

When Social Networks Cross Boundaries: A Case Study of Workplace Use of Facebook and LinkedIn

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ABSTRACT

The use of social networking software by professionals is increasing dramatically. How it is used, whether it enhances or reduces productivity, and how enterprise-friendly design and use might evolve are open questions. We examine attitudes and behaviors in a large, technologically-savvy organization through a broad survey and thirty focused interviews. We find extensive social and work uses, with complex patterns that differ with software system and networker age. Tensions arise when use spans social groups and the organization's firewall. Although use is predominantly to support weak ties whose contribution to productivity can be difficult to prove, we anticipate rapid uptake of social networking technology by organizations.

Categories and Subject Descriptors

H.5.3. Group and Organization Interfaces.

General Terms

Human Factors, Design

Keywords

Social networking, Facebook, LinkedIn, enterprise.

INTRODUCTION

The use of social networking sites (SNS), which arrived commercially about a decade ago, has rapidly gained momentum. By late 2008, MySpace and Facebook each had 60 million U.S. users and accounted for 6%-8% of all time spent online [17]. As is often true of digital communication technologies, students are enthusiastic adopters. Whether or not it enhances academic achievement, it is of value to students, for whom social networking can vie with studying as their primary occupation.

Enterprise acceptance of a new technology often lags student use. As discussed in [13], in the 1990s some researchers still argued that organizations would discover that email reduced productivity and remove it. Ten years later, industry analysts made similar arguments about instant messaging—IM was a way students wasted time and should be avoided by organizations. Now email is mission-critical and some managers and executives use IM.

In the past two years, SNS has established a significant presence in enterprises. Facebook, initially restricted to universities, opened

to corporate use. One-third of the employees in the enterprise we studied were in the Facebook company network. We found an equal number of employees with LinkedIn accounts. Professional-oriented LinkedIn had quadrupled in size to over 25 million members in one year [12]. What if anything are all these professional users doing with social networking software?

Enterprise adoption of social networking software is far easier, and preventing it more difficult, than was true for earlier technologies. This raises questions. Do these sites enhance productivity? Can utility for enterprises be increased? What new issues will arise for these new user populations?

In early 2008, we conducted this research in Microsoft, then an organization of 88,000. Although not a typical enterprise, it is typical of the early adopters of email and IM that foreshadowed subsequent wider use. We briefly review social networking software history and research, and then describe our study.

BACKGROUND AND RELATED WORK

Social Networking Sites

Social interaction was present in early terminal-based computers, as well as via Usenet and other early Internet software. The modern era of social networking began as Internet performance rose and the Web took hold. From 1995 to 1997, ICQ and AOL Instant Messenger were released, use of commercial phone-based text messaging ramped up, text messaging web portals emerged, and Classmates.com and Six Degrees appeared. Messaging brought the buddy lists and frequent, quasi-real-time communication that are a foundation on which social networking software builds. Mobile phone use and text-messaging also expanded the consumer space, notably to young consumers.

Many newer sites with a social networking component have prospered (e.g., Twitter, Flickr, YouTube), but the dominance of older sites suggests that timing was important. From 2002-2004, Cyworld, Friendster, Plaxo, Reunion.com, Hi5, LinkedIn, MySpace, Orkut, Facebook, and Live Spaces were released or actively promoted. The six most active US sites at the time of our study were MySpace, Facebook, Classmates, LinkedIn, Live Spaces, and Reunion.com. Other sites are reportedly prominent elsewhere (Cyworld in Korea, Friendster in Asia, Hi5 in Spanish-speaking countries, Orkut in Brazil and India, QQ in China).

Why 2002-2004? Among possible contributing factors were the bursting of the Internet bubble, which gave less ambitious software a chance for the spotlight, and increased online access by youths with IM experience. Early successes such as Friendster then inspired others.

The sprawling anarchy of MySpace is youth-oriented. Facebook also began as a youth-oriented website on college campuses. Whether or not this was by design, its trajectory made for a

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natural move into enterprises. Facebook student users built networks of friends poised to start professional careers. The initial restriction to universities created interest among professionals. In late 2005, employees of some major companies were granted Facebook access. A year later, it was opened to everyone. In contrast, LinkedIn targeted professional use from the start.

Related Research

Most SNS research has focused on student use, notably the tendency of students to include content that researchers suspect they will come to regret over time [e.g., 15]. Hewitt and Forte [10] found that two-thirds of the female students surveyed felt that faculty should not be on Facebook at all.

In a widely cited blog post based on interviews and a subsequent analysis [1, 2], boyd identifies groups of high school students using MySpace or Facebook. She attributes their site preferences to a complex set of social factors. Her analysis is buttressed by Hargitai's [9] survey of college students. When Facebook opened up to high school students, it attracted those who sought to follow a traditional advanced education trajectory, where social networking provides a career edge as well as being fun. boyd found that MySpace remained the choice of many students who were college-bound for more utilitarian purposes—to get the degree while learning something—such as geeks, minority group members, and students living at home. She found that those shifting to Facebook castigated MySpace as gaudy, cluttered, and not serious.

boyd's observations suggest that, by brilliant plan or fortunate happenstance, Facebook increased its allure by initially restricting access. First it was deployed to elite universities, then other universities. This built interest among high school students, who got it next. Similarly, it was deployed to leading-edge companies (e.g., Apple, Microsoft) before wider distribution.

