

OBSERVATIONS AND EXPLORATIONS OF EMPATHY ONLINE

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Introduction

Empathy is the ability to identify with and understand another person's situation and feelings. Our ability to empathize affects how well we communicate our thoughts and feelings with others, how well we understand others, and how comfortable people feel communicating with us. It is at the root of meaningful and deep communication (Ickes, 1997; Levenson & Reuf, 1992). There is a moderate research literature on empathy (e.g., see edited collections by Eisenberg & Strayer, 1987; Ickes, 1997), but little work addresses empathy in online communities (Preece, 1998, 1999b; Preece & Ghozati, 1998).

However, anecdotes indicate that empathic experiences occur online. This is particularly interesting as empathy, like other emotions, is primarily communicated non-verbally and many of these reports concern textual, asynchronous environments. Goleman states that "one rule of thumb used in communications research is that 90 percent or more of an emotional message is non-verbal" (Goleman, 1995, p. 97). Goleman goes on to explain that "anxiety in someone's tone of voice, irritation in the quickness of gesture, are almost always taken in unconsciously" and "the skills that allow us to this well or poorly are, for the most part learned tacitly" (Goleman, 1995, p. 97-100).

Indeed, some studies report high levels of empathy (e.g., Hiltz and Turoff, 1978; Sproull and Kiesler, 1991; Rheingold, 1993). As early as 1978, Hiltz and Turoff commented that some participants have "*come to feel that their very best and closest friends are members of their electronic group, whom they seldom or never see.*" (Hiltz & Turoff, 1978, p. 101). Observations of emotional communication online have become more numerous with the increase in all kinds of online communities and strong interest by the media, e-commerce entrepreneurs and public at large (Preece, 2000). Messages like the following are fairly common.

"Whatever you do please don't give up, ... I have been in your spot and gave up once but when I got help there was no stopping me and I finally won. Keep your chin up and don't lose faith. Your friend. :)"

*"We love and care for everyone in the *family*, and we want to share your problems, if you want to share them. {{{Hugs}}} & Prayers."*

"I'm sorry for your losses. I know what it is to lose the most important person in your life: I lost my mom in 1993 and still suffer".

"I've received so much support from family, friends and SU ... I'm not really used to it, but I REALLY appreciate it."

For example, in a previous study of a bulletin board community for patients with knee injuries 44.8% of the 500 messages analyzed were empathic (Preece, 1998, 1999b). Although this study and anecdotal evidence suggest that empathy online can be high, it is possible that the results from this study could have been atypical. Hence a second study was needed in which more communities are examined. In addition, given the widespread prevalence of empathy in face to face communication it is important to question whether empathy is as widespread online, especially in textual communication.

Motivations for Present Study

If empathy really is common online we need to understand it better and develop software and the social policies that support it (Preece, 2000). Some of this understanding may be informed by social presence, media richness and related theories (Clark & Brennan, 1993; Daft & Lengel, 1986; Rice & Love, 1987; Rice, 1993). There were, therefore, two main reasons for examining empathy in a larger sample of online communities. The first was to ascertain whether the knee injury community, mentioned earlier (Preece, 1998, 1999b), was typical. The second was to establish whether empathy online is as widespread as in face to face communication. In addition we wanted to find out whether empathy is more common in some communities than in others. For example, it seemed likely that empathy would be more important in support communities than in other communities such as sports, cultural, religious etc. We were also interested in hostility, the antithesis of positive forms of empathy. In addition we wanted to investigate whether the number of women present influenced empathic communication because it is assumed that women tend to be more empathic than men (e.g. Goleman, 1995).

