Blogging at Work and the Corporate Attention Economy

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ABSTRACT

The attention economy motivates participation in peer-produced sites on the Web like YouTube and Wikipedia. However, this economy appears to break down at work. We studied a large internal corporate blogging community using log files and interviews and found that employees expected to receive attention when they contributed to blogs, but these expectations often went unmet. Like in the external blogosphere, a few people received most of the attention, and many people received little or none. Employees expressed frustration if they invested time and received little or no perceived return on investment. While many corporations are looking to adopt Web-based communication tools like blogs, wikis, and forums, these efforts will fail unless employees are motivated to participate and contribute content. We identify where the attention economy breaks down in a corporate blog community and suggest mechanisms for improvement.

Author Keywords

Blogging, blog readers, attention economy, workplace, social computing.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; K.4.m. Computers and Society: Miscellaneous.

INTRODUCTION

Why do Facebook users update their statuses? What motivates Twitter users to broadcast their thoughts throughout the day? What motivates people to upload 30 million videos to YouTube every month? While individual motivations vary, an underlying force drives the Web: *attention [7, 12]*. People's desire for attention stems from a fundamental social and emotional need for friendship, support, and connectivity [20]. Such basic human needs

long pre-date the Web. However, today's participatory culture online lowers the barriers to entry. User-generated content sites like YouTube, LiveJournal, Flickr, and deviantART are micro-economies of attention, where participation can range from professional artists looking to sell their work to amateur hobbyists seeking a like-minded community—yet all rely on attention from others.

Despite extensive literature describing the attention economy on the Web, little research has explored its effects at work. The economics of attention play an important role in maintaining a healthy internal corporate blogging community. This paper explores the attention economy in a large internal corporate blogging community.

FeamCo (named changed) is a large technology corporation with offices around the world. We analyzed 12 months of log files from FeamCo's internal blog server. We looked at traffic patterns and temporal patterns in blog writing and reading. We then interviewed 96 employees in FeamCo worldwide, who ranged from highly active to almost inactive in the blogging community. We compared attitudes towards blogging to perceptions of blog readership and examined quantitative and qualitative patterns of participation on FeamCo's internal blog.

We describe the dynamics of FeamCo's internal blog community and identify where breakdowns occur in the corporate attention economy. We show how the corporate attention economy differs from the attention economy on the social Web and how these differences affected attitudes towards blogging among employees at FeamCo.

Attention is a driving force on the Web; a few blogs become very popular while most do not. We hypothesized that an attention economy might also govern an internal corporate blogosphere, where some employee bloggers would receive most of the attention and others would receive very little. However, we know little about how this disparity might affect the growth and evolution of an internal corporate blogosphere. Who writes blogs and for what purpose? How does blog readership influence the community? How does blogging impact corporate culture and how does corporate culture impact blogging?

In the Related Work section, we discuss prior research on corporate blogging and distinguish between external and internal corporate blogs. We then define the "attention

economy" and situate our analysis within this framework. In the Results section, we present our empirical data from the log files and interviews and our analysis of participants' attitudes towards blogging. In the Discussion section, we suggest two mechanisms for alleviating the tensions between the corporate attention economy and blogging. Finally, we conclude with general implications for the use of Web-based communication platforms at work.

RELATED WORK

Early research described motivations for blogging [21] and blog topics, genres, and structural properties [9, 11, 16, 18, 23]. More recent work looks at the lifespan of blogs [10] and social network influence in blogs [1, 4, 24]. There is now an increasing interest in corporate blogging.

Corporate Blogging

External corporate blogs differ from internal corporate blogs; external blogs represent a corporation's public presentation of self. They are often part of the responsibilities of the corporation's marketing or public relations departments and may be closely monitored and vetted for content and tone. In contrast, internal blogs are only visible to employees within the company, and their content can be work-related, social, or both. Efimova and Grudin studied Microsoft's internal blogging community to understand how, where, and why employees blog [6]. Jackson *et al*. report on IBM's internal corporate blog community, describing types of users, frequency of use, and benefits for both the individual and the community [14]. Huh *et al*., also at IBM, discuss ways that blogging can support collaboration and knowledge sharing [13].

Until recently, there was little research focusing on the role and contributions of the blog reader [2]. Baumer *et al*. addressed this gap with a study of blog readers that looked at types of blog reading, when blogs are read, and reader perceptions of blogs [2]. Understanding the role of the reader is critical to our argument; the blog reader drives the attention economy of the blogosphere and is essential to building an active blog community. We build on this study and others by combining the roles of the reader, author, and blog content into a single unit of analysis.

