the group:** Participants generally described groups in which the topics were of interest to them. Often these groups were related to other aspects of their life in which they were well connected. For example, several participants described DLs in which they lurked as part of their job and that found information was then used to inform themselves or others. In another example, one of the participants had a passion for history and as a result joined a number of military history groups. This participant lurked in some groups but not in others, and as a result, information from one group would sometimes become the fodder for discussion in another online group or in an offline setting. Other participants joined groups on the basis of friends recommending they join. Belonging to an online group is just one expression of a web of related activities. Contributions can and do take place outside a group’s public space in the form of disseminating information, contacting individuals within a group, and introducing others to a group.
- **Some lurkers side-post:** Several participants said they made connections to individuals outside the online groups. These connections are a valid form of communication and have value for the individuals and thus the group as a whole. Reasons for side-posting varied and included a desire to contact individuals rather than the

whole group, not wanting to get involved in a public dialogue when time was of the essence, and feeling more comfortable in one-on-one emails.

- **Lurkers make a commitment:** Joining a DL appears to be somehow different from browsing a BBS or a newsgroup. For several participants, the process of joining and either explicitly or implicitly agreeing to the rules of the group is a form of commitment. For these participants, making a commitment to join a DL and then lurking did not feel in any way like free-riding. Rather, it was a way of assessing a group and determining the group's value to the member and the member's value to the group.

6.8 Lurkers with a Sense of Community

Several participants said they felt a sense of community while lurking. This goes against the preconceived notion that you must be an active poster to be part of a community. For one participant, a sense of community was extremely strong. This came about through a number of avenues – the participant's need to find community within a self-help group, the stories found within the community's web space, private postings and responses by members of the community – and the character and nature of the dialogue engendered a sense of trust and care. The fit between this participant and the community was good, and the outcome was a very strong sense of community, a sense that was developed without posting. Even though this participant has not actively lurked in the community for over a year, there was still a sense of belonging to this community.

This is curious as it flies in the face of what many consider to be the defining elements of community. Definitions of community (Erickson, 1997; Whittaker et al, 1997; Roberts, 1998; Preece, 2000; Wellman and Gulia, 1999) commonly incorporate the following:

- notion of membership
- relationships between members
- commitment and reciprocity
- shared values
- collective goods
- duration.

Not all definitions assume that it is necessary to contribute publicly (e.g. Preece, 2000), however, most tend to make this assumption. To understand how lurkers can have a sense of community, each of the above attributes is examined from the perspective of the lurker. The underlying assumption in this discussion is that online groups may be communities.

6.8.1 Notion of Membership

Participants were members of the groups they discussed. This was demonstrated by their knowledge of the community and the effort they put toward learning

about the community. Belonging to a community is often a process of coming to know the members, traditions, rules and language. Participants mentioned this process and also mentioned that lurking was a way in which they learned about the group and eventually considered themselves to be members. It may be that for some people and at certain stages of membership (e.g. being a new member) lurking is an indirect way of saying they are not yet members, but are trying to be.

6.8.2 Relationship between Members

Forming personal relationships with community members was important to some of the participants in some of their communities. For other participants, becoming a member of the group and forming a personal relationship was not necessarily part of the participants' desires or needs. For example, finding out a piece of information did not have to incorporate the development of a personal relationship. It could, but this was not required. In groups in which the participant's goal was strictly informational, then a sense of community was not felt. However, where personal relationships were pursued, often outside the public space (e.g. through email), then a sense of community was possible. It is also possible that a lurker can feel they know someone very well from their public postings and in that way feel kinship with that person. The non-reciprocal relationship of the poster and the lurker provides a sense of community for the lurker, even if it bends the concept of communities being reciprocal in nature.

6.8.3 Commitment and Reciprocity

It was obvious that the participants with the sense of community were very committed to their communities. This was shown in their effort to understand the community, often through the careful reading of messages and side-posting to members. Many lurkers are willing to support individuals in their dialogue outside the public spaces. For example, Katz (1998) experienced a deluge of private and supportive responses from lurkers when he was verbally lambasted in a BBS. Similarly, several participants in this study sent private messages of support to group members.

6.8.4 Shared Values

Most of the communities mentioned by participants are topic-based. These topics draw interested parties into them, either by sharing or becoming familiar with a common set of values, knowledge, or practices. This effort expended in becoming knowledgeable about a group is in a sense a measure of the respect for the community. In health-support groups, members' dialogue and stories allow other members to share in their experience and identify with the authors (Preece, 1998).

6.8.5 Collective Goods

It is unclear how lurkers contribute to the collective goods of the community. It may be that their contribution lies outside the public dialogues, e.g. in other ways such as sharing their experience with others outside the online community. They may spread the word and act to enlarge the community by drawing in new members. This broad interpretation of goods includes the community itself and the persistent dialogue, i.e. resources and information.

In noisy or chaotic groups, lurking allows the collective goods, i.e. the already existing messages and dialogue, to be more easily perceived by the whole group. Participants were aware that public participation was not always good for the group. Several participants said they knew others would voice similar views and adding a message to the dialogue would not add value to the discussion.

6.8.6 Duration

As already mentioned, the participants were committed to understanding the community and spent a considerable period becoming familiar with the community and following the conversations.