Ultimately the goal of this work is to inform the design of online community software and development of social policies, such as moderation practices (Preece, 1999a, 2000). With the development of so many online communities supported only by generic listservs, bulletin boards and Usenet, more specialized software that supports different types of communication is needed (Gaines et al., 1997; Preece, 1998, 1999b). If empathy is indeed as widespread as anecdotes suggest then developers need to design software with appropriate usability that supports sociability (Preece, 1999a, 2000). Some ways of achieving this may include better support for private conversations, allowing people to find each other more easily, allowing break-away small groups to form without participants being excluded from the main discussion, and better ways of showing presence etc. Supporting and encouraging tolerance for different types of communication may also be needed. For example, the results from the study of 500 messages from the knee injury community (Preece, 1998, 1999b) revealed three clearly defined types of communication. People wanted factual information. Seeking answers to questions was particularly evident just after an injury, which was usually the time when people joined the group. Most people wanted to learn about alternative treatments and the nature of the procedures performed, the time to recovery, probability of being able to resume sports at the same level as prior to injury etc. Many people also wanted to tell their story. These accounts were often longer than typical messages and tended to elicit empathic responses and sympathy. A special associated area of the web site was designated for some of these stories. The group's owner, for example, told his story of how he tore anterior cruciate ligaments in both knees. Pictures and videos were provided detailing the story from injury, through surgery to recovery. There were also many empathic messages. They expressed shared understanding with others. Descriptions of being in pain, fears of surgery, frustration at not being able to play sports, walk or sleep were common. However, this and most other current software is not well designed to support different communication tasks.

Defining Empathy

Almost everyone has a general understanding of the word 'empathy'. What is less well known is that empathy is key concept in psychotherapy and a fundamental component of human communication. Empathy is a "complex psychological inference in which observation, memory, knowledge and reasoning are combined to yield insights into the thoughts and feelings of others" (Ickes, 1997, p. 2). The accuracy with which one person can interpret the

feelings of another person is known as empathic accuracy. The ability to perceive the feelings of another person accurately is arguably the most fundamental and important aspect of empathy (Comfort, 1984; Eisenberg & Strayer 1987; Etchegoyen, 1991; Ickes, 1997; Levenson & Ruef, 1992). Empathy appears to be a key ingredient in human communication regardless of the medium used but so far it has received surprisingly little attention in computer mediated communication, probably because most studies have focused on work where empathy tends to be less obvious than in informal communication settings.

From a synthesis of many researchers' work on empathy, Levenson and Ruef (1992, p. 234) identify three different qualities of empathy: 1) knowing what another person is feeling, 2) feeling what another person is feeling, and 3) responding compassionately to another person's distress. This broad characterization provides the basis for this work on empathy in online communities. It describes the stages of communicating empathy and also provides an indication of the degree to which empathy is established between two people. The difficulty of studying empathy in asynchronous online communities is that the only indicators are textual. Words reveal the most but emoticons, use of capitalization, characters (e.g., exclamation marks, double question marks etc.) and sometimes typographic layout may also indicate emotion and empathic communication.

Related Research

Several researchers have written about online emotional openness, personal exploration, and interpersonal support.

People are often surprisingly open about their emotions online (e.g., Rheingold, 1993; Sproull & Kiesler, 1991; Turkle, 1995). For example, Rheingold describes intense and lasting relationships in the WELL, in which members supported each other through sickness and even in the face of terminal sickness and death (Rheingold, 1993). While observers of online relationships report that some are long lasting (Rheingold, 1993), many relationships are transient in nature (Cohill & Kavanaugh, 1997). People bare their souls and then disappear. In some circumstances, anonymity and not having to meet the people with whom one is communicating can encourage openness. By choosing an obscure login name people can be anonymous, which protects them from the everyday biases associated with gender, status, race, and age (Sproull & Kiesler, 1991; Wallace, 1999).

Liberated by a veil of anonymity, people can explore different aspects of their personalities and even completely different personalities and genders (Turtle, 1995). For more than twenty years science educators have recognized the power of computers for simulating scientific experiments in which students can reset variables to explore "what if ..." questions. Turtle (1995) discusses how the ability to try out personal "what if ..." situations in the security of being anonymous in cyberspace can contribute to personal development, positive psychological well-being and surprisingly intimate discussions about personal relationships and health issues.

Wallace (1999) provides examples of how the lack of visual cues that signal gender, age, social status etc. can affect online communication. In some situations people feel able to talk about details of their lives with complete strangers without feeling judged and safe in the knowledge that they will probably never meet these people. This lack of presence (Rice & Love, 1987; Rice, 1993) can, however, also have detrimental influences on relationships. Some people are more prone to behave badly or irresponsibly knowing that they will not have to deal with the consequences of their behavior. Studies by Walther (1993) and his colleagues (Walther et al., 1994), however, indicate that people can form strong long-term

relationships online. It just takes longer but researchers have noted that these relationships may be extremely rich and personal (e.g., Spears & Lea, 1990).