IBM's Social Computing research group is also examining social networking software use by professionals. They identified three categories of Facebook profiles of young professionals moving from college to workplace: "Reliving the College Days," comprising personal information, informal status messages, use of the Wall, and non-professional images; "Dressed to Impress," primarily job-related information with some personal information and formal images; and "Living in the Business World," limited profiles apparently from new Facebook users [4]. The group developed and studied Beehive, a SNS site for use by IBM employees. After a few months, popular uses included a feature for sharing and reusing structured lists [7] and getting a better sense of colleagues [3]. They tried an incentive system based on participation points and found a short-lived effect [6]. In contrast to this study of an internal research system, we studied enterprise use of publicly available social networking sites. A major distinction is the inclusion of external social contacts alongside workplace colleagues, something requested by Beehive users but not provided.

METHODS

Both authors use social networking software. We knew that interest and use in Microsoft was widespread. We followed the company's "Social Computing," "Social Computing for Business," and "Facebook Discussion" distribution lists, which had overlapping memberships of 525, 170, and 210 employees respectively. The first two logged over 1500 messages in four years; the third had 91 in the previous six months. However, we

did not know the extent or nature of use across the company, or the range of attitudes. We invited a random sample of 1000 of the 88,000 in the company address book to take a survey, with a drawing for a music player as an incentive; 430 responded.

The survey covered demographic information (age, gender, role in company), behavior, and attitudes toward SNS. For example, people were asked their level of agreement or disagreement with the statements "I think social networking software (Facebook, MySpace, LinkedIn, Friendster, etc.) can be useful for personal socializing/networking," and "can be useful for networking within Microsoft." We asked which sites were used, how frequently, and how often they conducted different activities (e.g., inviting people to connect, or posting a picture). Survey participants had opportunities to provide free text responses describing thoughts on and experiences with social networking software (211 responded) and any concerns they had with it (222). We used Atlas.ti and open coding to analyze the free text responses for themes.

We then conducted semi-structured interviews with 30 people. Survey responses were used to select nine interview participants to insure a range of ages, roles and levels in the company, geographic locations, and attitudes (positive and negative) toward the usefulness of social networking software for work. The other interview candidates were known to be active users through distribution list activity or referral by other informants. A few were developing prototypes of internal social networking tools.

All but one interview were conducted by both authors, usually in an informant's office, lasted about an hour, and were recorded with permission. Nine geographically distant employees, who worked in Asia, Europe, South America, and North America, were interviewed by phone.

Participants were asked to describe their professional background, prior experience with social networking software, and their current use: how, when and why they started using a system, when they access it, how their use evolved, and what if anything they felt it was useful for. We inquired into the number and nature of their connections. If it did not come up without prompting, we asked about family members, former schoolmates, and work colleagues, whether they posted information, and if so, what they posted or avoided posting. We asked heavy users to speculate about how social networking software might evolve.

We typed up notes after each interview. Where our notes did not coincide, we referred back to the audio recordings. As with the free text survey data, Atlas.ti was used for open coding of the interview data. We began without a predetermined code list and, reading through the data, we coded sections to capture themes expressed by participants. The list of themes gradually stabilized; the same themes recurred in subsequent interviews and fewer new themes emerged. Many of the same themes emerged from the free text survey data and the interview data.

RESULTS

Survey participants reflected the company profile in terms of age and management level (Tables 1 and 3). Twenty-two respondents (5%) reported not having heard of social networking software and 57 (13%) reported knowing what it was but never having used it.

	F	M	All
Individual	66	212	278
Lead ¹	7	57	64
Manager	17	53	71
Executive	1	3	4
Intern	1	5	6
Other	3	4	7
Total	95	334	430

Table 1. Gender and Level of Respondents (1 abstention)

¹Leads usually supervise people, without budgetary responsibility.

Use of sites fell into three tiers. LinkedIn and Facebook were most heavily used, MySpace and Live Spaces were used moderately, and others were used very little (Table 2). Interview participants working abroad revealed that they use other SNS sites, but most employees of this organization are in the United States.

One-third of all respondents reported at least occasional use of LinkedIn, and 36% of all respondents reported at least occasional use of Facebook. Facebook's Microsoft network of 33,000 would be 37% of the 88,000 employees, indicating that our sample was representative. However, only 4% of employees used LinkedIn daily, whereas 17% reported daily Facebook use. Table 4 shows how frequently the top four SNS sites were used by respondents.

Survey respondents independently rated the usefulness of SNS for fun, personal socializing/networking, networking within the company, and external professional networking. Employees under 26 years old rated "fun" highest, other age groups rated personal socializing/ networking highest. All rated internal networking lowest, although interviews and open-ended survey comments provided many examples of internal use to maintain awareness and build rapport, described below. Possibly these uses were not considered "networking" by survey participants, and almost all LinkedIn use is in fact externally facing. To our surprise, management level did not correlate with attitudes towards SNS.