The Attention Economy

Attention is the tie that binds these pieces together, and allows a community of bloggers to grow this radically persistent domain. Blogging has rarely been described as radical, yet blog communities grow despite the fact that most blogs die, most bloggers give up blogging, and most remaining bloggers receive no monetary compensation for their effort [10]. How does such a system survive? People's ongoing desire for attention feeds a steady stream of competition, growth, and novelty [32] that enables this seemingly ill-fated economy to thrive.

> *"In an information-rich world, the wealth of information means a dearth of something else: a scarcity of... the attention of its recipients" [25].*

Attention is an intrinsically scarce resource and is quite often desirable [7]. An *attention economy* drives the Web, where competition for attention is great and information can be created freely and shared in abundance [5]. In a community of bloggers, scarcity of attention will increase in proportion to the number of blog posts. Because attention is finite, readers must be increasingly selective about what they choose to read and how much time to devote to any individual post. In other words, "a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it" [25]. The overabundance of information creates an environment in which competition for attention increases demand for high quality content from the author, yet the ability to locate high quality content requires increasingly more time and effort from the reader. Goldhaber describes two categories of individuals in the attention economy: stars and fans. Stars receive more attention than they give, while fans pay out more attention than they receive [7]. The star-fan equation balances the supply and demand of attention in sites like YouTube, Twitter, or deviantART where a few stars receive most of the attention, and the majority of fans provide it. This relatively organic, peer-driven, star-fan model is different from traditional ways of doing work in a corporation. Formal role and rank in a traditional hierarchy are the product of systematized top-down management, rather than bottom-up peer leadership.

The attention economy in internal corporate blogs creates a paradox: knowledge sharing requires that employees articulate what they know and share publicly with their coworkers. As more information is added to an internal knowledge base, it becomes more likely that the answer to a given question will exist. However, as the amount of information grows, it becomes increasingly difficult to find the relevant bits. Furthermore, as more employees contribute, the amount of attention and reward that can be paid to any individual will decrease.

METHODS

To capture exact readership data, we analyzed log files. To capture perceived readership, we asked participants about who they perceived to read their blog, how many people they thought read it, and how happy they were with readership and why. The second half of the interview script was less structured and was designed to capture qualitative reports of participants' experiences.

Log File Analysis

We analyzed log files from July 2007-July 2008 of the internal blog server at FeamCo. These access logs contained over 4.4 million lines. After removing bots as well as the blog platform software's maintenance hits, the remaining dataset contained 3.6 million lines. For some sections of our analysis, we removed RSS feeds to infer a more accurate direct hit count. We parsed out blog names from the request URL and identified over 100 unique blogs, over 1,000 non-anonymous blogger authors, and well over

10,000 readers.[1] We sorted by HTTP POSTs and GETs and grouped by blogger name and blog name (where some group blogs have multiple authors). We also plotted temporal participation among blog readers. In the temporal analyses we removed IP addresses outside the US for which we could not determine a time zone.

Interviews

We then interviewed 96 employees at FeamCo. Participants were recruited by selecting from a database of employee names who were active one or more times in any of FeamCo's social media tools (which includes FeamCo's internal wiki, forum, blog, Digg-like site, and idea-sharing site). We sent 786 recruiting emails and received 143 responses. We sampled across a diversity of gender, regions, work groups, and start dates. Phone interviews with 96 of these respondents took place over a 6-week period during summer 2008. Though respondents' native languages varied, all interviews were conducted in English.

We mapped interview participants' user ids to their employee numbers in order to obtain their work-related demographics. Of the 96 participants we spoke with, nine were managers and three were vice presidents, in North America, East Asia, and South America branches, respectively. Participants were representative of geographic demographics within the company, but not of job functions, which were skewed towards engineering and marketing. This bias is representative of participation within the blogging community at FeamCo, according to our analysis of blogging participation. Our interviews indicated that this bias in adoption correlated with a self-reported willingness to try new online environments among engineers, and a self-reported interest in taking advantage of Web 2.0 tools in the marketing department.

Of the 96 participants, 76 were male and 21 were female, which is likely to approximate the gender breakdown within FeamCo (although gender is not tracked in the organization chart). The earliest participant start date at FeamCo was 1978 and there was a large representation from employees who had been at FeamCo for at over 10 years (see Table 1). We did not ask participants their ages, but found that start date serves as a rough proxy for age, based on tone and context of participant responses. Some, for example, referenced being "older" or "of a different generation" when asked questions about activities on the Internet.

We conducted semi-structured interviews ranging in length from 15-40 minutes long. Our interview script included a short list of targeted questions related to: (1) how active participants were in the blogging community; (2) perceived readership of their blog (if a blog writer) and perceived readership of other blogs (if not a blog writer); (3) how

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[1] Exact readership by unique IP address is not possible because some employees access the intranet from remote locations through the company VPN.