Another advantage of belonging to an online community is having twenty-four hour access. It is immediate and messages can be saved for future reference. For some people, being able to write means they can present themselves more clearly than in face to face meetings. Many people like having time to reflect and respond thoughtfully. Storm King reports that the recovering alcoholics in his study liked being able to share experiences with the community as often as they liked and at any time. Typically each person shares only once in face to face support meetings (King, 1994). Online there is no limit to the number of times a person can tell their story.

Online Communities and Health

Several studies report positively on the role of email for supporting communication between physicians, nurses, and patients (e.g., Rappaport, 1996; Rice & Anderson, 1994; Sands et al., 1994; Sparks, 1992). During the last two years the number of people who used the web for medical information has increased phenomenally and so have the number of health-related web sites. For example in 1999 drkoop.com was launched and there are many others, such as drweil.com, WebMD, Onhealth, Mednews, Healthline and CancerNet. Many sites have online communities and others have links to online communities. The role of these communities varies. Some are patient support communities, others support doctors, anesthesiologists, nurses, families of patients and researchers (e.g., Lazar et al., 2000). For patients, being able to talk about common problems can be cathartic, a vicarious learning experience, a good way of sharing ideas and of gaining new information and insights.

Books on the topic have also appeared. For example, Linden and Kienholz (1995) describe how to find health sites with information about well-known medical ailments. Health Online (Ferguson, 1996), published a year later, covers some of the same ground but distinguishes the role of Internet mailing lists, Internet newsgroups, the Web and other resources more strongly. Quotes from patients indicate the rich source of information and support that many of these communities provide. Health Net (Ryer, 1997) expands the range of topics even further to include bulletin boards, auditoriums and provides additional information of both a conceptual and 'how-to' kind. These three books are good examples of how information is being brought to the general public. (See also the list of books at the end of this volume.)

Research reports date back to the beginning of the 1990s. For example, Brennan and her colleagues discuss the importance of email support networks in the home-care of Alzheimer's patients (Brennan et al., 1991) and AIDS patients (Brennan & Ripich, 1994). In a study of email usage, caregivers of cancer patients appreciated empathy and emotional support from fellow care-givers (Tetzlaff, 1997). Other researchers have made similar claims (Preece, 1998, 1999b; Schoch & White, 1997; Shaw et al., 1999). Knowing that others were experiencing similar feelings and problems created strong bonds within these communities.

From around 1997 onwards the term online community became popular (Preece, 2000) for describing the different communication media which enabled people to "come together online". Brennan and Fink (1997), for example, discuss the role of social networks for affirming, supporting and rewarding good health practices and note the importance of social and emotional support in helping to change behavior patterns and encourage more healthy living. They point out that research evidence suggests that almost all successful support programs involve interventions that provide emotional support, affirmation and

information in some combination (Cwikel & Israel, 1987). At some level this combination has been appreciated for years, even though the technology for supporting it online has been inadequate. In the early 1980s, for example, Kerr and Hiltz (1982) developed a system that used a combination of computers and telephones to link elders with children in day-care centers. SeniorNet also helps to satisfy these same needs. Community networks such as the Blacksburg Village often provide facilities for seniors (Cohill & Kavanaugh, 1997).

Scheerhorn (1997) discusses issues concerned with creating illness-related communities in cyberspace. In particular he raises the often-voiced concern that "a little knowledge can be a bad thing". This topic has been widely debated in the media (see also the chapter by Rice, this volume). Until the Web and Internet became widely available, physicians were the guardians of medical knowledge -- now it is possible for patients to find out about their own problems. This empowers patients to challenge physicians and to "shop around" to ensure they get the best medical service. Not surprisingly, some physicians are threatened by the proactive behavior of their patients (see the case by Anigbogu and Rice, this volume). Some of this concern is justified by stories of patients attempting do-it-yourself medicine with life-threatening or deadly consequences. In addition, just as there are scams in e-commerce, there are also people trying to get rich by selling fake miracle cures (Preece, 1998) or posing as patients with critical problems. While psychiatrists are well-aware of such cases, they can be disturbing to sufferers who invest time helping such people. Emotions are raised as the fake-patient describes more and more serious events (Medical News and Perspectives, 1998). Eventually the person giving care discovers they have been tricked, which results in broken trust that may be carried into future relationships. The Internet makes it very easy to fake illness. If you get caught, you simply sign-off one community and find another.

