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Professional Implications of Using Online Social Networking Systems By Persons Who Are Blind

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Abstract

The online social networking (OSN) phenomenon has grown dramatically over the past decade, with websites such as Facebook and Twitter becoming household names. Although a lot of literature exists on online social networking systems, little exists on these systems' practical impact on the offline world, beyond cyberspace. Similarly, little attention has been given to the use of these systems by persons who are blind or have other disabilities. This research attempts to redress this situation by exploring the relationship between the usage of OSN systems and professional achievement for persons who are blind.

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Chapter 1 – Introduction

So often the value of information technology is expressed in terms such as return on investment (ROI) or competitive advantage. These terms, while accurate and appropriate in many contexts, do little do describe information technology's value to the human race. Does information technology help us to truly thrive and prosper, or does it erode our humanity? This study considers the possibility that certain information technologies can enhance the lives of persons who have historically received second-class treatment in an offline world. Very few, if any, prior works consider the practical impact of online social networking systems on the offline world, beyond cyberspace. This research attempts to redress this situation by exploring the relationship between OSN systems usage and professional achievement for persons who are blind. This chapter establishes the context for the study: its background, assumptions, and motivations.

Social and Professional Challenges for Persons with Disabilities

Historically, man has implemented technologies to overcome physical disabilities. Blind people use canes to explore the world that they cannot see; people with ambulatory limitations use wheelchairs or walkers to move about; and people who are deaf use TTY devices to communicate beyond their immediate presence. Using these assistive technologies and aided by legislation such as the Americans with Disabilities Act, persons with disabilities ideally should be able to achieve and progress professionally to a level similar to that of their non-disabled peers. Consider specifically the case of blind people who use screen readers and other assistive technologies. There are few, if any, practical limitations for a blind person to perform work such as software development, team management, or writing of any kind. Even so, statistics indicate that persons who are blind or live with other disabilities are less likely to be employed, and earn

less than those persons without disability (Steinmetz, 2006, McNeil 2000). In 2008, when the

overall U.S. civilian unemployment rate was 5.8%, the unemployment rate amongst disabled

workers in the labor force was estimated at 12.3% (U.S. Census, 2009a and 2009b).

Persons who are blind face the burden of social stigmas that limit opportunities for

professional growth. O'Day (1999) studied a group of 20 blind persons, 16 of whom reported

difficulty finding work due to employers' ignorance or uneasiness with their blindness. Such

stigmas may overshadow professional accomplishments and personal strengths, thus impeding

the opportunity for promotion or recruitment. Recent works (Baber & Waymon, 2010; Niesz,

2007) have emphasized that professional success depends upon one's ability to build and

maintain a social network. In that respect, any inhibitor (such as social stigma related to a

disability) to building one's social network has the potential to impede one's professional success.

Online Social Networking Systems

The social networking phenomenon has grown moderately over the past decade, with

services such as Facebook and Twitter experiencing exponential annual growth since 2007

(Facebook, 2010; Ingram, 2010). Fueled by integration with both traditional computers and the

increasing smartphone population, online social networking has evolved from a being toy for

tech-savvy youth to providing a medium for family, classmates, professionals, and likeminded

persons to connect and interact. As acceptance and usage of these systems have grown, so also

has academic interest in them.

Boyd and Ellison (2007) traced the history of social network sites to SixDegrees.com,

which launched in 1997. Like many Internet "innovations", SixDegrees.com derived its features

from previous sites and services, including AIM, ICQ, and dating and community sites. Still,

SixDegrees.com and the assorted social network sites that followed differed from prior offerings

in that they combined features to provide a model that mimics one's social presence, including

connections, private/public shared personal information, and tools to foster social interaction

through the medium. Many consider SixDegrees to have been ahead of its time, as it met its

demise in 2001 following the infamous dot-com bubble burst. Nearly a decade later, other

systems such as Facebook, MySpace, Twitter, and LinkedIn are prospering.

Online social networking systems (OSNs) extend a person's social presence (including

his/her knowledge, personality, and motivations) without necessarily revealing any physical

disability in so doing. These systems have the potential to provide a social environment in which

the disability-related stigma is diminished, allowing blind persons to achieve greater professional

mobility. Precedence for this potential is evident in Debenham's (2002) finding that computer-

mediated communications can aid in educational support for students with disabilities. Study

participants reported receiving both practical and social/personal benefits from use of e-mail and

the DOORway conferencing system, resulting in increasing levels of motivation, enjoyment, and

autonomy for them. Additionally, Bowker and Tuffin mentioned the potential for technology to

provide social opportunities in the introduction to their investigation concerning online safety

and identity protection for persons with disabilities:

> This study seeks to investigate the online experiences of people
> with disabilities, who constitute a unique group who have
> traditionally been identified as powerless in society. This
> powerlessness stems from the failure of the physical and social
> environment to cater to their needs. However, within computer-
> mediated environments, people with disabilities may have much to
> gain as physical barriers to participation are broken down.
> Moreover, the online medium's capacity to conceal physical
> difference brings forth the opportunity for people with disabilities
> to access a social space for experiencing alternate subjectivities,
> which operate outside the stigma often associated with disabled
> identities. (Bowker and Tuffin, 2003)

Bowker and Tuffin's work discussed how the unique attributes of online interaction allow for various types of deception that may or may not have harmful implications. In this sense, nondisclosure of one's disability is considered an act of deception, but that act is generally benign and justified in the minds of persons in the interest of avoiding the disability casting a shadow upon the interaction.

Problem Domain

McLuhan and Fiore (1967) proposed that all technology extends a human facility. Examples include the wheel as an extension of the foot, clothing as an extension of the skin, and electric circuitry as an extension of the central nervous system. The growth and ubiquitous usage Internet technologies presents opportunities to analyze McLuhan's hypothesis in practical terms. Considering the growing usage of online social networking systems as an extension of a person's social being, one would expect that using these systems could have real-world social implications.

As social networking has expanded, researchers have shown increasing interest in its internal workings and impact on society (Ahn, Han, Kwak, Moon, & Jeong, 2007; De Choudhury, Sundaram, & Seligmann, 2008; Mislove, Marcon, Gummadi, Dreschel, & Bhattacharjee, 2007; Nazir, Raza, & Chuah, 2008; Wilson & Nicholas, 2008). Although a lot of literature exists, little exists on these systems' practical impact on the offline world, beyond cyberspace. This research attempts to redress this situation by exploring the relationship between OSN systems usage and professional achievement for persons who are blind.

By introducing a specific area of real-world measure – professional achievement – to the study, the potential emerges to uncover outcomes from online social networking systems beyond inherent social outcomes. Restriction of the subject population to college-educated (defined as

having attended at least some post-secondary instruction) persons who are blind provides a

focused population for which relationships between professional achievement and online social

networking usage may be explored. The unique nature of blindness and related social and

professional challenges (O'Day, 1999) provides a context in which relationships between online

social networking usage and professional achievement may be especially evident.

Inspired by McLuhan's hypothesis concerning technology as an extension of human

facilities, this researcher sought to uncover relationships between the use of various online social

networking systems by college-educated blind persons and the professional achievement that

those persons experience. This work may benefit the body of knowledge both by identifying

offline outcomes of using OSNs and by exploring the potential of these systems to reduce social

stigma and provide career growth opportunities for persons who are blind.

