

Evolution of Norms in a Newly Forming Group

Catalina Danis and Alison Lee
IBM TJ Watson Research Center
19 Skyline Drive
Hawthorne, NY 10532 USA
{danis,alisonl}@us.ibm.com

Abstract. Norms are expected to make significant contributions towards enabling discourse in cyberspace among people of different backgrounds, just as they do in the physical world. Yet many distributed, electronically mediated groups fail to form norms successfully. Causes range from open discord to the more insidious lack of comfort people experience in groups that fail to openly address disagreements about what constitutes appropriate behavior in the online environment. We present a case study of the evolution of norms about what constitutes appropriate posts to an online discussion forum for a newly forming group. We trace the discussion sparked by a critical incident and show how a design of an online environment that promotes visibility of participants contributed towards overcoming the forces for dissolution and promoted progress towards coalescing as a group with a shared identity.

1 Introduction

Behavioral norms are viewed as a way to bring governance to online environments [7]. They tell group members what they can and cannot do [10]. Being associated with possible sanctions against violators, they contribute to the regulation of behavior in a social or work setting [5, 7, 10]. While often discussed as a way of decreasing the incidence of intentionally disruptive behaviors, ambiguity about what constitutes appropriate behavior and the consequent unintended violation of norms can also result in much harm to productivity and sociality [4, 15]. Thus, norms are fundamentally important to the formation of agreements that underlie the smooth operation of distributed cooperative work [9, 12].

In face-to-face interaction, norms are developed implicitly over time, through observation [1, 13]. The lack of awareness and presence cues in many Computer-Mediated Communication (CMC) systems precludes observation of other people's behaviors and hinders the process of norm formation [9, 12, 13]. One response to this has been for owners of online sites to post and enforce standards for Internet behavior and provide sanctions for undesirable behavior [5, 7, 8, 12]. However, netiquette is only a starting point. There also needs to be a means for group members to evolve norms in response to new environmental conditions that require adaptations [7, 13].

This paper examines the norms development process of an emerging online group, where the need for norms definition and evolution is particularly acute [9]. Social psychological theories hold that new groups inevitably pass through a stage where disagreement about matters critical to the group are surfaced and must be resolved before they can become a coherent, productive force [17].

Our case study makes two important contributions. First, it documents the negotiation that takes place as a group grapples with the process of evolving a set of norms that the participants will be willing to adhere to. Prior naturalistic studies have generally shown the end results [3, 13] but rarely examine the norms evolution process. Second, our case study demonstrates how common, easily deployable technologies that make the actions of online participants “visible” to others can create an online environment in which people become aware of the actions of others. As we will show, this visibility makes people become accountable and plays a principal role in the negotiation of governance of our online group. Consequently, this case study is a successful example of the conditions that other researchers have argued is critical for norm development to occur [9, 12]. We show how the combination of awareness of behavior and a “remedial episode” – a construct used to analyze behavior correcting episodes in online discussions [15] – can serve as the mechanism for the negotiation of norms.

2 Related Work

Groups commonly develop norms about matters that have significance to them [5]. Thus, the introduction of new technology often creates circumstances under which groups need to build new norms or elaborate existing ones. Ackerman et al. [1] studied an established group’s response to the introduction of an audio-only media space for interaction. The process of norm development was largely conflict-free in the group described as being “largely cohesive” at the time the technology was introduced. This may have been further aided by the immediate adoption of the technology by the “socially central” members of the group. However, there were some occasions where sanctions had to be applied and even the loss of some users when the group failed to reach consensus on one issue on one issue [1]. Participants successfully created norms to communicate signing on, signing off and inattention.

Others have reported cases of open disagreement about norms. Cherny [3] reports on a MUD environment where an established power elite reacted against external participants and on the unsatisfactory experiences of the non-elite with attempting to modify norms. MUD environments have been criticized for providing tools to participants that address the misbehavior of others (e.g., ‘gag’ and ‘refuse’ commands) which circumvent group processes. Sproull and Faraj [16] note that by failing to deal with participants as members of a social entity, these types of individual measures reinforce the view of such spaces as “informational” spaces rather than “social” spaces. Furthermore, such tools “... benefit the individual who may use it, but it may be socially dysfunctional for the group” because they preclude the education of the group and allow individuals to shirk social responsibility [16].