The frequency of accepting new friends or connections declined with age: those doing so at least weekly were 54%, 40%, 37%, and 33% for the 20-25, 26-35, 36-45, and 45+ age groups. Table 3 shows the breakdown by age for the top four social networking software sites. LinkedIn use is highest among employees 26 to 45 years old. Facebook use is exceptionally high for the youngest employees and drops steadily with age. MySpace use also drops with age. Live Spaces has higher use in the 26-45 range, very likely due to strong internal promotion that occurred several years earlier, prior to the arrival of the youngest employees.

We will focus the rest of our analysis on LinkedIn and Facebook, the most used sites. We first cover LinkedIn use, then the more

LinkedIn	52
Facebook	49
Live Spaces	39
MySpace	31
Orkut	12
Friendster	11
Twitter	6

Table 2. Employees with Accounts (% of survey participants)

Age (% of sample)	LinkedIn	Facebook	MySpace	Live Spaces
<25 (7)	46	72	36	36
26-35 (44)	61	63	33	41
36-45 (37)	64	52	29	41
46+ (12)	51	46	21	28

Table 3. Social Networking Software Use (%) by Age

extensive and complex use of Facebook, and finally general issues around workplace uses of social networking software.

LinkedIn: A Perfect Storm for Young Professionals

A clear picture of LinkedIn (LI) use emerges from external accounts and our data and observations. Attitude and use strongly segment into three groups: current or recent students, young professionals, and older professionals. On balance, the second group finds LinkedIn most useful, with many finding it extremely useful.

LinkedIn focuses on professional information, encouraging users to construct an abbreviated CV and to establish "connections." Profiles are strictly professional, with little or no information about hobbies, political or religious affiliations, favorite music, books or movies included. People can solicit and make available recommendations from other members and control how much of their profile to show to the public and to connections. A core notion is that members can explore the direct connections of their connections. More distant LI members can be approached via an introduction forwarded through the shortest chain of intermediaries. Paying members can search for LI members meeting certain occupational or other characteristics, which is particularly useful for recruiters or consultants.

LinkedIn supports the formation of groups through a somewhat formal application and acceptance process. Groups include networks of alumni, employees in a particular company, and a professional organization or interest group (e.g., "market research,"). Only recently had it become easy to search for LinkedIn groups.

Like a CV, a person's LinkedIn page is relatively static apart from new connections. Most people do not frequently visit their site or those of friends. Like other social networking sites, LI forwards person-to-person messages but does not reveal a member's direct email address. To reply, a recipient follows a link in the message to their LI site. In late 2007, LI began sending occasional news feeds about connections—new jobs, groups joined, connections they have made—which many recipients find useful.

LinkedIn does not recruit students. The home page asks "What is LinkedIn?" and answers "LinkedIn is an online network of more than 25 million experienced professionals." The profile is awkward for students, asking for Current Position, Education, and

	Several times per day	Daily	Occasionally	Have profile, rarely use	Have profile, never use	Only read others' content
Facebook	5.3	11.6	19.3	9.7	2.6	15.6
LinkedIn	1.4	3.0	28.4	16.0	3.0	7.2
MySpace	0.7	3.7	9.3	11.2	6.5	20.7
Live Spaces	1.4	3.5	14.0	13.0	7.2	7.9

Table 4. Frequency of Use of Major Sites (% of all survey participants)

Industry. Graduating students may be encouraged to create accounts, but students often have not heard of LI or conclude that it is designed for people in mid-career [16].

Now consider older professionals with well-established careers. LinkedIn is useful for recruiters or job-seekers, and for consultants or vendors. One informant echoed something we often heard, "I use LinkedIn to keep track of what former work colleagues are doing. It's a good source to find good people who are looking for work." A recruiter exclaimed, "I don't know what we did before LinkedIn happened. I found a ton of people." However, the prevailing attitude of older professionals is reflected in the common sentiment that the only people active on LinkedIn are those looking for jobs. "The day they started on LinkedIn, that's the day they started writing resumes," said one.

With established careers, families, and social networks, this group reported little interest in online social networking. One said, "You only have so much time. It's, this person is going to get added and someone else is going to get removed or this person's not going to get added." A successful professional told us, "I have not figured out the merits of LinkedIn for someone like me. LinkedIn keeps reminding me that the more links I have, the more job offers I will get. Is that supposed to be a benefit?"

Well-established professionals may accept invitations to connect and otherwise not use the account. It is an inexpensive way to please an acquaintance who asks to connect. Minor costs include having to decide whether to accept invitations from distant or wannabe acquaintances and how to respond to requests to write recommendations or forward introductions. When reminded that they can find people from a past university or workplace, they might invite old friends to connect, but many report accepting invitations but never inviting people to connect.

One of us is a student and the other has an established career. We anticipated these reactions. We did not anticipate the existence of the third group, who use LinkedIn heavily and consider it very useful: young professionals.

Consider people around age 25, in their first or second jobs. Never having been anywhere longer than four years, many anticipate being on the job market in a few years. LinkedIn, as an updated CV, is appealing. The clean profile, accessible on the web via search queries, is an easily constructed, inexpensive professional web page. For this group, more job offers are a good thing.