Definitions

For purposes of clarity and accuracy, this researcher provides definitions and

explanations to terms used in this study:

Blind – Lacking functional use of sight. This definition equates to the commonly used

term *functionally blind,* which refers to a person who must use alternative techniques (such as

screen readers and Braille) to accomplish tasks that are normally performed with sight (Iowa

Department for the Blind, 2010). This definition also includes characteristics of the clinical term

legally blind, meaning of "central visual acuity of 20/200 or less in the better eye with the best

possible correction, as measured on a Snellen vision chart, or a visual field of 20 degrees or less"

(AFB, 2009). This researcher chose the broader *functionally blind* definition because it

emphasizes the lack of practical use of vision rather than a clinical standard that could exclude

persons who are for all practical purposes sightless. It is important to recognize, however, that

this definition does not wholly equate to the terms *partially sighted* or *low vision*, both of which include levels of visual function that, while reduced, do allow affected persons to carry out some daily tasks that are normally performed with sight.

Online social networking systems – Websites and services whose primary function is to provide an interactive social experience between persons. Examples from the public Internet include Facebook, MySpace, LinkedIn, and Twitter. In addition, internally-deployed social networking technologies such as wikis, blogs, and collaborative systems (i.e., Microsoft Office SharePoint, Lotus Notes) are included. This definition differs slightly from Boyd and Ellison's (2007) definition of a "social network site", which is more narrow and emphasizes connection management. By Boyd and Ellison's definition, for instance, Twitter does not qualify as a social networking site because it minimally addresses personal connections. This researcher's interest focuses more upon the depth and frequency of usage of systems that extend one's social being regardless of such distinctions.

Professional Success – Progress with regard to one's profession as evidenced by any of the following: increasing responsibility, increasing compensation, recognition as a specialist or expert, an ongoing sense of fulfillment, and/or improvements in competence.

Hypothesis

This researcher's *a priori* expectation is that online social networking is an extension of human communications and therefore is not just a collection of servers and handheld devices. Based on academic literature reviews, this researcher expects to find that this technology can help overcome disabilities as other technologies have. The hypothesis of this research can be presented as follows:

Hypothesis: *College-educated blind professionals who use online social networking systems experience greater professional achievement than those who do not use these systems.*

Methodology

To test this hypothesis, this researcher has compared the OSN usage habits of a population of blind persons to a collection of common professional achievement indicators. This comparison was intended to draw out relationships that might exist between OSN usage and professional achievement, resulting in a basis and direction for further study. For instance, the usage of OSN may be especially beneficial to blind persons working in certain industries, or at certain points in their career. Likewise, certain types of OSN usage or particular OSN systems might be explored in greater depth if they are found to have special significance to persons who are blind.

Summary

Mankind's application of technology to extend his facilities and overcome disabilities has yielded many practical artifacts that largely address physical realities. This researcher asks if online social networking systems, which by nature extend one's social presence beyond face-to-face interaction, might also provide professional benefits to persons who are blind. In this chapter the context of the study and an overview of its theoretical precedents were discussed. An expanded discussion of these topics will follow in the next chapter, a review of literature and research.

Chapter 2 – Review of Literature and Research

This chapter examines the academic literature. This researcher sought a cross-disciplinary approach, including works from information technology, disability studies, social sciences, and occupational studies. Literature can be broken into four groups: Computer technology usage by blind persons; social and professional issues for blind persons; quantitative analysis of online social networking patterns; and online social networking and real world implications. This literature provides context for the study, but none of it addresses the research problem entirely; this study is aimed to redress that situation.

Computer Technology Usage by Blind Persons

Literature on the topic of the use of computer technology by blind persons generally falls into one of three categories: 1) evaluation of accessibility; 2) assistive technologies and interface design, or 3) descriptions of usage and outcomes. All three categories hold relevance to this study, with the third being of particular interest.

The online experience has evolved to become a primarily visual medium, presenting special challenges for making it available to blind persons. These challenges are described and quantified in numerous studies. Rømen and Svanæs (2008) identified 47 accessibility problems in two municipal websites when carrying out common tasks, but find that only 27% of these problems constitute technical violations of Web Content Accessibility Guidelines 1.0, the standard by which accessibility of websites is measured. Likewise, Hailpern, Reid, Boardman, and Annam (2009) documented the problems posed by Web 2.0 technologies, pointing out that AJAX, dynamic content, and custom controls and are especially difficult for screen reader users because of the change in mental models that they represent. Mikovec, Vystrcil, and Slavik (2009) evaluated two open source web development toolkits, concluding that neither produces

applications that conform with WAI-ARIA recommendations. The popular Wikipedia website, while generally accessible to users of screen readers, is found to have opportunity for improvement especially with regard to its content editing control (Buzzi & Leporini, 2008).

There has been considerable work toward developing new technologies to improve the accessibility of computer systems for blind people. For instance, other sensory input can replace certain video queues and experience in games, as discussed by Yuan and Folmer(2008) and White, Fitzpatrick, and McAllister (2008). In these studies both audio and haptic feedback are found to be effective means of translating gaming experiences for blind persons, whether they are part of the off-the-shelf game or employed as an add-on. The *Power Up* multi-player game attempts to provide an virtual world experience that is accessible by users who are blind, with low vision, deaf, and/or with dexterity impairments (Trewin, Hanson, Laff & Cavender, 2008). This work by the IBM development team indicated that such a universally-accessible game was possible and in demand, with the primary limitation being not possibility but instead the time involved in building out the platform technology.

Borodin (2008) proposes a study concerning how blind persons may use voice-enabled macros to perform repetitive tasks. Rich web interfaces posed challenges for interpretation via screen reader, but by recording macros for tasks such as "pay the AT&T bill" Borodin sought to simplify and make more efficient these processes. Similarly, Intrator and de Souza (2008) found that use of the PSI-CoScripter tool to automate web browsing tasks held promise for accessibility. Finally, the accessibility of touch-screen devices and smart phones was addressed both in terms of output/feedback (Yatani & Truong, 2009) and input/navigation (McGookin, Brewster & Jiang, 2008). Both studies indicated that specialized mobile devices need not be created for blind users but rather the devices and their software could be extended in ways to

benefit both blind and sighted users. These findings are indeed similar to those of Trewin,

Hanson, Laff & Cavender (2008) with regard to the *Power Up* game. In summary, the research

on the topic of improving access to computer systems for the blind indicates that few practical

barriers exist to achieving useful accessibility; making these technologies accessible is more a

matter of development perspective than it is of confronting impossibilities.

Implications and outcomes of computer technology usage by blind persons have been

explored from various perspectives. As early as 1964 (and with a perspective that offends

today's sensibilities concerning blindness) the potential for computer technology to provide

professional opportunities for blind persons has been acknowledged (Sterling, Lichstein,

Scarpino, Stuebing & Stuebing, 1964). More recently, Gerber (2003) identified employment,

information access, and social benefits of computer use perceived amongst a 41-person focus

group of blind and limited-sight persons. The participants in the study shared that computer

technology empowered them and reduced their dependence on other people for many tasks while

extending their connections with others. Shinohara and Tenenberg (2009) used an ethnographic

study to illustrate the role and effect of various technologies in the life of a blind person. The

work explored how the design and usability of technology artifacts (including but not limited

computer systems) impacted their meaning, and thus the outcomes derived from their usage.

Also, one of the study's conclusions, that "it is the combination of functionality and socially

situated meaning that determines who will use technology and how it will be used," has

implications for this study.

Social and Professional Issues for Blind Persons

The proposed study presumes that blind persons are at a social and professional

disadvantage due to others' attitudes toward blindness. This disadvantage has been explored and

documented. O'Day (1999) identified three types of barriers to employment for blind persons:

personal, societal, and programmatic. Of particular interest in this study are descriptions of the

societal and programmatic barriers, both of which derive from external or artificial forces, not

the condition of blindness itself. Societal barriers cited by O'Day implied that employers

perceive the study respondents primarily as blind and secondarily as persons, allowing an

applicant's or employee's blindness to shape the employers' perceptions of that person.