Region:	Americas	Europe	Asia Pacific
	53	28	15
Group:	Engineering	Marketing	Other*
	36	26	34
Start Date:	pre-1997	1997-2003	2004-present
	34	31	31

Table 1. Interview participant demographics (*n*=96). *Other includes IT, Services, Sales, Administration.

satisfied they were with readership of their blog (if a blog writer); and (4) attitudes towards blogging. Responses were coded on a 3-point scale: 2, 1, and 0, representing values of Heavy, Medium, and Low/Not at All for blogging activity and Very Positive, Somewhat Positive, and Not Positive for the remaining three questions. Participants who expressed enthusiasm about blogging in general, but were dissatisfied with aspects of the blog community at FeamCo were rated as Somewhat Positive. Additional questions varied based on whether the participant was a blog writer, commenter, and/or reader. Interview transcripts were analyzed by a team of three researchers with a focus on addressing the questions in the interview script. We draw from additional anecdotal reports during the unstructured parts of the interviews to support our results and discussion sections.

RESULTS

Results are grouped into four sections: participant behavior and attitudes; correlations between behavior and attitude; general traffic patterns; and general temporal patterns. The first two sections are based on the participant data, including interviews, the organization chart, and log traffic, and the latter two are based on the log files of the entire blogging community.

Participant Behavior and Attitudes

To understand participant behavior, we looked at how frequently they post to blogs, how actively they read blogs, and their attitudes towards blogging. Participants identified as blog readers, blog writers (and readers), or neither. Table 2 shows the breakdown of the participants in our study. Table 2 does not imply average blogging statistics, given that our sampling method was likely to return participants who were particularly active or had opinions about blogging. We compared self-reports to actual number of posts and comments from the log files; the majority of participants (*n*=52) had between 10-99 posts, while 16 had less than 10 posts and 10 had over 1,000.

Table 3 shows participants' self-reported activity levels relative to other forms of media use at FeamCo. We asked participants how often they read blogs, and to describe the nature of their blog reading. All participants said they had read an internal blog at least once, but those who reported Low/Not at All activity said they didn't identify as a "blog

reader" and participated rarely. Tables 2 and 3 provide a benchmark of levels of attention, based self-reports, to show that participants are relatively active in the blogging community.

Table 4 shows self-reported activity in the internal blogging community at FeamCo relative to other available communication tools (e.g. wikis, SharePoint). There is a notable discrepancy between number of Heavy and Very Positive responses in Tables 3 and 4 (where intuition would suggest that those who are active would report positive experiences, and vice versa). Of the 37 participants who expressed Not Positive experiences with blogging at FeamCo (see Table 4), 31 attributed some of their discontent to the lack of management support at FeamCo for blogging and other Web 2.0 tools (the remaining 6 felt that blogging was not a productive use of time and had little inherent value to offer in a work setting).

Last, Table 5 shows feelings about perceived readership of blogs. For blog authors, we asked about their own blog and how satisfied they were with levels of readership. For non-authors, we asked about perceptions of blog readership in the blogs that they had read. This represents only perceived readership. At the time of the study, FeamCo did not make individual blog statistics available to users (aside from a listing of the top most trafficked blogs). Thus, we were effectively asking participants to estimate readership levels based on any sorts of feedback they may have received.

Reader only	Reader (and writer)	Neither
51	23	22

Table 2. Breakdown of self-identified blog activity (*n*=96).

Heavy	Medium	Low/Not at all
47	35	14

Table 3. Self-reported activity relative to other forms of corporate media (*n*=96).

Correlation between Behavior and Attitudes

We calculated the correlation coefficient between activity, perceived readership, and attitudes (see Table 6). All three are statistically significant. Although we cannot infer causal relationships, it is not surprising that people who report positive attitudes towards blogging are likely to also perceive high readership of their own blog, and to be active readers of other blogs.

We then calculated the correlation coefficient for blog attitude, gender, and start date (first date of employment at FeamCo) (see Table 6). It is not surprising that there was no significant correlation between blog attitudes and gender, given that blogging has become relatively gender-neutral [27]. However, we were surprised to see no significant

Very Positive	Somewhat Positive	Not Positive
41	18	37

Table 4. Attitudes towards internal blogs (*n*=96).