There are, however, many wonderful stories. Some patients use their new-found knowledge to hone in on more appropriate questions to ask their physicians, which saves the physician's time. The support aspect of these communities can be particularly valuable for chronic illnesses such as hemophilia, which is characterized by traumatic bleeding into the joints, muscles and organs, for which there is still no known cure (Scheerhorn, 1997). Good education and good information make dealing with this condition a little easier, but peer support is of great benefit, as outsiders often do not fully understand either the complexity of the illness or the pain and devastation that those afflicted with it may feel. Locating peers and attending physical support communities can be difficult, as with many illnesses, so cyber-communities can provide a good alternative.

A Support Community for Patients With Knee Injuries

In a previous study, we analyzed 500 messages from an online support community for people suffering knee injuries (Preece, 1998, 1999b). This community was started in the mid-1990s by a skier named Bob who suffered a complete anterior cruciate ligament (ACL) tear in both knees at the end of a day skiing. The bulletin board is embedded within a web site that provides other information as mentioned earlier. At the time of the study, the bulletin board was not moderated though Bob regularly commented on particular messages, provided advice and watched the flow of messages. There were around 30 messages per day. Intensive observation of the board before the study started revealed that the majority of participants were in their twenties and thirties, though there was a significant majority of older patients and a few younger ones. Most people posted on their own behalf but there were also a few parents and spouses posting.

Using content analysis to classify the overall content and intention of the messages, we found that 44.8% of the responses were empathic, 17.4% contained predominantly factual information and 32.0% were personal stories about how their accident occurred and neither solicited nor offered empathy. There were no hostile responses, and 5.8% of the messages were classified "other" because they did not fit any of the categories. These messages contained advertisements, jokes or announcements. The results from this study indicate that the patients in this community sought empathy as well as factual information exchange. We also found evidence of gender-related differences in the content of the messages (Preece, 1999b). Women made more empathic comments and the men's comments were more factual. This result differs from research in face-to-face communication, which is inconclusive (Eisenberg et al., 1989; Graham & Ickes, 1997). The gender ratio in this knee suffers community was close to 2:1, men to women. While we could not be absolutely certain of the gender of the posters, we were careful to categorize messages that were suspect as "unclassified". For example, log-in names that were unusual were discounted and all the messages were reviewed in context to look for signs of gender-masking or gender-swapping (Reid, 1993).

This study of 500 messages provided the basis for the exploration of 100 communities in which we applied the same content analysis methodology and sought to investigate whether the results from this study generalize to other communities. A full description of the study of 500 messages is contained in Preece (1998, 1999b).

Exploring 100 Communities

The general aim of the present study was to gain further insight about whether empathic communication is common online and to see how patient support communities compare with other kinds of communities. The following questions sharpened the focus:

1. To what extent does empathic communication occur in most online communities?
2. Is empathy influenced by the community's topic of interest? Is the level of empathy similar in all communities, or are some communities more empathic? In particular, how does empathy in support communities compare with empathy in other communities?
3. Does the gender balance in communities influence empathic communication?
4. Does the presence of a moderator appear to influence empathy in the community?

Method

We did not enter into debate about what constitutes a community (Preece, 2000). The term was applied broadly to UseNet News groups and bulletin board groups. At the time of this study there were far fewer communities on the Internet. Yahoo was used to identify topics and every fifth community was selected. 20 messages were then extracted from each community by taking every fifth message. The messages from either side of the message of interest were also kept for reference in case the content was ambiguous. 2000 messages in total were analyzed. All the communities were open and did not impose membership regulations. 24 were moderated, which means that a person probably checked messages for hostility or other inappropriate content (Collins & Berge, 1997). The exact style of moderating in these communities was not known. 42 were not moderated and 34 could not be determined. Approximately half were bulletin board communities and the other half were Usenet News groups. Although UseNet News and bulletin board software is quite different and this undoubtedly affects some aspects of communication (Preece, 2000), the aim of this study was to take a broad snap-shot of a large number of communities, so these differences were not considered. At the time this data was collected there were fewer bulletin board

communities on the Internet which, coupled with our need to draw a broad representation of communities that focused on different topics, made it impossible to work only with bulletin board communities.