Complications in the SSI and SSDI programs, which provide cash assistance to persons with

disabilities, comprised most of the programmatic barriers. Other studies have documented

similar findings, including assumptive beliefs about blind persons' ability to compete and

perform in the corporate environment (Crudden, McBroom, Skinner & Moore, 1998) and the

social stigma attached to blindness and other disabilities (Goffman, 1963).

Some studies have documented the unique attributes of social interactions involving blind

and visually-impaired persons. Golub (2003) identified social skills as especially helpful for

employees with visual impairments to have success in the workplace. In this study of methods to

support a successful work experience for visually impaired employees Golub identified

complimentary steps for employers and employees to take. Throughout both employer and

employee roles the importance of creating a positive and comfortable social environment was

emphasized. Papakonstantinou and Papadopoulos (2009) expanded upon prior works extolling

the importance of social support in the workplace by analyzing instances of practical and

emotional support reported by a sample of 15 participants classified as blind or having low

vision. The study concluded that positive emotional support is more prevalent, and is assigned

more importance by the participants, than practical support.

Work related to social and professional issues for blind persons has acknowledged barriers as unfortunate and unacceptable facts that exist despite the legal, educational, and technological progress that has been made. While Golub's (2003) model emphasized both employer and employee responsibility, she also conceded that a greater burden falls upon visually-impaired employees to "be an ambassador for blindness" and to help others become comfortable working alongside blind colleagues. Likewise, at the First Jernigan Institute Technology Training Conference, then-commissioner of the Rehabilitation Services Administration Joanne Wilson stated in her keynote address that "the job of effective rehabilitation training is to make sure that graduates have more skills, a better work ethic, a better personality, whatever it takes so that blindness becomes the characteristic tenth or eleventh down the list of factors to be weighed in the hiring decision" (Wilson, 2004).   In that respect, this researcher suggests that online social networking systems might be useful both as way to support the successful mutual accommodation described by Golub and as a tool that persons who are blind a may use to outperform their sighted peers in the workplace.

Quantitative Analysis of Online Social Networking Patterns

The online social networking phenomenon has been the subject of several studies that aim to identify statistical trends within them and in turn relate those trends to those of offline social networks. These statistical analyses emphasized the workings of systems themselves and not their outcomes, which are the topic of the proposed study. Ahn, Han, Kwak, Moon, and Jeong (2007) used snowball sampling to analyze the topology of three online social networking systems, concluding that scaling components from each are similar to one another and follow power-law patterns. Likewise, Mislove, Marcon, Gummadi, Dreschel, and Bhattacharjee (2007) examined three online social networking systems, comparing their statistical attributes to those

of offline social network. Wilson and Nicholas (2008) emphasized topological patterns in online

social networks used by older adults. Viswanath, Mislove, Cha, and Gummadi (2009) and

Nazir, Raza, and Chuah, (2008) each analyzed activity and usage within the Facebook online

social network.

Other quantitative analyses proposed methodologies for predicting activity within social

networks. De Choudhury, Sundaram, and Seligmann, (2008) developed a framework for

predicting communication flow between two individuals within a social network. This work

focused upon activity within the online social network and does not address its offline outcomes.

Individually the above works hold little significance to the proposed study; collectively they

establish online social networks as worthy of study and draw parallels between online and offline

social activities.

Online Social Networking and Real-World Implications

Several studies have provided in-depth research of online social networking activities

through analysis of the human nature of these interactions. These studies carry more

significance to this study because they examine offline implications of these systems. For

instance, a diary study of Facebook users classified 13 users' memorable Facebook events into

four categories to determine characteristics of events that are most significant (Sas, Dix, Hart, &

Su, 2009). The findings concluded that private one-on-one communications (not unlike typical

e-mail or chat applications) and public exchanges were most memorable. This work established

a simple cause-effect relationship between certain Facebook activities and real-world attribution

of emotional significance, implying that Facebook activities can impact thoughts and emotions

beyond the confines of the online social network.

Ellison, Steinfield, and Lampe (2007) also studied Facebook usage, demonstrating a strong connection between Facebook usage and indicators of social capital amongst college students. This work stands out in that its methodology sought to differentiate between non-Facebook Internet users and those who use Facebook, concluding that Internet use alone did not bear a relationship to social capital accumulation. Even so, the researchers found that Facebook was used more to enhance and strengthen offline relationships rather than to develop new ones. Considering that the subject population (college students) is traditionally very socially active in their offline activities, this finding is not surprising.

Cloete, Villiers, and Roodt (2009) examined the use of Facebook as a tool for information systems and computer science lecturers in South Africa and found general aversion to the idea. Results of a short survey completed by 45 lecturers indicated that Facebook was viewed as a primarily personal application that could be used for academic purposes. The lecturers discounted Facebook as an academic tool primarily because they already had some form of online learning and collaboration tool available to them. The authors of the study revealed their pro-Facebook bias by still suggesting that lecturers give a Facebook-related assignment to students to demonstrate the viability of Facebook as an academic tool. Despite the revealed resistance to using Facebook as an extension of the classroom experience, this work relates to the proposed study by demonstrating offline implications of online social networking usage. For instance, 48% of responding lecturers who had Facebook accounts did not interact with students on Facebook, and of the 52% that did interact with students over two-thirds did so for purely social purposes. These findings indicated a belief amongst the respondents that Facebook is primarily a personal social tool.

The micro-blogging service Twitter provides a forum for casual conversation akin to what many describe as "water cooler talk" (Rosson & Zhao, 2009). In an exploratory study of Twitter usage by 11 respondents Rosson and Zhao identified motivations and applications of the service. Most relevant to the author's proposed study are the reported uses of Twitter as a team management tool, to establish or locate expertise, and to evaluate business and career opportunities. In several anecdotes the use of Twitter was linked directly to real-world personal and outcomes that would have been less likely to occur without the tool.

Researchers have noted that the use of online social networking systems in the workplace presents risks and rewards to employees and employers alike. Skeels and Grudin (2009) examined the use of LinkedIn and Facebook within Microsoft, finding that Facebook's blending of one's personal and professional personas presented challenges in the workplace. LinkedIn, by contrast, emphasizes professional relationships and thus was less problematic with regard to personal/social boundaries. In the case of both systems, however, productivity and professional implications of using these systems beyond themselves were demonstrated.

A closed, professional online social networking environment was used to enhance medical consultation in Ghana (Luk, Ho, & Aoki, 2008). In this study, the authors proposed an online system using a personal social network model as a means to enhance professional collaboration and improve care. The system served to compliment and extend offline practices by allowing both synchronous and asynchronous communications, knowledge sharing, and centralized status reporting. The authors concluded, however, that the system must exist as a compliment to offline practices because the infrastructure supporting it was not reliable enough to address availability requirements.

In addition, works related to social networking in general (not necessarily online, as is the focus of the study) provide a context for the proposed study. Niesz (2007) made the case for teachers to engage in networking activities for both individual professional development and the greater good of education. Likewise, Baber and Waymon (2010) advised managers to create an environment that fosters networking can benefit businesses and employees alike.

<div align="center">*Summary*</div>

This review demonstrated that the study of professional implications of online social network usage by blind persons has a foundation in prior work, is relevant to the discourse on these topics, and is distinct from other studies in the field. But the literature is fragmented with little work on the specific question of professional implications of online social networking systems usage by the blind. Recent literature (Baber & Waymon, 2010; Ellison, Steinfield, and Lampe, 2007; Golub, 2003; Rosson & Zhao, 2009; and Skeels & Grudin, 2009) may be combined to suggest that OSN usage by blind persons can improve their rate of professional achievement. This suggestion provides the seed for this exploratory study.