College or university friends of people in their mid-twenties are dispersing, following different careers. Who among them will turn out to be interesting or useful to remain in touch with? Primary and secondary school friends are moving into different family and career paths and are no longer seen regularly on summer breaks. As formerly strong ties weaken, a way to remain in touch gains appeal. "I am interested in those connections because now when those people switch jobs I get notified, which is really convenient for me because instead of like 'ugh, this email doesn't work anymore, where are they now?' I automatically get notified that they've switched jobs... So that's a really nice thing..."

Many young people do change jobs and addresses relatively frequently. LinkedIn serves as a self-updating address book. Furthermore, it is an address book that you own. When you change jobs, you must make an effort not to lose contacts that are on a work computer. LinkedIn stays with you. Several people focused on these benefits. From an interview, "What I do is I mostly use it basically as a central address book that gets updated

automatically. ... If a business contact moves companies, does some job hopping, the email addresses and other kinds of addresses change." A survey respondent wrote, "Works like a mix between a portal and a contact list. I don't have to update their contact information—they do that."

LinkedIn also provides an elegant solution to a social dilemma. We meet at a social event at a trade show, conference, or professional meeting, have an interesting conversation, and exchange business cards. Now back at work, I see your card and want to stay in touch. Once filed, a card may well remain untouched. Sending an email feels imposing; it seems to demand a reply, whereas you may have forgotten our conversation. Such emails are rarely sent and cards stack up in drawers. With LinkedIn, I can send an invitation to connect which you can accept with a couple clicks, no imposition.

Low-key, but a connection is made. People report a sense of having a ticket, a promise to consider a future request. If I ask you to connect, some day you can make a request of me. Even the simple act of accepting a connection implicitly legitimizes a future contact. No guarantee of success, but the possibility is there.

LinkedIn enables one to keep a relationship alive by maintaining awareness of others' activities. One can occasionally review connections and see who has changed jobs. A note of congratulations through LinkedIn is an easy gesture, a reminder of past shared experience that reaffirms interest or affection.

Use is heavy in some groups. One person we interviewed said that when he met people, if he couldn't connect on the spot he took their card, "linked in" at the next opportunity, then threw away the card. Another participant said, "It's almost become, first you give your card and then you're formally connected on LinkedIn." Another methodically uses LinkedIn to "build social capital" by reflecting on acquaintances that she can connect to each other.

An academic career could bypass the stage at which LinkedIn is most useful. Grad students fit the student profile. Tenure-track faculty do not envision frequent job changes. The academic job market is relatively well-organized. Once tenured, academics best fit the category of people with largely established social networks.

In sum, as reported in Table 3, although Facebook use declines steadily with age, LinkedIn is used by under half of the youngest set, rises to over 60% for those 26-46, then declines. The decline comes despite some older employees being desirable connections for upwardly mobile colleagues. Some older employees reported not using LinkedIn despite frequent invitations. Based on our interviews, LinkedIn seems most useful for those between roughly 25 and 35 whose social networks are expanding; those 36-45 may still accept requests to connect, but many feel that their social networks are "maxed out," as one put it.

Some older employees use LinkedIn for recruiting or finding vendors, to learn more about people they have met or will soon meet, or to get quick answers to professional questions from LinkedIn Groups. One 36-45 year old LinkedIn user said "Before a professional meeting with someone you never met before, it's useful to know the background of your counterpart (using LinkedIn)." Younger employees may use Facebook the same way.

Facebook at Work: Growing Pains

Although Table 2 shows slightly more respondents with LinkedIn than Facebook accounts, more people access Facebook daily (see Table 4). We found a more complex pattern of Facebook use.

Facebook describes itself as “a social utility that connects people with friends and others who work, study and live around them.” It looks less like a slowly-evolving CV than an enhanced IM buddy list. Many users frequently change their status setting, share photos or links with friends, and leave publicly visible messages on each others’ “Walls.” People can interface to Facebook by mobile phone. Facebook is also an application platform, attracting developers who create tools that leverage the social networking aspects of the site (e.g., SuperPoke) or push in content from other sites (e.g., Twitter feeds can be routed to update Facebook status).

Facebook profiles are extensible in these ways. They also optionally include marital or relationship status, religious and political views, hobbies, birthday, favorite books, movies, music, and quotations. Nevertheless, a consistent format creates a more orderly and clean look that sets it apart from the equally popular MySpace, with its more radically customizable pages.

Uses of Facebook in the Workplace

Clive Thompson [18] describes Facebook use in the general population as fostering “ambient awareness” and maintenance of weak ties: obtaining a greater understanding of people with whom one may rarely interact through a series of glimpses, brief updates about events, successes, and frustrations that may be unexceptional taken one at a time.

DiMicco et al. [5] identify three uses for the Facebook-like Beehive system confined to use within IBM: connecting on a personal level with coworkers (“people sensemaking”); career advancement in the company; and campaigning for a project. Microsoft Facebook use always spanned the firewall; people connected to family, friends, and co-workers, limiting its use for career advancement and, for product confidentiality reasons, precluding internal project campaigning.

SNS enables lightweight communication without interrupting. Several people commented on the advantage of a pull technology over email. People choose when to look, so those who post information do not burden receivers the way a call or even email would. As one interview participant pointed out, if status messages are not interesting, no one needs to look. Responses to updates are not expected; there is plausible deniability as to whether an update was viewed. As with LinkedIn, Facebook has a low barrier to forming a “friendship” or connection. With family and friends reading status messages, how could people use Facebook for work? We found that Facebook is used extensively, though not universally, to maintain awareness of colleagues and to build rapport and stronger working relationships. People also used external Facebook networks for professional information-gathering. Facebook is well designed for reconnecting to former classmates and colleagues. This is a major draw for many people and leads to strong external networks.