The communities were classified according to their topic of focus, which was described by their names. The sample examined contained:

1. Support communities (59 communities). These communities focus on patient support for medical conditions such as diabetes, heart disease, back pain, etc.
2. Other assorted communities (41 communities). These included communities that discuss cultural issues (4), pet owners' communities (5), religious communities (3), communities of professional scientists (6), communities discussing societal issues such as politics (5), sports enthusiasts discussing baseball, football, basket ball etc. (9), and a miscellaneous category that includes those that do not fit into any of the other categories (9).

Data Analysis

For each group of 20 messages the following data was extracted:

1. Communication type. Three categories were used: empathic, hostile, and the rest (i.e., all the messages that were neither empathic nor hostile).
2. Number of messages from males, females, and unclassified (by gender). Any names that were neither obviously male nor female were categorized as unclassified.
3. Type of moderation: moderated, not moderated, not classifiable. This information correlated closely with the type of software that supported the group. Most Usenet News communities were not moderated, while some bulletin boards were moderated and some were not.

Content Analysis

We used content analysis (Krippendorff, 1980; Robson, 1993; Weber, 1990) similar to that used by Worth and Patrick (1997) to analyze discussion lists used by medical professionals.

Each message was examined and analyzed individually. The classification category was determined based on examining the message holistically and classifying it according to its overall content and intent. This technique was carried out in exactly the same way by the same two researchers as in the knee injury study (Preece, 1999b). Messages immediately before and immediately after the one being analyzed were referred to as necessary for context information.

The following account defines the categories, provides excerpts to illustrate comments classified in each of the three category types and specifies the rules that were used in the analysis.

Empathic Messages

These postings had a strong empathic content and echoed the definitions of empathy given by psychotherapists, and particularly the characteristics of *knowing*, *feeling* and *responding compassionately* to another person (Levenson and Ruef, 1992). The overall feeling conveyed in the messages is of mutual understanding and caring developed from *shared* experience.

"It's been two weeks and five days now. I read other postings where others pained over feeling alone. Well, I'm having my bout with the depression. It's a battle to entertain my mind, reading, computer, talk, radio and rarely TV. I do my exercises ...Thanks for listening. :]"

"Hey PMA, You will be fine. Good luck!!! Keep in touch!!

Rule: If the intention of the message is predominantly empathic, classify in this category and ignore all other kinds of comments.

Hostile Messages

These messages range from unsympathetic to hostile. For the purposes of this study we defined hostility as 'showing unfriendliness, anger, enmity, harshness, lack of sympathy or being inhospitable. Example comments include:

*"Nooooo Nooooo! Nooooo!!!! The pages you have read are all written by anti-aspartame kooks! This has been discussed over and over ad nauseum here for *years*!"*

"You don't seem to be doing a very good job at it so far. At least, you sure haven't learned very much about the human race ..."

Rule: If the intention of the message is predominantly hostile, classify in this category and ignore all other kinds of comments.

Any messages that did not fit these categories were categorized in other messages. The gender of the poster was also recorded based on information in the message header.

Results

One hundred communities is a small sample from the thousands of communities that now exist online. Twenty messages from each community is a tiny slice of the activity going on in each community. Our study is, therefore, a formative observation and exploration guided by questions, rather than a confirmation of hypotheses.

Does Empathic and Hostile Communication Occur in Most Communities?

Our analysis showed that 81% of all the communities contained some empathic messages. However, 19% of all the communities contained no empathic messages. 37% of all communities contained between 1 and 5 empathic messages, 26% had between 6 and 10, 12% between 11 and 15, and 6% were very strongly empathic and contained 16 to 20 empathic messages. Over half of the messages in 18% of the communities were empathic. This suggests that many communities on the Internet have some empathic communication.

Hostile communication is also an expression of emotion. 36% of all the communities contained at least one hostile message. As only twenty messages were sampled from each community this level of occurrence may be cause for concern. Further investigation of more messages over a longer period of time is needed to establish whether this is indeed representative of communication in these communities. 8% of all the communities contained six or more hostile messages, that is, one quarter of their messages were hostile and over half of the messages in one community were hostile.