Chapter 3 – Methodology

Acknowledging the unique and exploratory nature of the research problem, this researcher considered several approaches to the study. On the one hand, a purely qualitative approach would allow a broader and more thorough examination of the problem. On the other hand, maintaining tractability and focus demanded that quantitative methods be included.

This researcher followed a four-phased approach in conducting the study. The first phase, which spanned one year's time, included a review of literature and refinement of the research problem. Subsequent phases focused on study group definition, survey preparation, survey posting, and analysis. These phases spanned eight months. In total, the project spanned 18 months from beginning to end.

Special Considerations

All studies involving human participants demand that the researcher take steps to ensure the safety of participants and confidentiality of data collected. The study proposal was reviewed by the Regis University Institutional Review Board beginning in January 2010. Because the study included collecting data from a protected group, a full IRB review was required. During the review process this researcher also submitted the study protocols to a representative of the National Federation of the Blind, where they were found to be appropriate and adequate. The Regis IRB approved the study proposal on April 28, 2010.

Approach

A Glaserian grounded theory approach was used in the study because of this method's ability to identify themes and relationships. While the survey results provide quantitative data for analysis, the research problem and context lend themselves more to qualitative analysis. This study was exploratory; the author's search for similar studies in published literature did not return

any similar works. As such, the author chose the open-endedness of grounded theory, which would serve to identify specific relationships that may be studied further using other methods.

Data Collection

Once approved, the research proceeded in four phases. In the first phase, which was described in Chapter Two, this researcher reviewed the existing academic literature. Some works (Baber & Waymon, 2010; Ellison, Steinfield, and Lampe, 2007; Golub, 2003; Rosson & Zhao, 2009; and Skeels & Grudin, 2009), when combined, suggested that a positive relationship would be found between online social network systems usage and professional achievement for persons who are blind. Even so, no single work addressed the hypothesis entirely. Lacking prior significant work, the study's exploratory approach was again validated.

In the second phase, a research group was identified. This researcher selected college-educated blind persons who are employed or seeking employment. The author chose college education as a criteria for the population because it commonly serves as a core qualification for employment in professional or knowledge-centric positions. Also, only persons employed or seeking employment were included in the study because the ability and desire to work are assumed requirements for any person to achieve professionally. These two criteria made the study tractable by reducing the potential for factors outside of those being studied to influence the data.

Survey participants were recruited through National Federation of the Blind and the Facebook and LinkedIn online social networking systems. NFB recruitment included posting an invitation to participate in the study to four NFB LISTSERV mailing lists and direct e-mail contact with several persons involved in the NFB and the *Braille Monitor*.

In phase three, a survey questionnaire was prepared. The survey questions gathered information pertinent to professional growth (education, experience, achievements, field of work) and the subjects' use of Internet and social networking technologies. The survey is found in Appendix A. Specifically, the survey emphasized gathering data relative to the following variables:

1. Basic demographics

2. Work experience

3. Income changes over past two years

4. Expert/specialist recognition

5. Satisfaction/fulfillment in profession

6. Performance/competence

7. Computer skill level

8. Usage of the Facebook OSN system

9. Usage of the LinkedIn OSN system

10. Usage of the MySpace OSN system

11. Usage of the Twitter OSN system

12. Usage of Internal/private OSN systems

13. Usage of Industry Forums

14. Personal versus Professional usage of OSN

Taking into account the potentially limited pool of participants, pretesting of the survey did not occur. The survey was refined with assistance from Regis University faculty and representatives of the National Federation of the Blind.

The survey was made available primarily through SurveyMonkey.com (http://www.surveymonkey.com) because it offers Section 508 Certified surveys. One survey participant preferred to provide answers verbally, and so this researcher conducted a phone interview in that case. In addition to distributing survey invitations via NFB channels, an invitation was posted to Facebook and LinkedIn groups related to the subject of blindness. Participants completed the surveys between May 11, 2010 and July 3, 2010.

All survey results were downloaded from SurveyMonkey upon close of the data collection period. Immediately after downloading, participant identity information (name, initials, and e-mail addresses) was stripped from the working data set, encrypted, and stored separately. SurveyMonkey-assigned respondent identification numbers are present in both the working data and the participant identity data file to tie the two sets together.

In phase four, a general statistical analysis followed. The averages, medians, ranges, and counts of each answer were calculated. Analyzing these statistics, the author identified important distinctions within the data. These distinctions served as a basis for a scoring system, whereby each respondent was scored in the areas of professional achievement, OSN usage, traditional factors, and Braille usage. For each question related to those areas, the respondent's score was adjusted based upon the relationship of his/her response to the median.

Respondent scores were then analyzed to establish the following categories: High Achievement, Low Achievement, High OSN Usage, Low OSN Usage, High Traditional, Median Traditional, Low Traditional, Extensive Braille, Median Braille, and Narrow Braille. This

researcher analyzed the OSN usage, traditional, and Braille scores of each achievement category, and then the achievement scores of each OSN usage, traditional, and Braille category. Further analysis included trends in OSN usage within OSN usage categories and other iterative comparisons.

Using the collected data, the author derived a list of data units. The data units were compared and related to each other to derive additional data units. This step iterated several times until no further relationships were identified. Conclusions were then derived from the data units to address the research problem.

Summary

In this chapter the methodology followed in this study was explained. The unique and exploratory nature of the research problem prescribed that a creative approach be used in the study. This researcher performed grounded theory analysis on statistical information derived from survey data to identify relationships and trends. A system of scoring was used to categorize respondents according to level of OSN usage, amount of professional achievement in recent years, extent of Braille usage, and extent of traditional success predictors. In the next chapter the results of this analysis are presented.

Chapter 4 – Project Analysis and Results

This researcher sought to test the hypothesis that college-educated blind professionals who use online social networking systems experience greater professional achievement than those who do not use these systems. As an exploratory study, outcomes beyond supporting or denying the hypothesis were anticipated as well. For instance, do certain other conditions or personal attributes strengthen or weaken the relationship between OSN usage and professional achievement?

Grounded theory analysis prescribes that data be organized into units that will be subjected to analysis in search of links, associations, and relationships (Willis, 2007). In this chapter this researcher presents data collected from the survey and develops data units that are pertinent to the research problem. Categorization of data unit follows, after which comparisons are made amongst categories. Through this process, this researcher searches for relationships and links within the data and comparisons.

Survey Data

Of the 30 respondent, 22 were complete. Responses from eight of them were discarded from the working set because these persons did not progress far enough through the survey to provide useful information. Thus, the usable response rate was 73.3%.

Characteristics of Respondents

Basic criteria were established for participants to qualify for the study to focus the subject population and eliminate variables not relevant to the research problem. All 22 respondents met these criteria:

- Be legally or functionally blind.

- Be currently employed or actively seeking employment.

- Have completed at least some post-secondary education.

- Not be enrolled as a Regis University student.