Very Satisfied	Somewhat Satisfied	Not Satisfied
45	25	26

Table 5. Perceived readership of blogs (either own blog or others if not blog author) (*n*=96).

correlation between blog attitudes and start date (see Table 7). We had hypothesized that the oft-cited "generational gap" might suggest that younger users would have more positive attitudes towards adopting new Internet technologies than older users [29]. Many older participants, in fact, also surmised such a gap might exist:

> "This is the thing. The people I work with are an older group. There are very few young people, the average age is 40 and above. That's part of it, I don't think thereare many people in this group who are into any of the Web 2.0 technologies outside of work. I don't see them with Facebook pages or Digg or Delicious." –P5

Why is start date not correlated to attitude? The interviews offer a surprising explanation for this incongruity. Participants who had been working at FeamCo for many years (and were likely—though not in every case—to be older than the average age at the company) held few expectations about blogging. Their interest in blogs was a cautious curiosity where the value of blogging in their work was not assumed. In contrast, many new employees and many marketing employees were excited about the potential of blogs at FeamCo, but their raised expectations seemed to increase the likelihood that expectations would harder to meet. One manager said:

> "I would like to see senior managers adopting these tools. One thing is these are tools that college ages used for communication. When they come to [FeamCo], we cannot take their communication channel away. We cannot take away their creativity, which is what we hired them for anyway." –P14

The discrepancy between Table 2 and Table 3, where there are far more Heavy responses than there are Very Positive, might be partially explained by the generational difference in expectations; many newer employees supported the idea of blogging in theory, but were not satisfied with its adoption or implementation in practice. We were also surprised to find no significant correlation between blog writing practices (measured as frequency of posts and comments, and number of posts) and attitudes towards blogging (see Table 7). As in Table 6 we anticipated that people who wrote and commented on blogs frequently would have strong positive attitudes towards blogging.

Attitude	Perceived Readers	r=0.7565
Activity	Perceived Readers	r=0.7434
Attitude	Activity	r=0.7055
Attitude	Gender	r=0.1996
Attitude	Start Date	r=0.0832

Table 6. Correlation between blog reading activity, perceived readership, and attitude (n=96, p<0.05).

Frequency of Posts	Attitude	r=0.1212
Comments per Post	Attitude	r=0.2392
Number of Posts	Attitude	r=0.2666

Table 7. Correlation between activity and attitude (n=96).

In order to explore why this was the case, we analyzed the interview transcripts of those who declared that they had Not Positive attitudes about blogging, but who were Heavy bloggers. Of the 48 Heavy users, 19 were Not Positive. Almost all of these participants tended to blog about company related topics. During the time of the study, the company was experiencing internal reorganization, and employees were looking to share information and social support through blogging. Most of the 19 participants in this subset blogged about these topics, and often openly expressed their personal opinions. They were enthusiastic bloggers, but most expressed frustration with lack of management support and some with the lack of know-how among their coworkers.

> "I'm not totally sure what [coworker's] perception is, they see a link to a website and think 'it must not be that important, it must be sort of optional'. They see a link, and it must be highly germane to them. There seems to be implicit thinking that if it's on the web it's optional." –P71

This subcommunity of bloggers tended to be experienced bloggers, well-known within the community of bloggers and likely to generate active discussions and significant attention about hot topics at FeamCo.

Log File Traffic Patterns

We then analyzed blog writing and reading patterns in the log files. We plotted direct hits by blog, confirming a power law curve; a small number of blogs receive most of the traffic. We also plotted blog posts by blog which revealed the same curve; a small number of bloggers write the most blog posts.

However, the most active blog writers are not necessarily the most heavily read blogs. Although many active blog authors also are active commenters on other people's blogs [14], it is not clear that active blog writers or commenters receive a lot of attention on their own blogs.

To explore this question, we calculated ratio of blog posts to blog hits for each blog. We then calculated the average ratio across all blogs. The ratio of blog comments to blog posts for all blogs is 0.63% and ratio of blog posts to blog hits is 1.29%. In other words, for every 1 blog post, there are about .006 comments, and about 77.5 blog hits. (Stated differently, total traffic is roughly 1% posts, .1% comments, and 98.9% reads). We then plotted post to comment ratios, revealing a power law curve again; in other words, some posts generated lengthy discussions, but most received no comments. Those who received few or no comments expressed confusion and uncertainty about their role:

> "What I really want to do is have a conversation. I wonder about whether I have the wrong idea about blogs or not, whether I should not expect people to comment on them, or is this just my place to blast out to the world? I can do that at home, I can post my own thoughts in a diary right now. I'm not very motivated to put a post out there even though there's things I'd like to discuss." –P47

There were some interesting outliers: one senior vice president writes his own blog posts about once a month and receives more comments and hits than any other blog, including the most popular group blogs. Despite receiving more traffic, a far smaller proportion of readers than average (0.05% compared to 1.29%) posts comments on his blog. One explanation is that there could be a larger community of lurkers on his blog than on other blogs; however, it is more likely that the majority of visitors are not regulars in the blog community. They receive an email announcement when his blog is updated, then close their browser without engaging or interacting with the blog medium after reading the post.