Of particular relevance to our discussion are case studies of norm development among newly forming electronic groups [9, 13]. Postmes et al. [13] identify groups on the basis of linguistic usage in emails written to instructors and other students in an online, self-paced course. In this case, the form of the communication, but not the content served to differentiate groups. This demonstrates Feldman’s point [5] that norms can serve an expressive function which clarifies what is distinctive about the group. Differences among groups observed by Postmes et. al. [13] became more pronounced

over time, although the authors do not provide insights as to how this happened and what role technology support might have played in it.

Mark [9] presents an analysis of the long-term adoption of a complex electronic technology by a distributed group and documents the failure of the development of norms. This group was effectively constituted through the introduction of a new groupware system. She observes that it took members of the group more than two years to realize that they had dependencies on each other and needed to develop norms to govern interaction. She attributes the failure to develop norms to several factors, including the inability of members to observe each others' behavior, the lack of mechanisms to monitor adherence to norms, and the inability to apply peer pressure to sustain commitments to the norms that have been agreed to. All of these, she argues, depend on awareness mechanisms. We show in our case study that surfacing disagreements about appropriate conduct occurs in a site which makes awareness mechanisms available. Further, the case study illustrates how participants were able to explore different norm perspectives and then begin to formulate a set of norms agreeable to the group.

3 The Case Study

This case study examines an online environment developed to support summer interns at a large industrial laboratory with 1500 people located in two buildings that are 10 miles apart. Interns were typically assigned to 5 to 7 person project teams comprised of permanent researchers. They had contact with other interns through a few company-planned social gatherings and through smaller intern-organized outings. The corporation's Human Relations (HR) department wanted to create a Web site to supplement the face-to-face contact with electronic opportunities for interns to meet.

The Web site deployed in prior years had been unsuccessful in holding the interns' interest beyond the first few weeks. They looked to us as researchers with expertise in supporting collaboration among distributed team members to create a more compelling online environment. We ascertained from a dozen pre-design interviews with former and returning interns that they were interested in a discussion space where they could learn from each other. They wanted to be able to supplement the official, management version of the information with their peers' experiences. Previous research has discussed this requirement (e.g., empathic online communities [14]).

Our interest in creating the Web site was the opportunity to study the course of interaction among members of a "concocted" [2] group (put together by external agents) as they begin to develop ties. The Web site, called Portkey, was created to address both the service and the research goals. This dual focus was discussed in HR's email introduction of the site to interns and was advertised on the site as well. Interns who were not comfortable with participating under these terms were able to extract the value created by other interns by reading, but not contributing to, the discussion. We, as the researchers behind the Web site's creation, were visible and accessible both through the Web site and at the interns' social gatherings.

3.1 Portkey's Design

Portkey consisted of a discussion space, called Peertalk, profile pages, called People Pages and official information about the laboratory and living in the surrounding area. The Web site was open to all summer 2001 interns, their mentors, and managers.

A main design goal was to support accountability by providing visibility of participants and their behavior [4]. We therefore provided a discussion venue and integrated it with participant profile information. A participant's demographic information (e.g., name, school, research interests, project), their manager, their photograph, and their personal and professional interests appeared in a profile page. Entries beyond name, school, and manager were optional. Accountability was promoted by linking discussion contributions to the author's profile page. A running count of each contributor's posts appeared next to their name and, in response to requests by interns later in the summer, we made it possible to list the content of all posts made by an individual.

A second main design feature was a monthly contest used to encourage participation. Interns who volunteered the optional profile information and made at least three posts in a month were eligible for a monthly drawing of \$1000 in the corporate sponsor's products. Each subsequent post resulted in an additional contest entry. Figure 1 shows that between 23 and 49 (of the 284 active) interns were eligible for the four monthly drawings. Interns earned an average of 6.5, 8.3, 13.7, 5.6 ballots per month from May through August. The spike in July's ballot number reflects the controversy which provided the occasion for the norms discussion we report on in this case study.