Hostile comments in any community are a cause for concern because they may discourage positive forms of empathy. Hostile behavior may also drive people away from the community. However, tolerance to hostile comments may vary from community to community depending on the community's focus and its culture. Abusive comments are not acceptable in most communities, but sharp but constructive comments may be acceptable in some communities, such as scholarly discussion communities. Sports communities also appear to have a more aggressive style of communication. Similar comments could be very damaging in patient support communities. Factors such as topic of discussion, gender balance and presence or absence of a moderator may influence empathy and hostility and will be discussed later in this section.

The conclusion from this part of the study is that empathy is widespread in communities on the Internet and that hostility is fairly common and may occur in one in three online communities.

Is Empathic Communication Influenced by the Community's Topic of Interest?

Although empathic communication was present in 81% of the communities, it is strongest in the patient and emotional support communities. Only one patient support community did not have empathic messages. Religious, scientific and cultural communities were the least empathic. 78% of support communities have five or more empathic messages, whereas only 7% of the other communities have five or more empathic messages. None of the other communities has seven or more empathic messages, whereas many of the emotional and support communities have larger numbers of empathic messages and can be aptly called empathic communities.

The percentage of hostile messages in the patient and emotional support communities compared with the other communities is very few. Only 1 community -- *mis.health.diabetes* -- has over 5 hostile messages, while 81% of support communities have no hostile messages, as compared to 39% of the other communities. Only 2% of the patient and emotional support communities have more than 5 hostile messages, compared with 23% of the other communities. A chi-square test comparing the two types of messages (empathic, hostile) posted in the support communities with those sent in other communities indicates that the difference between the two types of communities is significant ($X^2= 398.6$, $df=4$, $p < 0.001$).

The conclusion from this part of the analysis is that there is considerably more empathy and less hostility in support communities compared with the other communities.

Does Gender Balance in Communities Influence Empathic and Hostile Communication?

We have not found any measures of the relationship between empathy and gender in studies of online communication, except from our own study of the knee injury community in which women were more empathic than men (Preece, 1999b). In a study of factors that contribute to a sense of community in UseNet News Groups, Roberts (1998) reports that participants' sense of cohesiveness of a community is correlated with the number of women in the group. Groups with a high percentage of women were felt to be more cohesive by both women and men. There is also evidence from studies of face to face communication that women tend to be more empathic (Goleman, 1995). However, psychotherapists disagree about the significance of comparative studies (Eisenberg et al., 1989; Graham & Ickes, 1997). Therefore, one aim of this study was to investigate whether the presence of women is associated with gender in a range of different communities as in the knee injury study (Preece, 1999b). A chi-square test suggests that there is a relationship between empathy and the proportion of females ($X^2=130.1$, $df=1$, $p < 0.001$). The conclusion from this part of the study is that a high number of empathic messages in an online group is associated with the presence of women.

Does the Presence of a Moderator Influence Empathic and Hostile Communication?

We suspected that, as anecdotal evidence suggests, (e.g., Sproull & Kiesler, 1991) hostile communication is associated more strongly with unmoderated communities, due to less social regulation. One aim of this study was therefore to check if the high level of empathy, low hostility and apparent lack of need for a moderator in the knee injury community is the same in other communities.

The communities that are moderated in this study comprise 24% of all communities. Unmoderated communities made up 42% of communities. There was no statement indicating whether or not the remaining 34% of communities were moderated so they were categorized "unclassified". Table 1 shows the percentage of empathic and hostile messages that were observed in the moderated and unmoderated communities. The moderated communities are strongly empathic except for the sports communities which, despite being moderated, have 15% hostile messages. In contrast, the unmoderated communities contain fewer empathic messages and higher levels of hostile messages. This is particularly marked in the religious discussion communities, which contain no empathic messages. Communities discussing social issues, science, culture and miscellaneous topics also contain high percentages of hostile messages. Interestingly, the unmoderated support communities are strongly empathic, but do contain some hostile messages. From this data it appears that support communities are often empathic whether or not they are moderated. However, we have observed that when hostile communication does occur it can be devastating. Preventing hostility may be more important than encouraging empathy, which tends to happen naturally in these communities.