To test this hypothesis, we compared percent of unique IP addresses that visited his blog compared to the average percent of unique IP addresses that visited every other blog. 64% of his traffic was unique to his blog, compared to 35% overall. We then plotted the isolated unique IP addresses which revealed sharp bursts in read patterns, in contrast to the more gradual growth and decay of blogs as they rise and fall in novelty. The high ratio of unique IP hits and their unusual temporal patterns support the notion that many visitors came to his blog through external links into the blogosphere.

Log File Temporal Patterns

Last, we examined the temporal patterns of blog reading and writing. The graphs in Figure 1 show employee email use, blog writing and blog reading at FeamCo. Each activity is represented by a line. The data are for Monday-Friday, and are plotted on a 24-hour time period beginning at midnight. Email use is from a previous dataset, containing 800,000 emails between FeamCo employees over a 3-month period [30].
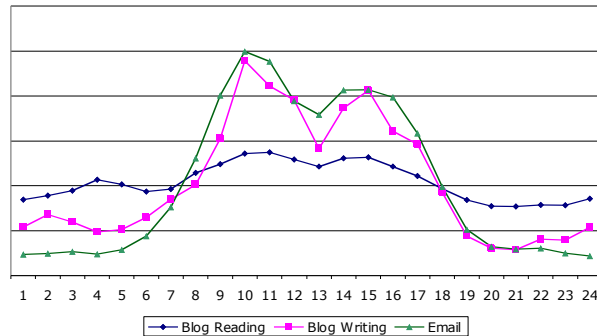
Figure 1. Email use, blog reading, and blog writing during a 24-hour day at FeamCo.

Figure 2. Blog traffic over 24-hour period, beginning at midnight for a Vice President and an Engineer.

We use employee email as a benchmark of standard work-day activity, where email use increases sharply in the morning, drops during the lunch hour, increases slightly in the afternoon, and decreases significantly at the end of the work day [33]. Some participants told us that they only read work-related blogs, while others read work and social blogs. P52 told us that the nature of his blog reading varied based on his work versus personal time:

"Some people write a lot of disconnected topics in their [company] blogs. I tried to keep track of them but it's too much, sometimes. It's not bad, I suppose, but that's what I do when I go home, I surf the Web, check out hot air balloon blogs." –P52

We can see from the three graphs that blog use differs in a few interesting ways. First, both blog writing and reading lag slightly behind email use, suggesting that people prioritize paying attention to email first, then to less time-critical activities, like blogging. Second, blog writing closely mirrors email use with a significant drop at the end of the day, whereas blog reading rises again slightly in the evening. Blog writing carries added weight for the blog author, who is publicly presenting herself to her colleagues and to management. In contrast, blog reading is private, similar to reading news or catching up on external blogs.

"If there is a blog post with context, with objective links to data sources that back up this idea, you can read it and digest it at your own leisure, without somebody evangelizing to you, you can take it somewhat differently. But people have to take the time to write it." –P76

We then looked at temporal patterns for each blog. We report here on a comparison of two selected, non-random bloggers (see Figure 2). They were selected because both have enough traffic to display non-random temporal patterns and because they contrast the work and social nature of blogs. One blog belongs to a high-profile senior-level employee at FeamCo. His blog posts were related to FeamCo's goals and future plans, and he encouraged employees to comment on the blog. The second blog belongs to one of the most prolific bloggers at FeamCo, who took special care to comment on other people's blogs
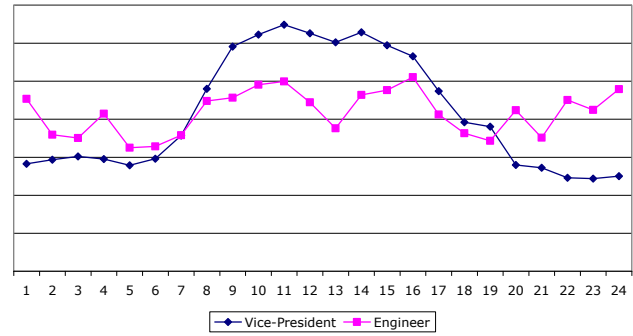
and to reply to comments on his own. The nature of his blog posts were loosely work-related, but personal and open in nature. He frequently discussed divisive issues related to company reorganizations, management policy, and employee benefits. Whereas the executive's blog peaks during the normative 9-5 work-day, the prolific blogger's traffic is more evenly spread throughout the day, suggesting that people pay attention to work-related blog topics during the workday, and look at blogs that are more social in nature both during work-time and personal-time.