3.2 Methods and Data

We collected three types of data. The first type is the content of posts made by the interns over the 15-week period from May 14 - Aug 19 (calendar weeks 20 to 34). While the site operated from May 4 until October 31, our data analysis is focussed on the 15-week period when 96% of the interns were around. The second type is log records of Web site page requests. The data was used to find patterns of usage that answer questions such as "do interns tend to look at people profiles after they read the posts?" The third type is from three group interviews with interns (8 each). The groups

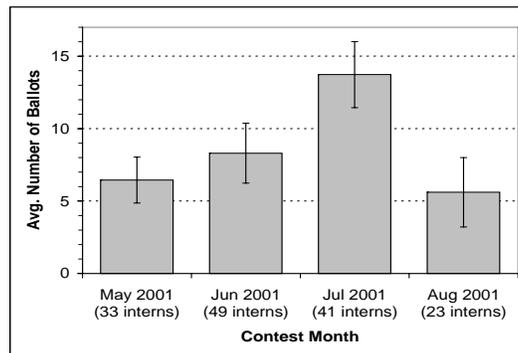


Fig. 1. Average number of contest ballots per intern along with standard error bars for each of the four months of the contest. A total of 78 interns qualified for the contest in the 4 months

consisted of a) a randomly selected set of Portkey users, b) interns who had only read but not posted to Peertalk, and c) high frequency posters. The interviews were loosely structured around a series of questions aimed at uncovering how well the site met their needs and how they felt about its social features. Only information gleaned from the third interview, on August 15th, is used in this report.

Usage of the Portkey site was widespread among the interns during the 15 week case study period. 284 interns out of the 340 Summer 2001 interns logged onto the Web site. Of the 284 interns, 124 posted to and read from Peertalk, 132 only read Peertalk, while 28 others only examined areas other than Peertalk. The 124 interns (44% of total) made 1473 posts. The remaining 25, or 2% of the total 1498 posts were made by 14 permanent researchers. Other participation by the eligible permanent researchers was also low. The 398 permanent researchers accounted for only 4% of the Web-page requests and less than 40% (155) of them logged on to the Web site.

Our analyses make use of two sets of analytic methods. The first is the construct of *remedial episodes* which is used to analyze conduct around disagreements – *conduct-correcting episodes* – in Usenet newsgroups [15]. We use it to analyze the disagreements surrounding the appropriateness of content of Peertalk posts. The first component of the four-part remedial episode is the *failure event*, which is the remark around which a disagreement coalesces. A *reproach* from one or more individuals follows. This may be explicit or implicit depending on the individual and the group dynamics. A *response* from the “offender” may or may not occur. The final component is an *evaluation of the account* by the reproacher, which either accepts or rejects it.

The second method is Holeyton’s message categorization scheme for classifying email distribution list messages according to one of three larger social purposes: *housekeeping dialogue*, *social dialogue*, *critical dialogue* [6]. *Housekeeping dialogue* is for minimal, social purpose discussions such as work-related activities and informational requests. *Social dialogue* is lightweight social purpose discussions related to social activities, to people’s outside interests, and to relieving stress. *Critical dialogue* is higher-order social purpose discussions of a substantive, reasoned, constructive nature such as norms discussion in Portkey. We analyzed 1022 messages from the 1473 intern posts created in 9 of the 21 Peertalk fora during the study period. The messages were divided in half and each half was assigned to two raters for categorization.

4 A Conduct Correcting Episode Begins the Norms Discussion

The opportunity to examine a norm evolution discussion surfaced as a result of disagreements with what constituted an appropriate post to Peertalk and was, in part, motivated by the contest. As Feldman notes [5], groups will only bother to develop norms about behaviors that are important to them. While the monthly prize was substantial, it is interesting to note that in any given month no more than 40% of the posting interns became eligible for the contest. The norms discussion we present will show that the contest was a strong motivator for some, but not most, of the interns.

The trigger for the discussion occurred ten weeks into the study period. It was an indexical remark, a short comment that acknowledges a previous remark but does not advance the conversation, made by a recently-arrived intern. The intern, P1, became

the object of a *reproach* by two other interns but did not respond for two weeks. We learned during the third of the group interviews, four weeks later, that several seemingly unrelated threads that were started after the *reproach* were in fact part of a growing effort to elicit a *response* from P1. The reason for this collective effort to *reproach* P1 was because he quickly surpassed all others on the total number of posts in spite of having arrived more than a month later than most other interns. An intern's productivity was visible to others as the number of posts made by each intern was displayed by their name. A less direct measure could be obtained from the frequency with which a person's name was encountered while reading the posts. We learned in the August 15th interview that the general feeling among the interns was that P1's postings were largely motivated by a desire to win the July drawing. Figure 2 confirms what the interns concluded about P1's extreme posting behavior. It shows the number of posts per week P1 made since his arrival in week number 27 relative to the next highest Portkey poster. The average poster made 2.9 posts per week. Clearly, P1 is an outlier.