All Respondents: When Diagnosed as Blind

2

3

17

☐ At Birth ■ Childhood ☐ Adulthood
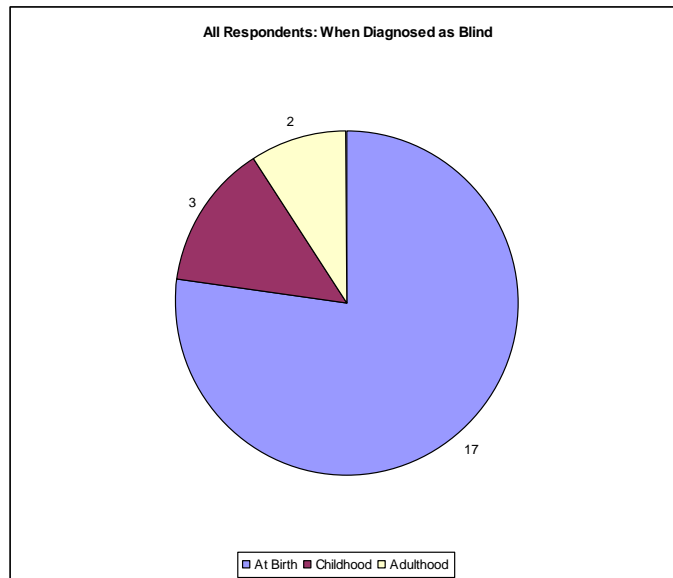
Figure 1   When first diagnosed as blind

The typical respondent was well-established. The majority were blind at birth as shown

in Figure 1. Most held at least a 4-year college degree, and over one-third have completed a

graduate degree as indicated in Figure 2. Over half of respondents have been in the workforce

longer than ten years. On the whole the data indicated some diversity amongst the respondents

in these areas although there are some indicators that the group included more experienced

workers and some higher-than-average achievers. For instance, ten out of 22 considered

themselves "expert" computer users, and the remaining 12 were "very comfortable" using a

computer. None reported average or below-average computer skills. Nine of the 22 have been

in the workforce for over 20 years, and eight of the 22 held post-graduate degrees.
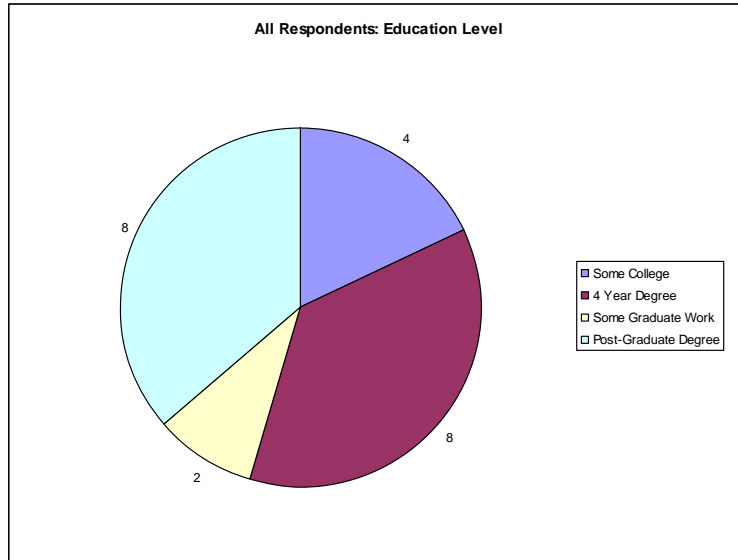
Figure 2 Education level
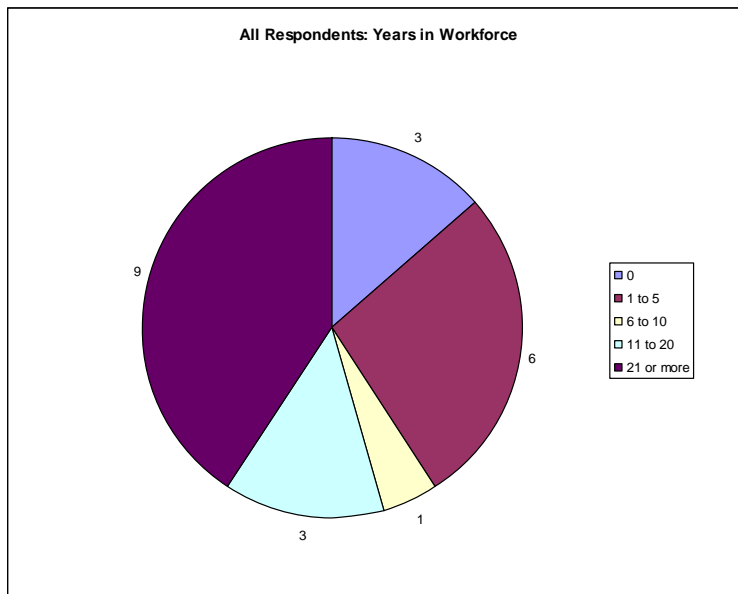
Figure 3 Years in workforce

Most respondents were employed, with 12 of the 22 respondents holding full-time jobs

and two of them having part-time work. This employment rate was similar to rates reported by

Steinmetz (2006), McNeil (2000), and AFB (2009) and was significantly lower than the overall

U.S. rate of employment during the study (BLS, 2010). The highest rate of employment was

evident amongst respondents with ten or more years in the workforce; amongst these 13

respondents all except one were employed at the time of the study, and ten of the 12 respondents

holding full-time jobs were from this group. Conversely, only two of the nine respondents with

fewer than ten years in the workforce were employed at the time of the study. Education level

also served as a contributor to employment likelihood amongst respondents. Those respondents

having more education were employed at a higher rate.
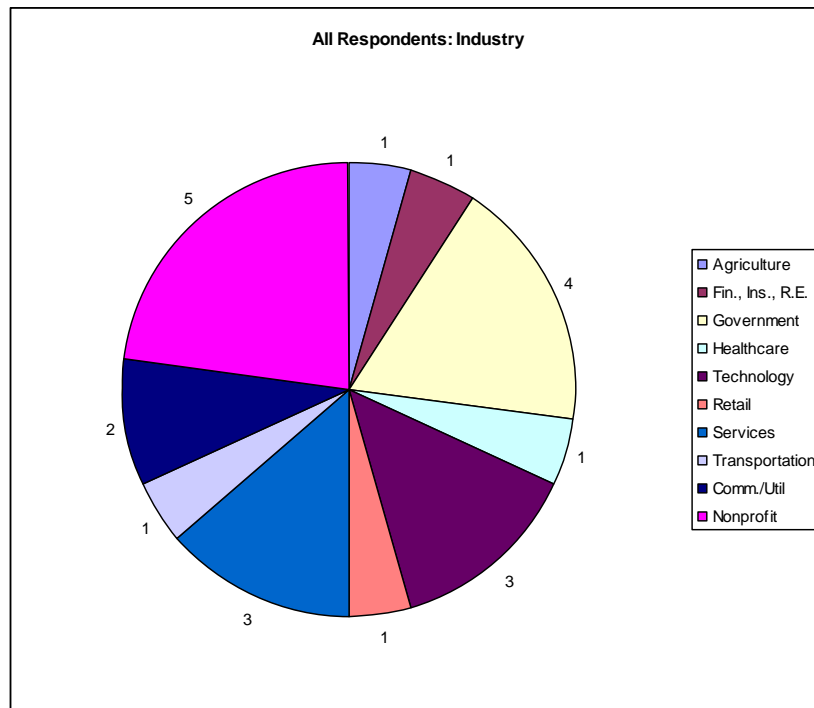
Figure 4 Industries of employment

Respondents worked (or sought work) in a variety of industries, with government and

nonprofit together including nine of the 22 respondents. A review of respondents' job titles

reinforced the diversity of the group both in terms of position seniority and type of work: the list

included three consultants, two teachers/instructors, two social workers, two senior technology

managers, two managers, a volunteer in veterans' affairs, a radio station worker, a vocational

rehabilitation technician, a computer networking specialist, a project engineer, and a business

owner. The recording and analysis of industry and position proved useful to extent that they

established that the sample was not homogenous. However, the overall sample size and

distribution did not allow for further in-depth analysis based upon position or industry.