Reconnecting. Given Facebook’s popularity with students, many young employees were connected to former classmates when they were hired. Others soon reconnected. Many also described reconnecting with colleagues from previous jobs, with high school classmates, and even with friends from primary school. One Chinese employee discovered plans for a 20-year reunion through Facebook after reconnecting with “long-lost” high school friends

via a mutual connection. “I’ve lost touch with this person for quite a while and I get to know him in Facebook through my friend ... so we start to send messages back and forth. Facebook is actually quite cool to help me get reconnected with people. When you sit in Shanghai by yourself you are kind of away from your original network and Facebook just help me to get people back.”

Former colleagues can prove to be professional resources. A survey respondent said, “I use SNS because it is a great way of networking and keep in touch with your colleagues from the past, and in that way be informed about what is happening in the market.” An important facet of reconnection, especially when reaching back to childhood, is the powerful emotional impact. The tool itself is seen warmly, the friend who made this wonderful reconnection. It may translate into brand loyalty; it definitely legitimizes the medium.

Maintaining Awareness and Keeping in Touch. Thompson [18] describes how reading even mundane, repetitious, brief status updates can lead over time to greater understanding or intimacy. Finding common interests and experiences, sharing successes, frustrations, and moods build a sense of closeness. Participants described liking to maintain awareness of the personal and professional lives of an often large set of connections, keeping relationships warm with periodic low-level contact.

The alternative is to lose touch. One survey respondent wrote, specifically about work, “Like they say, out of sight, out of mind, and vice-versa. Somehow the photos n updates make the communication more frequent and relevant as compared to just email or IM.” Two interview participants maintained awareness of colleagues who travelled by reading status messages. One used Facebook to determine when a colleague would return.

One person described SNS as a “Great way to keep in touch and find ex-colleagues.” Many reported periodically checking up on their networks by browsing the Friends feed: scanning status messages, pictures, and profile changes. This increases awareness of mood, personal life, travel plans, projects, and job status. “I use SNS to keep connections with other people alive (think life support)” wrote a survey respondent. Without communicating directly, people can remain aware of each other and rekindle direct communication without needing to catch up on all that transpired since they last met. People check in more actively with others by poking, sending messages, or writing on walls.

Status updates helped some participants keep up with trends in their field. Posts from professional colleagues about new technology, changes in careers over time, and keeping abreast of others’ professional activities provided insight into broader trends. One Twitter user said, “It’s where I find out what’s going on.”

Building social capital. Several informants described stronger relationships and bonding that emerged from personal information exchange. One manager said, “It’s really more about the relationships than any specific... I can definitely tell you that the people I connect with better, I can get them to do things for me more and I’m willing to do things for them more. Everything’s better once I really know someone on that personal level.” Her profile information about women and technology, and about having young children, had led to bonding with colleagues.

A participant who frequently works with new people said, “I get sort of a bird’s eye view into their personal life and you know what their hobbies are or what their interests... and it actually helps me build rapport with them.” Talking about a common

interest in skiing could help “build a productive relationship.” A survey respondent wrote, “I use it to not only keep in touch with coworkers and friends/family but to engage or maintain personal relationships with coworkers. I believe that a strong personal relationship builds a strong working relationship. You learn things about people that you wouldn’t otherwise know, thus enabling you to communicate with them in a more effective manner.”

A Facebook user wrote, “It is a easy way to not only find people, but also get a general idea of how they are before I pick up the phone or email them directly.” Another looked up her future boss on Facebook before taking a job. She valued the ability to retrieve details, such as the gender of a new baby, that can be brought up in conversation to help build a good relationship.

Use is not always quiet watching. Popular Facebook applications provide an easy way to say “hello, just thinking of you,” by poking or otherwise humorously greeting people. One participant noted that Facebook encourages more frequent contact than email does. He estimated that he has quarterly Facebook interactions with contacts he would otherwise hear from every few years, “I’ll bite them with my vampire or send them an email [through Facebook] or wish them a happy birthday.” Other participants enjoyed “sending drinks,” taking quizzes, and playing Facebook games with friends and colleagues.

Facebook (and other sites’) profiles optionally include an owner’s birthday, with or without the year of birth. Posting *happy birthday!* on someone’s Wall, or commenting publicly on a status update, are friendly, undemanding ways to refresh or strengthen a connection. Small features, such as birthday reminders, often came up in interviews. Once upon a time, secretaries were numerous and maintained the social fabric in organizations by circulating cards, sending reminders, organizing small celebrations, and distributing news. Social networking software may restore social capital that office automation slowly eroded.

We have not yet described the complex issues and challenges wrestled with by many informants, primarily with Facebook. Its emphasis on personal and social ties created tensions when use extended to work colleagues. Before turning to them, we briefly describe the use of other social networking software at Microsoft.

MySpace, Live Spaces, and Other Sites

MySpace and Live Spaces use, although only about half that of LinkedIn and Facebook, was not insignificant. MySpace came up more often in interviews than Live Spaces, reinforcing our view that many people tried the latter because of internal evangelism years earlier.