4.1 Start of the First Remedial Episode

The context for the first reproach against P1 was a post alerting interns of a possible confusion about the location where some experiments were being held. Interns are often solicited to participate as paid subjects in experiments being run at the laboratory so the alert would have been generally informative. P3 posts the alert and is thanked by P4. P1's reiteration of the indexical remark made by P4 is viewed as the *failure event* that started the remedial episode and is followed by two *reproaches* by P4 and P5.

>> Person P3

>> Date Posted 7-01-2001 8:52 PM

There are about 3 different people at <Building 2> and a few at <Building 1> conducting experiments. If you sign up to participate make sure you know what location it is at. People have signed up for the wrong location and missed appointments.

>> Person P4

>> Date Posted 7-11-2001 3:06 PM

Thanks for the heads up.

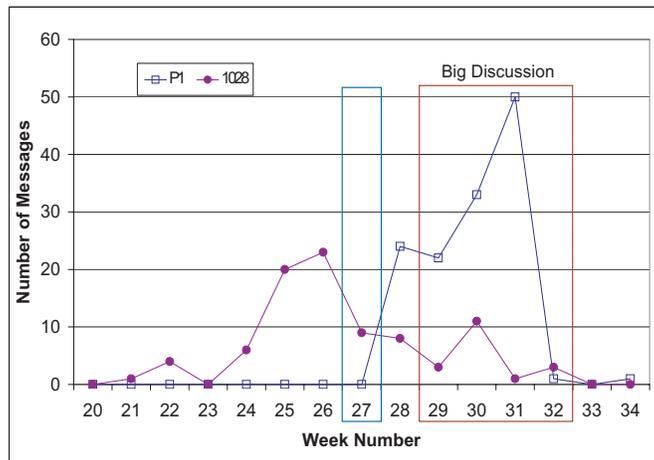


Fig. 2. Number of posts per week for top posters from May 14 to Aug 19 (weeks 20 to 34)

>> **Person P1**
>> Date Posted 7-18-2001 9:47 AM
yeah, thanks
>> **Person P4**
>> Date Posted 7-18-2001 2:52 PM
Will you all be doing that again?
>> **Person P5**
>> Date Posted 7-18-2001 4:48 PM
yeah...
will u be doing it again,
when its nice, do it twice!!!

Initial *reproaches* are followed by others that may either scold or, as in this case, reinforce the reproacher [15]. P1 does not offer a *response* to the *reproach* until two weeks later. In the meantime, a sub-group (P1-accountability group) formed with the goal of eliciting a response from P1. He was the target of a subsequent *reproach* which was expressed very opaquely and he again failed to acknowledge it. Smith et. al. [15] found that only 25% of their remedial episodes included a *response* to the *reproach*.

4.2 The Second Remedial Episode with the Same Protagonist

The second remedial episode began when another intern wrote what he called an ode to a local bar called the Thirsty Turtle. P1 responded with a binary question about the nature of the Thirsty Turtle establishment, to which a third intern, an established critic of P1's behavior, spelled out "BOTH" in four separate posts (reproduced below as a single post to save space). P1 does not accept the *reproach*, but uses it as an occasion to level a *reproach* at his critic. However, P2, an office mate and friend of P1 realizes what is happening and makes a joke alluding to the volume of P1's posts.

>> **Person P1**
>> Date Posted 7-30-2001 3:58 PM
is this a pub? or a club or something like that?
>> **Person P10**
>> Date Posted 7-30-2001 5:11 PM
B-O-T-H (*actually appeared in four separate posts*)
>> **Person P1**
>> Date Posted 7-30-2001 6:07 PM
Are you desperately trying to put in posts?
>> **Person P2**
>> Date Posted 7-31-2001 3:06 PM>
you will not catch <P1>

4.3 Getting Personal and Direct with the Reproaches

Still unwilling to reproach P1 directly, another member of the P1-accountability sub-group of interns, took the next step in this extended remedial episode by starting a new thread to ostensibly recognize interns who make high quality posts. The thread was entitled *Vote for your favorite Portkey poster/discussion* to focus attention on what the sub-group considered to be valuable posts rather than the noise that began to dominate Portkey. This thread generated only 2 responses including one by P1.