DISCUSSION

The dynamics of attention allocation in the workplace are different from those of the social Web in a number of ways. First, the maximum size of an audience is finite within corporations, limited by the number of employees in the company. In contrast, the size and scale of the Web can appear to be almost infinite. Second, employees reported that they desired management buy-in. They wanted management to acknowledge and recognize their activity in this community. Thus, employees seemed to be guided by an incentive-driven model in which the work that they did would be rewarded. In contrast, the decentralized and non-hierarchical nature of their social uses of the Web minimizes expectations and a sense of entitlement. Last, expectations of attention are context-specific; employees carried different expectations in internal corporate blogs versus blogging on the social Web. Some expected reciprocal reading and writing between their coworkers, even though they recognized that blogs in the social blogosphere on the Web grow and die off asymmetrically.

Our empirical analysis in our case study at FeamCo showed that roughly 1% of activity consists of blog posting and 0.1% consists of blog commenting. Yet, bloggers at FeamCo had widely varied expectations of blog readership. Their attitudes correlated to how much attention they *perceived receiving* relative to how much attention they *expected*, rather than actual readership. In other words, some bloggers expected large audiences and significant interaction (even though they often could not articulate who specifically might be part of this audience); others were content to use blogs as a mechanism for personal information management and anticipated only themselves

as their one-person audience. For example, P14 started a blog to manage communication within his eight-person work group. He reported being satisfied with his audience of eight:

"Ours is pretty technical, I would be surprised if anyone else was interested in reading it. They can if they want to, but so far it's been useful within my team." –P14

Not all bloggers sought raw traffic; others were more concerned about the type of reader and the quality of experience readers had when they came to the blog:

"I don't think very many read my blog yet. Not very many people know it exists. The most people who read it in a day is maybe 20. It's at the very beginning; hopefully there will be content that people care about, even if its not very many people, it just needs to have the right people and I want to give them good content." –P62

A number of existing technologies for managing blog reading on the Web exist. Blog writers expend more attention and effort to generate awareness than do consumers in finding content [31]. Syndication mechanisms such as Really Simple Syndication (RSS) serve to increase this asymmetry of engagement between producers and consumers [31]. RSS enables users to setup a Web feed to frequently update published blogs. However, while RSS lowers the effort required to consume content, it does not overcome the challenge of finding relevant content. RSS requires that employees know where to find knowledge or topics of interest already. There are opportunities to leverage explicit work connections and inferred social connections to help direct attention to relevant information. Many of these opportunities are unique to the corporation (e.g. geography, work groups, shared work interests, shared managers). Combining technical infrastructure of tools like RSS with social support for attention allocation and feedback mechanisms can more effectively support employees seeking meaningful content on the internal Web.

Targeting Attention Allocation
Attention is finite. Participants said they set aside a certain amount of time in the day to catch up on news:

"I spend about 45 minutes a day catching up on news and information. I go to Google News or whatever, it doesn't matter where I am getting it from, but there's a set amount of time" –P7

One method for maximizing value is to restrict the number of available blog posts and reduce the overall amount of information that is available. The economics of supply and demand suggest that the ratio of blog posts to readers would decrease if the cost of blogging increased [28]. Kraut *et al.*, for example, found that charging a postage price for email caused senders to be more selective and to send fewer messages [28]. When communication costs were raised, senders in their study were more likely to target their messages to relevant people. However, such an approach to

balancing the attention equation comes at the expense of creating barriers to entry for newcomers which is particularly damaging to the organic nature of a blogosphere.

A second approach is to display the most popular or the most recent blogs, which many blog server implementations currently do. However, this approach privileges novelty and popularity over relevancy. A more effective method for helping blog readers decide where to direct attention would be to target their attention to relevant material. Blog reading behavior is unique and our results showed variations in reading patterns and styles of interaction; readers chose to dedicate their time and attention to a wide array of topics based on their personal interests or group memberships.

A critical difference between participants in our study and prior work is familiarity with blogging. The heaviest users in our study not only used RSS, but had tried out and could report on the benefits and drawbacks of different RSS tools for an internal blog. In contrast, those who said they did not have enough time to follow blogs were not familiar with RSS. In Baumer *et al.*'s study, very few participants expressed feeling overwhelmed by the potential information available through blogs. They indicated that they were not bothered when they could not stay current with the newest posts for the blogs they frequented [2]. However, the majority of their study participants had been reading blogs for 4-10 years. The norms and expectations held by this experienced group would differ widely from employees, many of whom were relatively new to blogging.