--- Tables 1 and 2 Go About Here ---

Table 2 provides a summary of these findings. It indicates that the average percentage of empathic messages in the moderated communities is 5.4% and hostile messages is 0.6%. Note that the mean hostile messages for moderated communities is driven up by the surprisingly large number in the sports communities. This form of communication is probably regarded as the norm in these communities even though it is hostile by our definition. By comparison the mean percent of empathic messages in the unmoderated communities is lower (3.5%), with a higher mean percent of hostile messages (2.7%)

The findings from this study suggest that moderation is a deterrent to hostility and may encourage empathy as one might intuitively predict. However, it appears that communication in some communities may be more influenced by the culture of the community than the presence of a moderator. Support communities tend to be empathic regardless of having a moderator. Sports communities tend to be more hostile even when they have a moderator. Further work is needed to investigate the issues implied by these initial findings. For example, what happens when hostility is defined differently? What is the effect of different styles of moderating? This study paid no attention to moderation style. It only noted whether a moderator was present. Styles of moderation vary greatly and can have a strong impact on an online community (Collins and Berge, 1997; Salmon, 2000).

Summary

This study provides a snapshot of communication in 100 communities. Compared to the thousands of communities that now exist on the Internet, this is a fraction of a large, complex picture. Our findings suggest that empathic communication, as defined by Levenson and Ruef (1992), is common in many online communities. It appears that a community's focus of interest may be one factor that influences empathy in the community. We observed that empathy was extraordinarily high in many support communities, while low in some religious, sports, cultural, social and scientific communities. Our observations also suggest that the ratio of males and females in a community appears to influence empathic communication. Higher numbers of women seem to be associated with empathic

communication. However, this gender influence is less in support communities which tend to be empathic high regardless of gender balance and moderation.

In contrast, although it has always been assumed that moderation reduces hostility and we might suppose, therefore, that moderation would encourage empathy, our results suggest that the picture may be more complex. Some communities, such as sports communities, have quite high hostility (15%) despite the presence of moderators. The culture established may determine what is acceptable in such community.

Trends and Implications for the Near Future

There is very little work on empathy in online communities, but there is a large body of research on empathy in face to face communication (Eisenberg & Strayer, 1987; Eisenberg et al., 1989; Etchevoyen, 1991; Ickes, 1997; Levenson & Reuf, 1992). But how does this research inform observations from our study and what further work is needed to understand empathy online better?

Research on empathy shows that people who share common experiences, who have similar interests, who are similar or who know each other well, tend to be more empathic (Colvin, et al., 1997; Ickes, 1997) than people without these characteristics. "The more similar we are the less we have to go outside of ourselves to gather cues and the more we can respond as we ourselves would naturally to the circumstances" (Hodges & Wegner, 1997, p. 324). Communities with a strong sense of purpose encourage participation from people who share the same sense of identity and provide a strong focus that encourages empathy (Preece, 2000). Being able to identify a community's purpose clearly deters those who do not share the same interests from joining. This, in turn, discourages frustration caused by people not getting what they want. Furthermore, people who identify themselves as being similar tend to be less suspicious of each other and more generous in terms of giving each other the benefit of doubt when something usual happens (Wallace, 1999). Many health communities are very narrowly focused on a particular problem that everyone in the community shares. This may help to explain why these communities are so empathic. In addition, people often belong to a health community for long periods. Even medical problems that can be cured such as knee injuries take time and many medical problems cannot be cured only alleviated. Consequently, people get to know each other slowly over long periods of time, which encourages friendships to form (Walther et al., 1994), in which empathy may play a role.

The psychology of communication via the Internet is complex and the lack of social presence in textual environments can help or hinder relationships, online depending on the circumstances (Wallace, 1999). Media richness theory (Daft & Lengel, 1986) would propose that participants in such environments are discouraged from making haste judgements about each other based on appearance, age, gender, race, etc., because it is much more difficult and often impossible to discern these characteristics in textual environments. The down-side is that when people cannot see the anguish that their hostile comments make and they know that they need not encounter the person again, they are less caring (Walther, 1993). However, the long-term nature of membership in some patient support communities, combined with the strong, shared sense of purpose in many of these communities, is likely to positively encourage empathy and discourage hostility. More research and particularly longitudinal studies of patient support communities are needed to understand these issues.