Participant Use of Online Social Networking Systems

Use of online social networking systems was found to be fairly common amongst survey

participants. All except one of the participants reported some level of participation in these

systems. As shown in Figure 5, Facebook is the most popular OSN system amongst participants,

surpassed only by e-mail in terms of penetration rate. MySpace usage, on the hand, was reported

by only one participant, who indicated a low comfort level using it. Thus, further consideration

and analysis of MySpace usage within this study was not given.
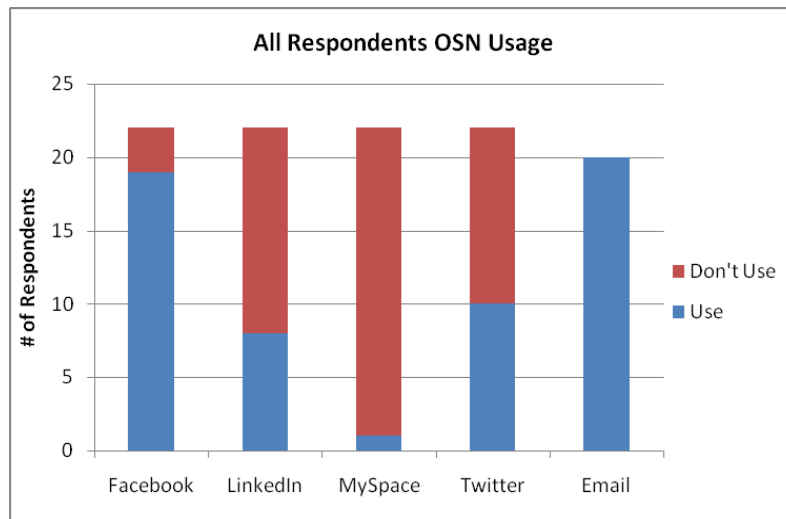
Figure 5 All respondents' usage of online social networking systems

This researcher suspected a higher rate of OSN system usage by the participants than is

prevalent in the general population due to a perception that only active OSN users were invited

to the study. Still, the breadth of and trends within responses indicated that the participants were

involved in OSN activities using three of the most popular public systems.

Among the participants who use Facebook, LinkedIn, and Twitter, a variety of usage history and frequency was noticed. Twitter usage was found to be generally longer and more frequent than usage of LinkedIn and Facebook, which this researcher suspected was a result of Twitter's primarily textual content and interface. Conversely, LinkedIn, the most business-oriented of the three systems, had lower frequencies and lengths of usage than the other two systems. While the limited sample size does not permit generalization to the greater population, this information does both establish the diversity of the sample and demonstrate some trends within usage of each system.
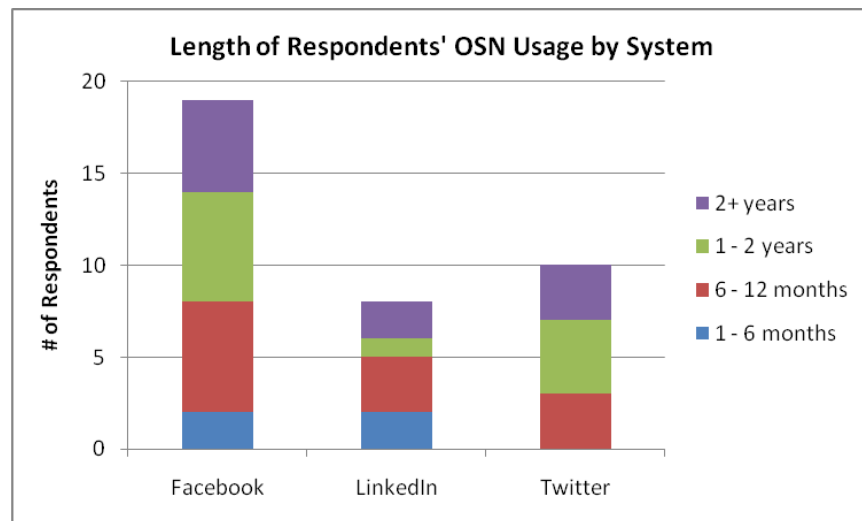
Figure 6 Length of participants' online social networking usage
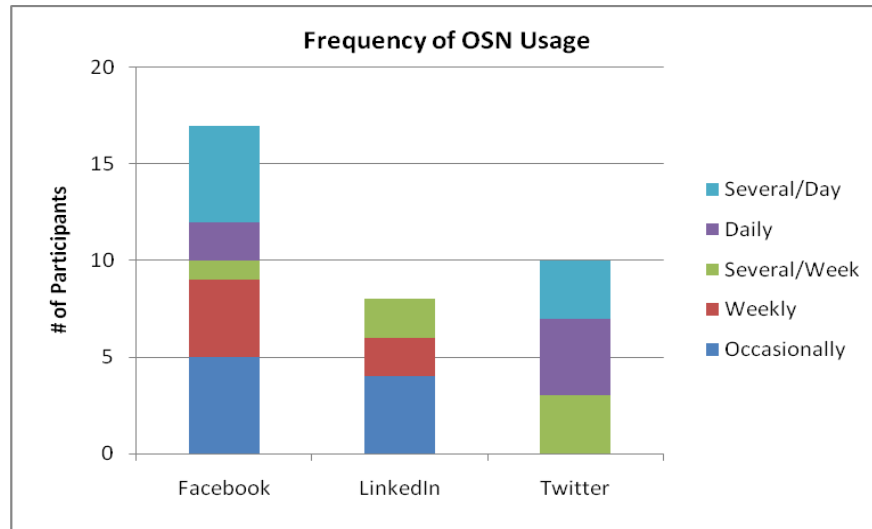
Figure 7 Frequency of participants' OSN system usage

Amongst the three most used OSN systems, other comparative metrics were noted. Both

LinkedIn and Facebook allow users to establish two-way relationships with other users, these

relationships being called "friends" on Facebook and "connections" on LinkedIn. Participants

using Facebook reported friend counts ranging from 10 to 886, with an average of 156 and

median of 100. LinkedIn connection counts ranged from two to 300, with a median of 14.

Twitter does not use two-way relationships, but instead permits two types of one-way

relationship, following and being followed, based upon a user's feed. Participants who use

Twitter followed between ten and 1,000 feeds each (the 1,000 appearing to be an anomaly), with

a median of 60 feeds. Those who "tweet" (share their thoughts and ideas with others) reported

having follower counts ranging from 20 to 700 (the 700 again being atypical of other figures),

with a median of 75 followers.

Availability and usage of private (employer-provided) systems that feature OSN

functionality were minimally reported, and thus are given minor consideration in this study.

Usage of industry-specific online forums was found to be fairly prevalent within the sample,

with 15 out of 20 respondents reporting usage of them, mostly on a weekly basis.

Respondent Categorization

Data collected from participants suggested that the sample contains a variety of OSN

system usage patterns and preferences and a range of levels of professional achievement. This

variety allowed for further comparison and analysis. Taking into account the generally

qualitative nature of the research question it became clear that a creative but logical method for

establishing a method to compare online social networking usage with professional achievement

would be necessary. To begin, critical indicators of online social networking usage and

professional achievement were identified from within the survey data. Additionally, a set of

traditional predictors (not related to OSN) were identified and are also shown in Table 1.

OSN Usage	Achievement	Traditional
Participation in each of:	Employment Status	Education level
Facebook	2008 income change	Years in workforce
LinkedIn	2009 income change	Computer skills
MySpace	Responsibility change	Years in industry
Twitter	Satisfaction level	
Private Systems	Recognition	
Industry Forums	Expertise gain	
Length of usage in:		
Facebook		
LinkedIn		
Twitter		
Frequency of usage in		
Facebook		
LinkedIn		
Twitter		
Quantity of		
friends/connections in		
Facebook		
LinkedIn		
Twitter followed feed count		
Twitter tweet frequency		
Twitter followers		

Table 1 Items considered for scoring respondents

J. Chwalow (personal communication, March 25, 2010), Director of Research for the

National Federation of the Blind, advised that Braille usage is considered essential in achieving

success. Seeing Braille usage as a precursor to achievement, a compilation score representing

the extent of Braille usage in a participant's life was also used.