>> **Person P7**
>> Date Posted 7-30-2001 5:43 PM
Forget the <Name> contest - finally, here is a forum to recognize those people who provide posts of quality to Portkey (not necessarily quantity). If you've found someone's posts to be helpful and of relevant substance ... then let everyone know!

In another response, P1's office mate (P2) started a thread entitled *Vote for your favorite Portkey useless poster/discussion*. When this thread degenerated into name calling and jeering, the originator of the "favorite Portkey poster/discussion" thread tried to get the participants to focus on the real issue: a *reproach* against P1 for his undisguised chase of the contest prize.

>> **Person P7**

>> Date Posted 8-01-2001 11:35 AM

Come on guys, this was the underlying intent of my original thread. This and *<the thread>* posting ethics. I was really hoping that a certain someone who has endeared himself to the Portkey community would be the first to be nominated. But kudos to those who stated outright what I could only hint to :-).

With his comment, P7 articulates the difficulty the group of disgruntled interns had in confronting P1 directly about his behavior. The restraint these interns showed for two weeks after the original critical incident occurred is remarkable in comparison to the swift *reproaches* reported in Usenet settings [8, 15]. One likely source of this restraint is that Portkey was a work-based site that was open to the interns' management. Secondly, unlike on the open Internet where an individual can usually find alternatives, Portkey was the only site available that addressed the interns' concerns. A third reason may have been that since P1 arrived after the group had established implicit norms as indicated by stable posting during the first two contests, they could, as Feldman [5] notes, be "charitable or tolerant towards deviant behavior."

After two weeks, one of the interns finally made a direct reproach that, however, included a hedge to soften the accusation. It came in the form of a new thread entitled *Congratulations, <P1>!*

>> **Person P8**

>> Date Posted 7-31-2001 10:13 AM

You've made it to a whopping **100 posts**¹. You are now eligible to start working! ;-) Wow, this forum is getting out of hand...

Eventually P1 responds to the mounting *reproaches* that have been aimed at him for over two weeks by offering an excuse. His *response* is mediated by his office mate, P2, who had earlier encouraged P1's behavior.

>> **Person P2**

>> Date Posted 7-31-2001 10:50 AM

Hey <P1> you need a project ASAP!! :-)

>> **Person P1**

>> Date Posted 7-31-2001 11:40 AM

Yeah! Thanx. I have had some problems lately with my supervisor being sick, and work has been a bit slow in arriving, so I just spend my days in portkey...I am the ever present poster.

In a subsequent post, P1 offers a more direct *response* to the *reproach*. He acknowledges his pursuit of the contest prize, but also surfaces the posting norm that governs his behavior on Portkey. An *evaluation* of his response by P11 articulates the different norm he, and others in the P1-accountability sub-group, hold.

>> **Person P1**

>> Date Posted 7-31-2001 1:42 PM

I think that this site was a place to socialize, and many of us are starting to know each other by names, encouraging us to meet personally. Isn't this the aim? ... We are about 200 interns, and many of us like internet chatting, as well as communicating through forums. Portkey is a fun place. Even if there were no prize, trust me that there would be the usual 5 or 6 people spending a lot of time posting, meeting other people and having fun.

¹ P1's 100th post represents 7.1% of the total posts to-date (1415 posts) achieved in just 3 weeks.

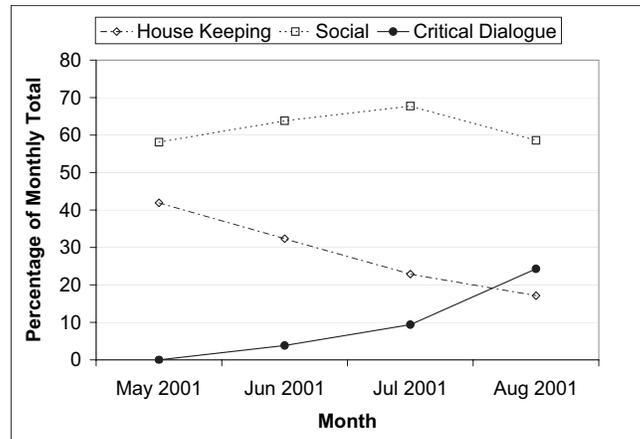


Fig. 3. Percentages of the three categories (i.e., housekeeping, social, and critical dialogue) in each of the four months. 751 of the 1022 messages with same ratings were considered. The 1022 messages were selected from 9 discussion fora during the period of May 14 to Aug 19