If moderators want to encourage empathy, they may need to respond to changes in focus by spawning sub-communities at appropriate times (Whittaker et al., 1997). Further

work on moderators' roles in different kinds of communities, and particularly patient-support communities, is needed because empathy is so important in these communities. The prevalence of e-health in which many web sites, such as *dr.koop.com*, either directly support or link to hundreds of patient support communities, gives urgency to this work. For example, moderators may be able to have a strong impact by leading by example. Encouraging participants to reflect more on their comments before posting may also be helpful (Preece, 1999a, 2000).

Much of the communication in patient support communities is concerned with "what if" questions in which people explore the possible effects of different treatments by asking others about their experiences. These personal simulations were also observed in the study of the knee injury community (Preece, 1998, 1999b). Research on empathy suggests that this type of communication helps to build empathy between people (Hodges & Wegner, 1997). This may also tie in with the theory of common ground, in which communicating partners or small groups strive, using various communication techniques, to ensure that they are understanding each other and that each contributor in the conversation knows that he or she is being understood (Clark & Brennan, 1993). Establishing common ground may be a prerequisite for empathy or vice versa and lack of common ground is a cause of hostility. If this is correct, it would establish a firmer theoretical basis for work on empathy online, that would complement work in psychotherapy (Ickes, 1997; Levenson & Reuf, 1992).

Research on the impact of gender on empathic communication in video and face-to-face studies appears wholly unreliable (Graham & Ickes, 1997; Levenson & Ruef, 1992). However, empathic communication appears to be an important component in women's face-to-face networking style (Tannen, 1994). Further work is needed to establish if gender affects empathy online. Research is also needed to establish how well knowledge about empathy in face-to-face communication relates to textual communication online. Empathy is primarily conveyed by touch, gesture, gaze, voice and posture (Eisenberg et al., 1989; Goleman, 1995; Lanzetta & Englis, 1989) which are totally absent in online textual communication media. So what alternative mechanisms do people use when these communication channels are not available? Choice of words, phrases and sentence structure are the main way of communicating emotional as well as factual information. Non-verbal cues, such as emoticons, inclusion of ASCII graphics and punctuation, use of space and paragraphs are also used. The meaning contained in the words tells only a part of the story. People are remarkably creative when motivated to overcome the limitations of textual communication environments and there is a large volume of work on this subject (e.g., Hiltz & Turoff, 1978; Reid, 1993). As children, we develop secret languages to convey fantasies beyond the reach of adult minds. As adults, separated by space and time, the motivation to encode our deepest desires can lead to creative new communication forms. Symbols, such as brackets for hugs, are becoming universally used. Some emoticons, such as the basic smiley (i.e., :)), are so well accepted that some word processors automatically convert these symbols into a recognizable face (i.e., ☺). People are also developing their own acronyms such as: *HIROTFLOL* (holding incision rolling on the floor laughing out loud)!

Conclusion

This study helps to extend the observations reported from our earlier work (Preece, 1998, 1999b) by showing that empathic communication is strong in many communities, and suggesting that it may be influenced by the purpose of a community, the gender balance in the community. The influence of a moderator is more debatable. Empathy appears to occur

naturally in support communities, but with e-health receiving such high profile in newspapers, television and the Web, it is important to encourage empathy and reduce hostility online.

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Table 1.
Number and Percentage of Responses That Were Empathic or Hostile in the Moderated and Unmoderated Communities

Community	# communities	# messages	Moderated	% empathic	% hostile
Patient support	15	300	Y	45.0	0.7
Patient support	3	60	N	43.3	5.0
Cultural	4	80	N	3.8	12.5
Miscellaneous	4	40	Y	12.3	0.0
Miscellaneous	7	140	N	5.7	13.6
Science	3	20	Y	30.0	0.0
Science	4	80	N	6.3	16.3
Social	4	80	N	6.3	27.5
Sports	2	40	Y	10.0	15.0
Sports	7	140	N	2.9	7.9
Emotional support	3	60	Y	48.3	0.0
Emotional support	5	100	N	69.0	9.0
Religion	3	60	N	0.0	21.7
Pets	4	80	N	13.8	3.8
Overall	Total 70	Mean 20	Mean 38.5%	Mean 4.24	Mean 1.90

Table 2.
Summary for Moderated and Unmoderated Communities

Type	# communities	# messages	mean % empathic	mean % hostile
Moderated	27	460	5.39	0.58
Unmoderated	43	940	3.51	2.73