Norms were established for each of these indicators using the values assigned by the

survey system. The statistical significance of these norms is limited outside of the study due to

the small sample size and the uneven distribution of data within the set. Still, averages and

medians of the data support basic groupings of responses that may be used to apply a

standardized scoring system. A discussion of the scoring logic for each indicator follows.

OSN Usage Categories

OSN system usage scoring used an assignment of points based upon responses to OSN

questions that indicate depth or quantity of usage. Table 2 shows how there points were

assigned. Participation in each OSN received the highest point assignment, followed by length

of participation, and finally frequency and span of usage indicators. Central tendencies in the

data (average and median) provided basis for these rules.

Question	Scoring Criteria/Points
Facebook participation	Yes, +1 point
LinkedIn participation	Yes, +1 point
MySpace participation	Yes, +1 point
Twitter participation	Yes, +1 point
Private systems participation	Yes, +1 point
Industry forum participation	Yes, +1 point
Length of Facebook usage	>12 months, +0.5 points
Length of LinkedIn usage	>12 months, +0.5 points
Length of Twitter usage	>12 months, +0.5 points
Frequency of Facebook usage	>= daily, +0.5 points
Frequency of LinkedIn usage	>=weekly, +0.5 points
Frequency of Twitter usage	>daily, +0.25 points
Quantity of Facebook friends	>156, +0.25 points
Quantity of LinkedIn connections	>64, +0.5 points
Twitter followed feed count	>52, +0.25 points
Twitter tweet frequency	>=daily, +0.25 points
Twitter followers	>100, +0.25 points
Total points possible	10.25 points

Table 2 OSN system usage scoring rules

Using this system, OSN scores for the 22 participants ranged from 0.00 to 7.25 with an

average of 3.75 and a median of 3.75. Based upon these scores, participants were divided into

two categories: High OSN usage (those with an OSN score above the 3.75 median) included 11

participants and low OSN usage (those with an OSN score below the 3.75 median) included 11

participants.

Professional Achievement Categories

A similar scoring approach, as shown in Table 3, was taken with respect to measuring

professional achievement. Point assignments were developed by first using a "more is better"

perspective for each question's responses. Additional consideration was given to the point

assignments by taking into account the distribution of responses within the sample. For most

questions two levels of scoring were established to recognize differing levels of achievement.

While a subtraction of 0.5 points was prescribed for a decrease in responsibility, this researcher

decided to not subtract points for income decreases in light of a decrease in the U.S. median

household income in recent years.

Question	Scoring Criteria/Points
Employment status	Part time, +1 point Full time, +2 points
2008 Income change	Gain of <5%, +0.5 points Gain of >5%, +1 point
2009 Income change	Gain of <5%, +0.5 points Gain of >5%, +1 point
Responsibility change	Decrease, -0.5 points Increase, +1 point
Satisfaction level	Moderate, +0.5 points High, +1 point
Recognition	General, +0.5 points Formal, +1 points
Expertise gain	Large, +1 point
Total points possible	8 points

Table 3 Professional achievement scoring rules

Using these point assignments, scores were calculated for each of the 22 participants.

These scores ranged from -0.5 to 6.5 with an average of 3.3 and a median of 3.25. Again, the

median was chosen to categorize 11 participants as high achievement (above median

achievement score) and 11 participants as low achievement (below median achievement score).

Traditional and Braille Categorization

Two types of non-OSN categorization were pursued in the interest providing context and

additional comparison opportunities in the analysis. Traditional indicators included general

information provided by the respondents about themselves. Braille usage scores were intended

to establish the depth and extent of Braille usage in participants' lives.

Traditional predictors of success included education level, time spent in the workforce,

computer skill level, and time spent in the current industry. Table 4 represents these point

assignments, which were based upon central tendencies of responses.

Question	Scoring Criteria/Points
Education level	4 year, +0.5 points Graduate work, +1 point Graduate degree, +1.5 points
Time in workforce	>15, +1 point
Computer skills	Expert, +1 point
Time in current industry	> 5.5 years, +1 point
Total points possible	4.5

Table 4 Traditional predictors of achievement scoring rules

Scores for traditional predictors ranged from 0.5 to 4.5, with an average of 2.23 and a

median of 2.5. The distribution of scores warranted categorization into three groups: High

traditional (7 respondents above median), median traditional (5 respondents at median), and low

traditional (10 respondents below median).

The ability to read Braille is commonly regarded as an essential skill for persons who are

blind to achieve literacy (J. Chwalow, personal communication, March 25, 2010). Scoring of

Braille usage was developed based upon the assumption that the more areas of life that a

participant uses Braille, the deeper his/her level of comfort and proficiency in Braille. Thus, one

point was given for each respondent's ability to read Braille, plus one point for each area in

which the respondent uses Braille. A total of ten points were possible using this approach.

Resulting scores ranged from zero to six, with an average of 3.59 and median of 4. The

distribution of scores warranted categorization into three groups: extensive Braille (eight

respondents above median), median Braille (four respondents at median), and narrow Braille (ten

respondents below median).

Comparative Analysis

Achievement levels were compared for respondents within the each of the OSN usage,

traditional predictor, and Braille usage categories. These comparisons were intended to identify

trends and relationships in the data.

OSN Usage and Achievement

Two comparisons were made using OSN Usage and Achievement scores. The first, of

primary interest to this study, considered the achievement scores of respondents within the High

OSN Usage and Low OSN Usage categories. The second, performed as a balance to the first

comparison, considered the OSN usage of respondents with the High Achievement and Low

Achievement categories. These comparisons, shown in Table 5, indicated both that High OSN

Usage respondents had higher achievement indicator scores than the Low OSN Usage

respondents and that the High Achievement respondents had higher OSN usage scores than the

Low Achievement respondents.

High OSN Usage	
Number of respondents	11
Average achievement score	3.86
Median achievement score	4.00
Low OSN Usage	
Number of respondents	11
Average achievement score	2.73
Median achievement score	2.50
High Achievement	
Number of respondents	11
Average OSN Usage score	4.00
Median OSN Usage score	4.50
Low Achievement	
Number of respondents	11
Average OSN Usage score	3.45
Median OSN Usage score	3.00

Table 5 Summary of OSN usage and achievement comparison

The results of these comparisons suggest that a relationship does exist between

professional achievement and OSN usage within the sample. Specifically, higher OSN usage is

associated with higher professional achievement, and lower OSN usage is associated with lower

professional achievement. It is important to note that the comparisons do not indicate causality

or precedence.

Traditional Predictors and Achievement

Achievement scores from each of the three categories of traditional achievement were

compared to each other. The comparison did not give a clear indication of a relationship

between traditional predictor and professional achievement, as the median group had greater

achievement scores than both the high and low groups. Even so, the High Traditional group had

significantly higher achievement scores than the Low Traditional group.

High Traditional	
Number of respondents	7
Average achievement score	3.79
Median achievement score	4.00
Median Traditional	
Number of respondents	5
Average achievement score	4.80
Median achievement score	5.00
Low Traditional	
Number of respondents	10
Average achievement score	2.20
Median achievement score	2.25

Table 6 Summary of traditional predictors and achievement comparison

Braille Usage and Achievement

Similar to the analysis of OSN usage and achievement, two comparisons were made

using Braille Usage and Achievement scores. In the first comparison, achievement scores of

each of the three Braille groups were analyzed. The second comparison considered the Braille

usage scores of high and low achievement groups.