Although it is a bit of a stretch to say that the lurkers met all the criteria for being members of the community, some nonetheless had a sense of community. For them, having a sense of community was likely different from them being members of the community. Even they would probably make that differentiation.

6.9 Summary

While work on this area was taking place, a question was put forward at a number of conferences and workshops on online groups and communities: does anyone know of any research on lurkers? Nobody came forward with a name of a paper or an author. However, many came forward with opinions, ideas, and personal experiences. Non-researchers have shown a similar interest in lurkers and lurking. The participants in the first study were very interested in having their opinions heard, and friends and family of the authors have been similarly enthusiastic about sharing their lurking experiences. It is obvious that the topic has strong universal appeal, which no doubt comes from the fact that each and every one of us has either lurked, is lurking or will lurk in the future. As we mentioned earlier, this was highlighted by one researcher who claimed that posting is abnormal, not lurking (B. Wellman, personal communication, May, 1999).

On the basis of the results from the interview study it is safe to say that lurking is widespread. All participants said they lurked and some lurked all the time. This was corroborated in a demographic study (Nonnecke and Preece, 2000) where more than 55% of the DL members lurked with no posts (81% if lurking is defined as one post per month or fewer). This is lower than the often-quoted figure of 90% (e.g. Mason, 1999), but nevertheless it represents a large number of participants.

A driving question of our work is, why do lurkers lurk? The unexpected outpouring of 117 reasons gives a sense of the complexity of lurking. This complexity is increased when one considers the many activities of lurking. The participants' activities and rationales offer insight into all group members. Message selection, deleting, archiving, and reading are activities common to all members, not just lurkers. Lurking is not the single simple action of not posting. Even public participants do not post all the time. In their moments of non-posting, they can be considered lurkers.

Contrary to what has been said elsewhere (Kollock and Smith, 1996), lurkers do not appear to be free-riders. Their non-public participation as lurkers is both beneficial and an acceptable part of online participation. Traditional definitions on participation emphasize public participation with very little understanding of non-public participation. Viewing online groups and communities through public participation alone casts lurkers in an unfavourable light.

Lurkers are capable of having a sense of community. If judged by traditional definitions of community membership, they do not meet all the requirements. However, much of their community mindedness and membership does not appear in the online public forum. This may be true for all members of online communities. That is, the online public interaction of the community may represent only a small portion of a community's total interaction. In any case, whether lurkers meet the definition of community members is a moot point, as they can and do feel a sense of community.

The term "lurker" is frequently used pejoratively and usually refers to anyone who never posts or posts infrequently. As we have come to understand, lurking is non-public participation. Lurking is a situated action with many personal and group-, work-, and tool-related factors affecting the activities and level of public and non-public participation. Lurking is "normal" in the sense that everyone is likely to be a lurker at some point in time. Lurkers are heterogeneous in most respects except in their lack of public posting. Therefore, in the absence of an understanding of the context in which lurking takes place, lurker is a somewhat meaningless term. Instead of using the term, lurker, the term non-public participant (NPP) should be used. It is not pejorative and suggests there are other forms of valid participation other than public posting.

Part of this study focused on understanding how participants viewed lurking in general and their own lurking behaviour in particular. An initial abstract on lurkers was distributed to some of the participants. One participant responded with the following comment:

Maybe it's a sign of my own mild discomfort around being a lurker, but I found it reassuring to recognize myself and my behaviour within the continuum you describe, and to see lurking treated seriously, with both acceptance and respect. As a lurker, I'm used to observing from the sidelines and participating vicariously, and it's strangely gratifying to read an article that speaks directly to that experience. It's almost like suddenly feeling part of an (until-now) invisible community of lurkers.

This participant was not alone in feeling there is a stigma associated with lurking, although the degree of stigmatization varied from individual to individual. Giving lurkers recognition as valid and beneficial participants will benefit

both lurkers and the community as a whole. Several participants expressed a fear that if all lurkers were to contribute publicly, the groups would become chaotic and unpleasant from the increased volume of messages.

Understanding lurking will be incomplete without further studies of individuals and their groups. Longitudinal studies of an ethnographic type will provide a wealth of information on lurking and participation in general. Work has till now focused on public participation in online groups (e.g. Mason, 1999). Broadening the ethnography to cover non-public interaction, and non-online interaction will reveal even more about lurkers' community involvement. Broadening the research beyond DLs, to other online forums will provide us with an understanding of how different technologies affect participation.

Demographic studies employing message logging will further improve our perspective. Logging has the advantage of being able to monitor thousands of groups, groups selected not only for their topic type, but on size, interactivity, and other features. Web-based surveys show promise in understanding group dynamics by similarly polling large numbers of lurkers across many groups. Our current interest in surveys is in understanding the life-cycle of participants, in particular the transitions between lurking and posting, and the role of lurking when joining and leaving a group. Other areas where logging and surveys will be of value include:

- high traffic and its impact on participation
- group topic and how this relates to lurking
- frequent posters and their relationship to group health
- membership turnover and the role of lurking in that process
- gender differences and lurking, especially in high-traffic groups.

Learning about how these silent participants behave and why they don't post is fundamental for understanding social interaction online. It is all too easy to forget that almost everyone lurks at some time and that there are usually more lurkers than people posting. The dearth of studies about lurking is testament to how overlooked this activity is. Fortunately for us, lurkers willingly respond to the inquisitive researcher.

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