Providing Feedback Mechanisms
Attention is reciprocal. Among participants in our study, the content of a reply was often less important than the value of the acknowledgement that someone was reading the post, reminiscent of Baumer *et al.*'s "lo-fi" comments [2]. Jackson *et al.* observed that the heaviest bloggers contributed almost twice as many comments on other people's blogs as they posted entries on their own blogs [14]. In contrast, blog authors with the lowest readership on their sites commented on others' blogs much less than they posted on their own blogs [14]. Yet, little attention has been paid to the asymmetries in media such as blogs [31].

Voida *et al.* describe asymmetries of engagement that arise in publisher-producer media, such as blogs. They present the "reciprocity rule"—where one cannot see what another is doing without being seen themselves [31]. Office-to-office cube culture enables such physical reciprocity such as by poking one's head into an office mate's cube. In contrast, "blogs can be attended to or ignored when opportune" and are valued because they are not intrusive—"no one is forced to pay attention". But cultural tensions emerge in context of the office—at work, social symmetry, reciprocity, and the right to privacy are paramount [31]. Indeed the geographical layout of most office spaces, with purposefully placed cubes and walls, are designed to engage certain types of privacy (and disallow others). Yet,

blogging at work is asymmetrical, non-reciprocal, and bloggers have little or no idea who is seeing what they have published. Furthermore, intranet search is faced with a relatively impoverished link structure compared to the Web, and fewer eyeballs to build it up. Participants reported that linking and citation of a blog post both within the internal blog community and in external platforms was a valued form of feedback.

Social versus Work

Baumer *et al*. contend that blogging lies on a "gradient from synchronous to asynchronous" [2]. Participants in their study "do not read blogs in a temporally situated manner. When returning to a blog that has not been visited recently, it does not matter if the most recent three posts occurred in the past week, in the past day, or in the past hour" [2]. Herein we see emerge a fundamental distinction between social blogging and work blogging. Social blog reading is for personal edification and interest, and is unlikely to be time-critical.

Baumer *et al*. further conclude that "While some participants were conscious of why they read blogs, few were reflective of how they read… participants rarely reflected on the routine or time-consuming nature of blog reading prior to participation in this study [2]". Our participants suggested the opposite; work blog reading was more closely aligned with time-sensitive material. Whether related to an employee performing their job, being kept abreast of company policy and changes, or even being aware of office social news, being able to access information as soon as it is available may be just as important as finding the relevant information available.

Our coding of interview transcripts that did not have positive blogging attitudes revealed that lack of feedback and reciprocity influenced negative attitudes. 42 of the 96 participants reporting feeling frustrated and discomfited when they did not know who was reading their blog or what readers' reactions were. Those who received no comments and no offline feedback assumed few people were reading their blog:

> "That's one of the big weaknesses of it, the only way you know if anybody is reading it is if they take the trouble to reply. Without that you have no clue who people are…. it's largely uni-directional. " –P52

Conversely, of the 41 participants with Very Positive blogging attitudes, those who were blog authors unanimously said that they had received feedback from about their blog through a number of channels:

> "After starting my blog, it was amazing to me how quickly I met other people, especially across different business groups… you know, I would post something on my blog and a week later I'd get an invitation to present on it." –P24

Participants reported that their colleagues provided ad hoc feedback through a number of external channels outside the blog commenting feature, such as email, hallway comments, or indirect third-party references:

> "The interesting thing was that I would see people emailing other people. I would post on my blog and somebody else would send an email about it that would come back to me." –P91

Indeed, some blog authors lamented that their coworkers did not feel comfortable commenting on the blog itself, even when encouraged to do so:

> "People in my work group stopped me in the hall to talk about my post. I said why don't you write comments on the blog? But they didn't." –P41

Nardi *et al*. refer to such cases as "outeractions": "outeraction is a set of communicative processes outside of information exchange, in which people reach out to others in patently social ways to enable information exchange" [22]. Similar to Nardi's study of IM use at work, P41's encounter in the hallway represented an impromptu social zone. However, what both IM and hallway meetings afford, that we did not observe in blogging, was a shared sense of awareness that drew people into a common communicative arena. " The process of negotiating availability binds people more tightly together for a specific interaction as they establish an attentional contract" [22].

Instead, many participants informed us that some of their colleagues didn't seem to know that they were reading a blog, as opposed to a newsletter or website. While we cannot tell how many employees at FeamCo do not distinguish blogs from other types of media, those who do seem to use blogs differently. Participants suggested that this class of users was less likely to comment on blogs, even when explicitly encouraged to do so, and interacted with the medium as if it were a traditional one-to-many broadcast medium, instead of a feedback loop. In some cases, such as the Vice President's blog, the majority of readers are not active bloggers. The attention he receives is a function of his high status and his ability to garner the attention of readers through external communication channels.