In interviews, people described shifting to Facebook after college use of MySpace. MySpace now struck them as chaotic, ugly, or unprofessional. Their wording was remarkably similar to that of Boyd’s [2] high school students who abandoned MySpace for Facebook when they aimed for traditional careers. “It’s just too damn noisy. I like Facebook because it’s just a lot cleaner.” “MySpace, I have a profile and I just cannot bring myself to use it. It’s akin to throwing tartan paint at my eyeballs.” “The only thing I have actually not used is MySpace. That one, my eye hurts. I could not read the profile on any page.” “MySpace ... it really isn’t me. I don’t know if it’s that I’m 40 or because I actually have a reasonable design aesthetic. I just find it too confrontational, it’s jarring, it’s jagged.” A few informants had not entirely abandoned MySpace because they had some friends

who were active only there. No one reported professional uses of MySpace.

Employees working in Asia, South America, and Europe noted that other social networking sites are heavily used there. Since most Microsoft employees are in North America, this use did not rise to significant levels overall, but pointed to potential limitations to the reach of any one site.

Tensions Affecting Use in the Workplace

Four thorny issues arose repeatedly in our interviews and in free text survey responses: the legitimacy of *any* workplace use of social networking software, tensions from mixing personal and professional personas, lack of delineation of hierarchy, status, or power boundaries, and the risk of inappropriate communication across the firewall.

The Legitimacy of Using Social Networking Software

Use of social networking software was widely accepted in the company—the CEO and other executives had experimented with Facebook pages and spoke of its potential for locating information and expertise. However, some employees felt it was a waste of time. One executive we interviewed stated firmly that he felt SNS was “a productivity killer,” and he was not alone.

Citing security risks, a directive to all employees in 2004 declared that the use of Plaxo or LinkedIn “is a violation of company policy.” Four years later, a third of the company was using LinkedIn. Employees in Redmond knew that the directive could be ignored, even if never publicly rescinded. Employees in the field or overseas are often unaware when norms override such edicts. They follow guidance from the home office. The only person we interviewed who mentioned this four-year-old proscription in explaining why he avoided using SNS at work was in the field. Other employees in the field said that they had only taken up Facebook after executive actions legitimized it.

Mixing Personal and Professional Personas

Students may have a relatively simple social life and one set of IM buddies. In this setting, Facebook’s initial single Friend category made sense. But as people ‘friend’ work colleagues—often first those they also socialize with, then others—more complex self-presentation issues arose, which Facebook’s new but limited (and often undiscovered) grouping features did not fully address.

“The thing that’s difficult with Facebook is that you’ve got social and you’ve got people from work too and they’re completely different, you know, audiences, and they probably shouldn’t be seeing the same things.”

“People judging you from seeing what information and interests you have posted. This can become apparent when the line between social and professional are blurred. Someone’s personal views on their social network space can affect their professional views if taken in the wrong context.”

People tried to manage the divide separating work and other friends with the rudimentary available access controls or, more often, by adjusting their posts for a broader audience, but often were dissatisfied: “I would really like to maintain separate networks of friends, relatives, and professional contacts.” “My main concern is my ability to keep my personal and professional networks separate except where they genuinely overlap.”

Over and over, people said they wished they could create Friend groups. As it happens, Facebook had recently introduced this

feature, but few people we interviewed were aware of it. How many will go to the effort to create and maintain such groups is an open question. One young user, a senior program manager, reported spending 3.5 hours organizing her 460 Facebook friends into 8 groups. She could selectively block specific content in limited ways and was happy enough. But complete control, such as sending different status messages to different groups, would require creating multiple accounts. Some people we interviewed had considered this, but none reported doing it.

Since one cannot direct distinct status updates to different groups, most work-specific content cannot be shared. One person working on several projects yearned for a Facebook-like level of awareness of project activity. Could project tracking via brief status updates and tweets replace longer periodic accounts? Another informant wanted an internal system for posting pictures as easily as one can on Facebook.

Tensions from Crossing Hierarchy, Status, and Power Boundaries

Tensions also appear as a result of crossing boundaries within the personal sphere, and within the work sphere.

Issues arise when parents or children join a network. One informant said that she knew it was “bad news” when her uncle ‘friended’ her, and sure enough, soon her mother followed suit. She responded by limiting their access, checking to determine what they could see by temporarily limiting a friend the same way. Conversely, nieces and nephews limited informants’ access or made them agree not to inform their parents of their activities.

Hewitt and Forte’s observation of student uneasiness about faculty who are on Facebook [10] mirrors workplace concerns about hierarchy: “My former VP is on Facebook and he sent me a Zombie... It led to a dilemma because what do you do when your VP invites you to be his friend? And then I felt like, well now I have to have this dual personality.” This speaker used LinkedIn for business and Facebook as a place to “check out crazy widgets.” With colleagues moving into Facebook, she wondered, “Can I rely on my friends to not put something incredibly embarrassing on my profile?” She reports shifting to more conservative profile content and use of Facebook applications. Echoing other participants, she asked rhetorically, “If a senior manager invites you, what’s the protocol for turning that down?”