>> **Person P11**

>> Date Posted 7-31-2001 4:09 PM

If I wanted free-form back-and-forth conversation, I would follow <P9>'s suggestion and go find a chat room somewhere [set one up here, maybe?] Discussion lists are for constructed thought, funny, un-funny, reverent, irreverent whatever. Otherwise the system becomes no better than the unsolicited deluge of e-mail we had to cope with last summer.

This interchange surfaced the divergent norms held by the two groups and marks the transition from a personal, behavior-correcting episode [15] to a broader discussion about the norms that should govern the group's posting behavior on Portkey.

5 Developing Ties on Portkey

Before we document the group norms discussion in the next section, we next examine more closely the interns' use of the technology and the accompanying evolution of social ties among members of this concocted group. Discussion fora are a simple but powerful tool to give expression to people's beliefs. In this context, Postmes et. al. [13] note, people's words have two functions, "... simultaneously defining and reflecting group norms." The use of signed posts and the ease with which interns could monitor an individual's output created the opportunity for accountability to emerge [4]. We should note that we had not expected that the running count of posts would figure so prominently in the social interaction that unfolded. It appears to have functioned as a socially translucent [4] piece of data that was appropriated [13] by the interns to fit the needs that emerged from their particular use of the technology.

5.1 Growing Intimacy Reflected in Poster Content

The behavior-correcting episode occurred against a backdrop of developing intimacy through online and face-to-face interactions. To measure how this might be reflected in changes in the nature of the posts, we had a sample of 1022 messages categorized into

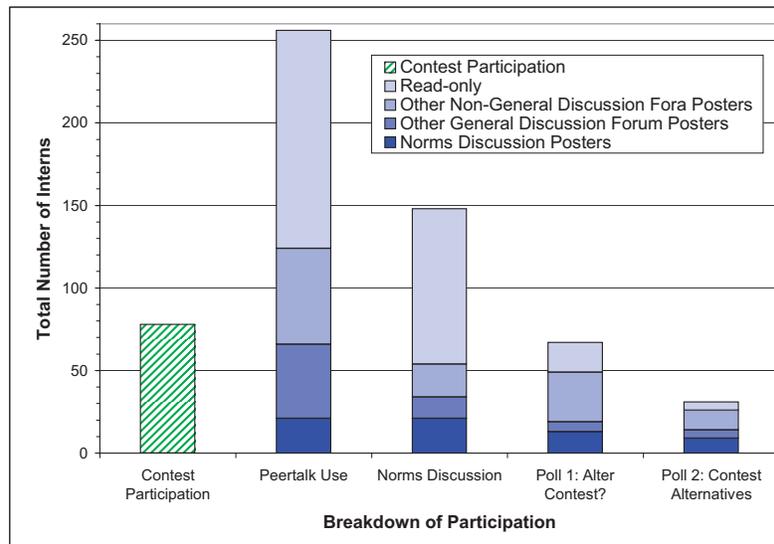


Fig. 4. Breakdown of forms of participation. Number of interns a) eligible for contest in the four months (column 1), b) posting and/or reading on the site (column 2), c) posting and/or reading the norms discussion (column 3), d) voting to alter the contest (column 4), and e) voting among contest alternatives (column 5)

Holeton’s [6] three social-purpose categories. These are intended to capture a progression of intimacy in the discussions. The initial results produced an agreement level of 73% (Cohen’s Kappa = .511). Rather than try to resolve the disagreements, we present the data for observations where agreement was observed.