If the purpose of internal blogging is to facilitate bottom-up knowledge-sharing and to foster social relations among employees, it must be made clear to employees that contributing is their opportunity, and indeed, right, within the organization. Furthermore, weighting management buy-in within an attention economy implies that the attention of management is worth more than the attention of general employees. This framework downplays the important social value that can motivate a productive corporate culture.

CONCLUSION

Our interviews suggest that two factors are most influential on internal corporate blogging behavior: whether or not a blogger perceives others are reading their post, and management support for blogging. For both these metrics, there was little agreement or certainty among participants. Few had a sense for how many readers they had on their

own blog, or how many people in general read the blogs that they were also reading. Given FeamCo's large, distributed management structure, there was not a cohesive sense of management buy-in. Most reported that their impressions were based primarily on their own manager's opinion rather than any corporate-level policy. These suggest gaps in both technical and organizational infrastructure for supporting bloggers at work.

This also contrasts with the external blogosphere, where external bloggers have a number of tools at their disposal to measure web analytics. More so, the large spread of types of blogs across the blogosphere offers a blogger the opportunity to compare relative readership levels to other blogs similar to one's own. A healthy attention economy might consist primarily of relationships like the "acquaintances" described in Krishnamurthy *et al.*'s study [19] (unlike the stars and fans described by Goldhaber [7]) who share attention more or less equally: "Between friends, equal attention is better than each simply living in a private world because we are, after all, social animals. We enjoy communing" [8]. However, corporations are not communes. Corporations are individually-motivated, profit-seeking enterprises [26], placing them at odds with the goals of collaborative social media platforms. Millions of people visit YouTube daily, but there is neither the time nor resources to reproduce such an effect at work. The potential audience is far smaller, time is scarcer, and people have higher expectations of receiving return on their investment. Thus, the ways that an attention economy unfolds among employees at work differs from the social Web.

Despite variations in expectations, the draw of attention can motivate employees to contribute knowledge and know-how. The attention economy is one factor (of many) that can motivate people to contribute to the creation of a public good, where otherwise there might be little incentive to contribute [17]. It is reasonable to expect this model to successfully transfer to the enterprise. This paper shows where this transfer breaks down. As with many communication media before it, transferring blogs from one context into another changes the way they are used.

The contribution of this paper is to show where these challenges exist, and suggest mechanisms for overcoming them. Although our case study is with a large technical company, the results are likely to be of interest to employees and managers at a range of companies exploring a variety of collaborative tools. The benefits of social media platforms at work to help employees collaborate are often touted, but there are few studies to date that analyze their system-level dynamics and effectiveness. We need a deeper understanding of the pulse of the corporate attention economy.

We also need to better understand growth opportunities of blogging in corporations. While early research has described possible benefits of blogging for fostering collaboration among coworkers (e.g. [6, 13]), it is not clear

if the benefits of these tools outweigh the costs. Should management invest in employee time and IT infrastructural costs to support blogging? How much of internal blogging is social versus work-related, and is it possible to measure the value of the social interactions that may take place? In our interviews participants questioned what the right platforms were among the broad array of available internal company tools for engaging in different types of work, and among different communities and work groups. Others hoped that the culture within these platforms would not become a medium on which to offload personal and work-related complaints. Like the "can you please fix this" comments that emerge in tech-support discussion boards [3], they hoped that these tools would in fact be enacted in the spirit of collaboration and knowledge sharing:

> *"And there's a perception on some people's parts, Web 2.0 is all about getting somebody else to do your work for you."* –P61

Others valued the opportunity to engage with coworkers more freely and across geographic and work-group boundaries. All but 26 participants said they would be more likely to participate if there was a clearer sense of how blogging translated to performance and return on investment. Most felt that corporate endorsement would broaden audience and increase readership.

Corporations are experimenting with internal blogs, wikis, and social networks, but without long-term understanding of how their uses might differ, if at all, from the Web. The challenges in motivating (or enforcing) adoption of new tools in the workplace are well documented [15]. Motivated by the early adopters among new Internet-savvy demographics entering the workforce, the challenge also is understanding *how* such platforms should be used. More crucially, do existing uses on the Web transfer directly to a corporate setting? Where do they fail and succeed, and to what extent can they, or should they, be used for working and socializing?

Social media use in the enterprise is growing, with more information and more platforms being added. We found that some employees are comfortable navigating these socially-oriented content production spaces, but many are not. Knowledge sharing at work is complex. Employees want to signal know-how to management, but must do so at the risk of compromising personal intellectual property to coworkers who may be competing for rank. The traditional methods of communication where management broadcasts to employees is being supplemented with peer-enabled access to information. As the domain-centered walled silos of knowledge at work are restructured, we need to better understand what information people should pay attention to and when in order to perform their jobs effectively.

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