Another person was severely embarrassed when her friends, in an effort at humor, poked her boss on Facebook. She knew that her boss could identify them as her friends. She and her boss never discussed it.

One informant felt obligated to accept friend requests from clients: “When customers invite you, you can’t say no.” His first year on Facebook was restricted to personal friends, but over the next six months professional contacts were added, which, he said, “totally sucks.” He is painfully aware of how uninteresting his status messages have become. His old friends may not know why he is now boring, or may not sympathize if they do.

A young participant who used MySpace in college now has 464 Facebook friends, family, and colleagues. He friended a corporate vice president. Now he uses the knowledge that the VP might see his content as a litmus test for appropriateness in posting.

Concern over hierarchy goes both ways. A manager wrote, “Anyone can find you on these sites, so you cannot be entirely honest, or yourself, without concerns that the wrong person will

see your silly photo or hear about your bad day. Especially as a manager, it is dangerous to have too much personal information available on the internet.”

As these excerpts indicate, most participants dealt with the tension by controlling content. Some limited access and posted the content they wanted to a subset of their friends. One person responded to an invitation from her manager by joking that they could be Facebook friends “as long as nothing I say on Facebook gets into my [annual performance] review.” She admitted that later she hesitated before posting a status update about having a bad day at work.

Inadvertent disclosure of information is a common concern. Just as students or athletes who assume that only friends will see their posts may discover that parents or coaches do, employees may believe that only friends who comment on their posts are reading them. Wrong! One of the social computing distribution lists discussed people’s surprise at the responses when they changed their marital status to single.

As we worked on this, an employee we will call Sam posted the following successive Facebook status messages:

August 14: [Sam] is having to decide between two great job offers -- any advice is appreciated.

August 16: [Sam] is re-remembering that everyone can see his status message.

When asked, “Sam” told us that although many in his workgroup were among his hundreds of Facebook friends, he overlooked the likelihood that some regularly read his status when scanning their Friends feed.

Tension over Disclosing Confidential Information

Given that Facebook traverses the company firewall, inadvertent disclosure of proprietary information is a major concern. With some friends outside the firewall, one cannot share company-confidential information with colleagues. Someone who habitually relays personal news such as “I finished a marathon!” on Facebook cannot share a positive work development such as “the product will ship next month!” the same way.

One person with about 50 Facebook friends, 80% of whom are work colleagues, saw potential in using the technology to communicate with work colleagues, but was uncomfortable using an externally hosted website. Another reported that his “biggest professional concern is that I’ll inadvertently say something in a technical discussion [on a social networking site] reflecting non-public internal knowledge; I’m pretty sure I’ve avoided it so far.” A third said, “It is very easy to accidentally leak confidential information.” One interview participant wanted smart software to put up a little bubble to remind him to be careful when it detected a status message that might be work related. Whether feasible or not, the suggestion reveals concern over inadvertent disclosure.

An informant who often posts pictures from his mobile phone to Facebook for friends to see and comment on was frustrated that he could not send his colleagues a photo of notes on a whiteboard after a brainstorming session at work.

Participants described status updates that walked the line, ambiguous messages that disclosed work information to knowledgeable colleagues but could not be understood by external friends. One described this as “teasing the NDA [Non-Disclosure Agreement] lawyers.”

Facebook, like LinkedIn, supports groups, including some focused on professional topics. Discussions in such forums can wander over the line. One participant described times that he felt his team members were sharing too much in a Facebook group. When he suggested moving the discussion onto the intranet, it had the unintended effect of ending the discussion altogether.

DISCUSSION

Enterprise interest in social networking software is high. Some executives and high-level managers consider it to have potential. Many individual contributors find it useful for work.

Our study was conducted without preconceptions—we knew many people were using the sites but not how they were using them. We identified patterns of use and sources of uneasiness. These can help set expectations and directions for social networking software in enterprises, and guide design.

Where is Social Networking Software Most Effective?

At Microsoft, most employees have used social networking sites. Users range from individual contributors to senior management, though use correlated with age. It is plausible that it will be most useful for people actively forming social networks: young people, but also new employees, employees joining a new group or taking on a new role, or those whose roles naturally involve networking, such as those in recruiting or sales. The specific appeal of LinkedIn to young professionals is an example.

Management Visions Collide with Actual Benefits

Discussions of social networking software often focus on identifying productivity benefits. For example, a senior business strategist argued that enterprises adopting social network software “need to be able to move from ‘interesting and potentially beneficial’ to ‘fundamental to meeting key business strategy XYZ for this reason.’” A recurring management view is that making networks visible will reveal organizational process, locate expertise, and find answers to questions. We identified a relatively small amount of such activities.

The principal work-related benefit of social networking software was in the easy, unobtrusive creation, maintenance, and strengthening of weak ties among colleagues. This does enable more efficient interaction, but it has other significant benefits.

When management of an organization considers adopting a technology, it invariably desires a return on investment measured as a productivity gain. This seemingly reasonable goal is a problem for communication tools. The social psychologist Joseph McGrath noted that group activities serve three crucial functions: production, member support, and group health [14]. The latter two indirectly affect productivity, but the influences can be nigh impossible to measure. Do benefits of strengthening weak ties in the workplace outweigh the cost of time spent with social networking software? Similar pressure to prove the benefits of email twenty years ago and IM ten years ago did not succeed, yet the technology is now widespread in the workplace.