Figure 3 shows the percentage of messages assigned each month to each of the three categories. It shows that *social dialogue* messages were the most frequent, accounting for approximately 60% of the monthly posts throughout the life of the site. *Housekeeping dialogue* messages were common at the start of the summer but their frequency decreased as the summer progressed. The opposite pattern occurred for the *critical dialogue* messages, which did not exist at the start, but equaled the number of *housekeeping* messages at the end of the summer. The growth in *critical dialogue* posts came at the expense of both *housekeeping* and *social* posts. We believe that the *critical dialogue* category was underestimated because many of the posts generated to get P1 to respond to the reproaches leveled against him were indirect. Given that the raters were unfamiliar with the study, they were not privy to the communicative purpose of a thread that discussed, for example, “your favorite Portkey poster/discussion.” The data nevertheless indicates that the interns were developing a degree of intimacy among themselves as the summer progressed.

5.2 Broad Participation in the Norms Discussions

Figure 4 shows that approximately 60% of the 256 interns who read and/or posted in Peertalk over the course of the summer, also read and/or posted during the month-long period of the norms discussion. The data is based on analyses of page requests that

were captured in the logs. Column 1 provides a baseline measure and shows that a total of 78 interns were eligible in the four contests. Column 2 shows the number of interns participating in various ways in Peertalk. The bottom-most section corresponds to 21 interns involved in the norms discussions while the middle-two sections represent the number of interns involved in postings in other fora. The top section of column 2 shows that 132 of the 256 interns read but did not post. Column 3 shows comparable data during the one-month period of the norms discussions. Fully, 58% of the 256 active interns participated through reading or posting in the norms discussion.

Whether those who only read but do not post in a discussion forum should be considered participants has been actively debated in the literature [8, 11]. Our data (columns 4 and 5) indicate that even those interns who did not post in the norms discussion voted in the two polls that were proposed in the norms discussion. Thus, they were actively following what transpired, even though they did it in a less visible manner than through posting. We discuss the polls further in the next section.

6 Towards Establishing Group Identity

Several themes emerged in Peertalk in the three remaining weeks that followed P1's response to his reproachers. These ranged from the concrete question of which of the two norms – chat room or discussion forum behavior – is desirable, to criticisms of the contest and discussions of alternative prizes, to discussions of their status as a group. Thus, the remedial episode rather than simply correcting the offender's behavior functioned to focus the group's attention on the more fundamental issue of themselves as a group with shared issues to address. Feldman [5] notes that groups often attempt to enforce norms to "...express the central values of the group and clarify what is distinctive about the group's identity."

6.1 Group Discussion of Competition Norms

After a few more interns added *reproaches* about P1's large number of posts, the attention of the interns turned to a discussion of the effect of the contest on the group and the need for the participants to evolve a norm that all would abide by. One of the original complainants began a discussion thread entitled *ethics for posting?!* with a post that addressed norms, the effect of the contest and his anger at what he called the "*end-of-the-month get-your-post-in-for-the-draw phenomenon*". The thread generated 50 responses from 13 interns over the next four days. The lead post was:

>> **Person P9**

>> Date Posted 7-31-2001 11:13 AM

I think the Portkey forum has grown large enough for people to start self-imposing some sort of restraint on their postings. Alternatively, maybe the forum should itself come up with a code that every poster would be urged to stick to.

Another poster succinctly summarized the change taking place in recent weeks.

>> **Person P10**

>> Date Posted 7-31-2001 11:54 AM

The majority of posters have abided by the silent social contract that you are supposed to post signal instead of noise, but it only takes one selfish individual to break the contract and all hell breaks loose. Even social pressures such as satire (which I have tried to direct at certain posters, whom I need not name) and outright jeering will not discourage someone who has his/her eye on the prize.

A number of other posters openly confronted P1 for his posting behavior, accusing him of selfishness and challenging him to give up his chance for the prize. He, in turn, did not deny his intentions to win the prize, but joined others in arguing that the contest was the root of the difficulty.

6.2 Towards Resolving the Conflict

The discussion that ensued was varied in tone, at times logical and well-argued, often impassioned and full of frustration. Eventually the discussion turned away from a focus on P1 and generalized to what standards the entire user population should adopt.

At first, the interns wanted the resolution to be imposed from outside. As the disagreement was beginning to surface in early August, some of the interns passed a message to us through two interns who worked on the project with us that we “*have to do something*” as administrators of the site. Our decision to maintain our role as “sentinels” rather than moderators was debated in a number of the posts, with the interns being divided on which role they wanted us to play. When we did not step in, various interns adopted a different strategy and began to work with their peers on the site. After much debate and anger in the thread name *ethics for posting?!*, an intern made a suggestion for a different algorithm for contest eligibility.

>> **Person P12**

>> Date Posted 7-31-2001 7:43 PM

Lets borrow some tricks from game theory. Make the top 10 (in the number of posts) people not available for the prize, and the others still randomly choose based on their ballots.

This led to a lot of debate about the rules for contest eligibility and even for the contest prize. After a week of such debate, we violated our decision to not get involved and offered them a voting mechanism which they could use to make some changes. In the first vote (column 4 in Figure 4), 49 out of 69 people voted to change the contest. In the second vote, interns voted on three contest change options.

Our decision was not taken lightly. We realized that our intervention would put an end to our ability to collect unbiased data from the site. However, most interns were nearing the ends of their internships and we wanted to give them some closure on the controversies they had been embroiled in for the previous month.

6.3 Reflection on What Transpired

As the storm engendered by the contest began to die down, some interns began to reflect more broadly on what had happened on the site over the course of the summer. While some interns criticized the occurrence of the playful threads that were meant to model P1’s behavior, more interns defended them. Overall, there seemed to be a recognition that there had been some change that took place and this was positive.

>> **Person P14**

>> Date Posted 8-01-2001 4:09 PM

< P6’s > post was I think the first true nonsensical one. It as revolutionary and, dare I say, brilliant. Without posts like these can change ever occur? I don’t think portkey will ever be the same, and for that I am grateful.

>> **Person P15**

>> Date Posted 8-03-2001 12:08 AM

every post you make is also a reflection on yourself and also on the portkey community in general. And this certainly has a pronounced effect. Many of my fellow interns have been put off from portkey because of this rising trend of nonsensical posts.

Further discussion of governance and of group issues was unfortunately cut off by the ending of the summer internship period. But while the interns did not reach a complete resolution to their norms discussion, they did make substantial progress.

7 Discussion

This case study documents what many observers of CMC suspect: developing norms is difficult work that needs to be supported by technology [1, 9, 12]. In the Portkey environment, broaching the topic openly required the concerted effort of more than twenty interns. The discussion fora provided the mechanism that enabled interns to observe the behavior that they disagreed with, to surface the disagreement through dialogue, and finally to work towards resolving it. This study supports Mark's hypothesis [9] that awareness is important for mediating the opportunity to negotiate norms. Of course, the nature of case study data is correlational, not predictive.

We also demonstrate that the diagnosis of a conflict is difficult. Even though we had been monitoring the site for almost three months, we did not recognize the significance that certain threads played in surfacing the norms discussion until we happened to include some of the members of the disaffected group of interns in one of the group interviews. We believe that this caused our colleagues who rated the content of the posts to incorrectly categorize some of the posts as social rather than critical dialogue.

This raises the question of how to surface conflict and disagreement among members of an online group and how to support their resolution. Particularly, if the social psychologists' contention is correct that groups must pass through a period of "storming" before "norming"[17], conflicts among members of online environments need a way to surface. Certainly tools such as those available in MUDs and MOOs [3, 16] for individually rather than socially handling conflict could shortchange the process of norms development. Without addressing the difficult issues that matter to the group, the group does not progress through to a level where they can form a productive force.

Clearly, not all groups need to progress to becoming a productive force. Participants in Portkey were a loosely coupled, concocted group [2] whose joint work was optional. Without the motivation of the structure of the contest, this group may never have found reason to engage in "storming." And consequently might have missed out on moving beyond being a concocted group, functioning as individuals [17].

Our case study revealed that visibility made it possible for the group to be made aware of issues and problems. As a result, a small group of people took the lead to raise the issue that led to vibrant discussion. Would this happen in other groups? We surmise that there are at least two important factors in our case study. First, we had group of moderate where people could notice what was happening. In a larger group, it may be necessary to develop surfacing mechanisms across all activities. Second, there were individuals who stepped forward to raise and to resolve the issues. Without these two factors, visibility would be a benign mechanism. In larger online environments, reputation systems have the potential to fill both of these needs: a) to surface diverging behaviors and b) to enable social governance through collective actions of people.

The remedial episode construct studied by Smith et al. [15] was a useful analytic tool for analyzing and surfacing the conflict. Our case study and the instrumental

application of the analytic method supports their hypothesis that studying incidents of breakdowns can provide a means to study emergent standards of behavior.

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