LinkedIn and Facebook provide some expertise location and question answering, but in terms of McGrath’s functions, we saw less direct support for production than for group health and member support. Of course, with social networking software

thoroughly integrated into students’ lives, it will very likely follow students to work, as did email and IM years ago.

An Unforeseen Boost for Social Networking

Immediately after Barack Obama was inaugurated on January 20, 2009, a slew of press reports noted that when his team moved into the White House, they could no longer use Facebook, Twitter, and BlackBerrys. “It is kind of like going from an Xbox to an Atari,” Obama spokesman Bill Burton said [11]. Because Obama’s team earned a reputation for being extremely effective and efficient, the knowledge that they felt bereft without this software removes any notion that is necessarily a productivity killer and strongly suggests it can be a useful productivity tool.

In the weeks since the inauguration, we have heard multiple informal reports that enthusiasm for social networking software in federal and local government was in fact boosted by this event. Thus, these technologies may face relatively little resistance and rapidly find those places where they can contribute.

Designing for Boundary Crossing

Tensions arise on Facebook when sets of friends comprise colleagues and social friends. Boundary tensions also arise within each sphere. These represent opportunities for design.

How will social networking fare if confined to an intranet? Facebook was reportedly trying to reintroduce versions that are restricted to a university. Our site was experimenting with a Beehive-like internal-only prototype. Many of our participants expressed interest in such a capability. However, in the past, restricting communication to employees was tried with the telephone, with email, and with IM, and in all cases gave way to acceptance that work and personal lives overlap so much today that this is not convenient or cost-effective. Social networking software, like these other technologies, brings personal activity into the workplace, but they can directly or indirectly enhance efficiency. They also carry work into the home.

Beehive, a heavily supported research project, is an initial success at IBM. How it will fare over time and in smaller organizations is unknown. Beehive users (and users of our site’s prototype) want the ability to import connections from other networks [3]. Internal networks provide a safe environment for internal communication but cannot leverage outside professional contacts. Work-life boundaries are increasingly permeable. People form close friendships with some colleagues. They differ as to the relative value of internal and external networks as sources of social support or answers to questions—people in smaller organizations than IBM or Microsoft may find more value in external networks.

An alternative would be firewall-traversing social networking software that provides more flexible grouping of friends and an ability to direct profile and status information differentially. It would be important to develop interfaces that minimize inadvertent disclosure. The software might have to interoperate with existing popular applications such as Facebook, aggregating some information from external sites and routing appropriate information to them, in the way Twitter posts can be routed to Facebook.

Differentiating among friends is a delicate task. People love to share information on their moods and photos from vacations, parties, and activities with friends, but encounter problems when they share too widely. However, the ability to build rapport and closer professional relationships may diminish if all personal life

is hidden from professional contacts. Categorizing friends could undermine the informal friendliness of the medium. Conversely, people want to share work information with colleagues, trusting that it won't inadvertently reach the public. Finding effective balances will take time. It will require careful design and behavioral adjustment.

Some informants adopted grouping when Facebook enabled it, but managing groups is not easy. It requires remembering who is in which group or risking inadvertent exposure. Given the accidents that people reported using simple interfaces, advanced access control systems must be carefully designed and introduced.

Similar considerations play into boundary crossing in the workplace. Hierarchic organizations often mask status and power differences with social conventions. Email introduced a new capability for informal communication across management levels. It took time for unwritten conventions to form around email—in many settings, communication is now less constrained by hierarchy than it once was.

In general, current social networking sites present a single stage on which people act. This alters the front stage/back stage distinctions that Goffman described in his work on presentation of self, where he too focused on institutional behavior [8]. Facebook users often display political and religious expression, traditionally not common in workplace communication. The general trend toward greater visibility has costs and benefits. The resulting tensions will influence our adjustment to change. New norms will evolve.

Will observations from our large tech-savvy organization generalize? Many of the benefits and tensions appear to stem from standard aspects of organizations. However, we found that generational differences and technologies are in flux. LinkedIn and Facebook both evolved as we studied them.

Some of what we found is tied to the temporal window in which we conducted the study. Effects of reconnecting to long-lost schoolmates will be less powerful if today's kids never lose such ties. Most people we interviewed had LinkedIn but not Facebook as an option when they began their professional careers. Facebook may evolve to serve some of the professional purposes that LinkedIn does. Twitter use has grown rapidly since we collected data, and a Twitter-like "What are you working on?" now appears on LinkedIn profiles. Experiments with intranet-confined social networking are just beginning.

CONCLUSION

Social networking software is used heavily in the organization we studied. LinkedIn, ideally positioned for young professionals, is widely used to build and maintain external professional networks. Facebook was quickly adopted by tens of thousands of employees to connect with friends, family, and colleagues. Work-related benefits centered on creating and strengthening ties. Social networking software has found professional uses, but tensions arise from mixing work and professional connections and from spanning organizational levels. Social conventions governing use are evolving alongside the software. New designs and patterns of use could mitigate the tensions that some of our participants struggled with and extend the benefits they were realizing. We anticipate rapid progress and adoption of social networking software in enterprises.

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