Extensive Braille	
Number of respondents	8
Average achievement score	3.81
Median achievement score	4.50
Median Braille	
Number of respondents	4
Average achievement score	3.25
Median achievement score	3.00
Narrow Braille	
Number of respondents	10
Average achievement score	2.90
Median achievement score	2.75
High Achievement	
Number of respondents	11
Average Braille score	4.27
Median Braille score	5.00
Low Achievement	
Number of respondents	11
Average Braille score	2.91
Median Braille score	3.00

Table 7 Summary of Braille usage and achievement comparison

These comparisons suggest that a relationship exists between Braille usage and

professional achievement, associating higher achievement with more extensive Braille usage.

The relationship appears more pronounced when considering the extent to which the high and

low achievement groups use Braille and is less pronounced when comparing the achievement

scores of the three Braille usage groups. As with the OSN usage and achievement comparison,

causality is not known in this relationship.

Achievement Trends within Each OSN System

Facebook was by far the most popular OSN system of all those considered in the study.

It was also the only system with significant usage amongst the low OSN usage group, and thus

may be considered the most evenly-represented OSN system across all respondents. LinkedIn

and Twitter users were primarily within only the high OSN group. Achievement scores based

upon usage of each of these three systems are shown in Table 8.

OSN System	Count		Average Achievement	
	User	Non-User	User	Non-User
Facebook	19	3	3.02	5.00
LinkedIn	8	14	3.38	3.25
Twitter	10	12	4.40	2.40

Table 8 OSN system usage and achievement

The responses indicate that Facebook users generally achieved lower than non-users and that LinkedIn users showed very little difference in achievement scores when compared to non-users. Of the three OSN systems, only Twitter showed a significant positive relationship with achievement scores. In addition, users of Twitter had more achievement indicators than users of LinkedIn and Facebook, even considering that these groups were not mutually exclusive.

Personal and Professional Usage of OSN

For each OSN system, participants were asked to describe the balance of personal and professional usage of that system and if they included coworkers and associates amongst their friends/contacts. A breakdown of the personal and professional usage of each OSN system is shown in figure 8. Validating perceptions in prior work (Cloete, Villiers, & Roodt, 2009, and Skeels and Grudin, 2009), users indicated a general preference to use Facebook for mostly personal purposes and LinkedIn for more professional purposes. Twitter usage was found to be generally balanced, with a slight tendency toward professional usage.
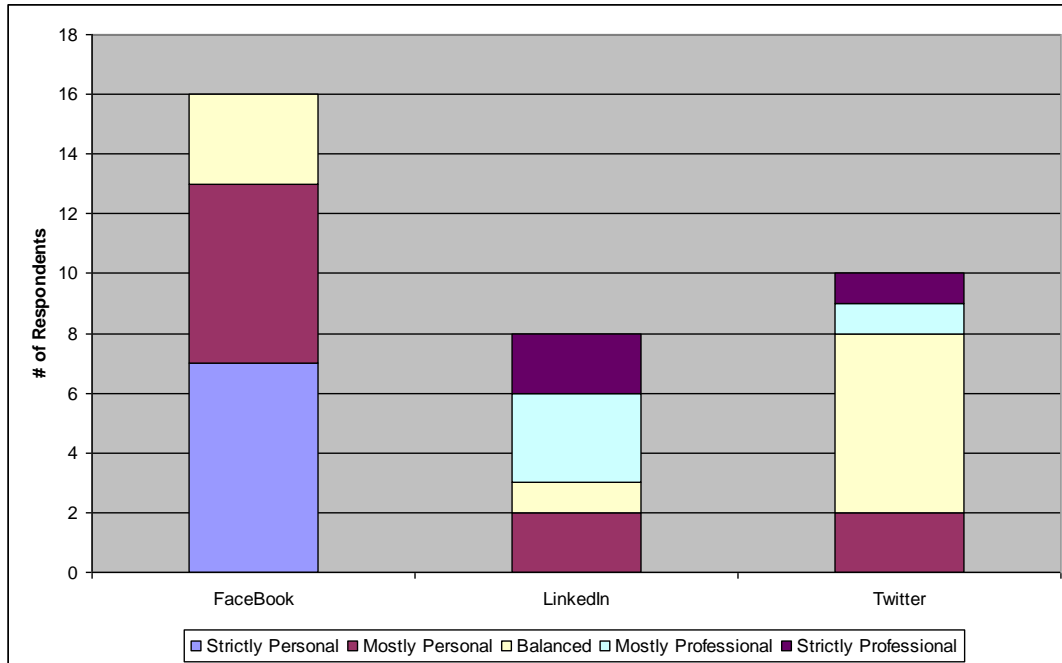
Figure 8 Personal and professional usage of OSN systems by all respondents

High OSN usage respondents tend to use Facebook more in their professional lives than low OSN respondents. Nine out of 11 high OSN usage respondents who use Facebook are Facebook friends with coworkers, whereas that figure is two out of seven for low OSN usage respondents. Additionally, nine out of 11 high OSN usage respondents who use Facebook are Facebook friends with non-coworker professional associates, as compared to one out of seven for low OSN usage respondents.

Question	Count		Average Achievement	
	Yes	No	Yes	No
Are you Facebook friends with coworkers?	11	7	3.41	2.86
Are you Facebook friends with professional associates?	9	8	3.90	2.31
Are you connected in LinkedIn to coworkers?	5	3	3.60	3.00
Are you connected in LinkedIn to professional associates?	7	1	3.50	2.50
Do you follow coworkers on Twitter?	4	6	4.13	4.50
Do you follow professional associates on Twitter?	10	0	4.35	N/A
Do you tweet on work topics?	8	1	4.25	4.50

Table 9 Professional use of OSN and achievement for each system

Comparisons in achievement scores based upon all respondents' professional usage of

OSN systems are shown in Table 9. Data indicate users of Facebook and LinkedIn who include

coworkers and professional associates within their connections exhibit more achievement

indicators than those who do not. Interestingly, the converse appears to be true for Twitter users,

albeit by a very narrow margin.

Analysis and Discussion

Following review, categorization, and comparison of the survey data, some trends and

relationships have surfaced. Recall that this study is exploratory in nature and seeks to find

support for a relationship between OSN usage and professional achievement in persons who are

blind. In this section the observations and relationships discussed previously are developed

further.

OSN Usage by Persons Who Are Blind

Respondents exhibited a range of patterns in OSN usage. Most respondents were active

in at least one OSN system, and this researcher believes that this high proportion of OSN system

users within the sample is atypical of the at-large population of persons who are blind. Even so,

not all respondents used OSN equally. Respondents varied in terms of history, frequency, and

nature of their use of OSN systems.

Considering that most OSN systems are developed with sighted users in mind,

accessibility of these systems by persons who are blind was considered. The high level of

computer skills indicated by respondents precludes the possibility that comfort ratings are merely

a result of general computer skill deficiencies. Indeed, comfort using OSN systems was found to

be a factor in usage. Users of Facebook, LinkedIn, and online industry forums reported mostly

moderate to high comfort levels using these systems, whereas the sole user of MySpace

described it as uncomfortable to use. As Hailpern, Reid, Boardman, and Annam (2009) indicated, these systems' usage of Web 2.0 technologies creates a mental model that does not always translate using screen readers. In addition, MySpace's heavy use of graphical and visual elements appeared to be more prohibitive than AJAX and DHTML. The low MySpace usage may also be attributed to the demographic of the sample. MySpace tends to attract users who are well under 30 years old. While survey questions did not include age, answers to workforce tenure questions imply that respondents ranged in age from low-20s to their 60s.

Facebook's popularity amongst the respondents may be attributed to two factors. First and foremost, Facebook has emerged in recent years as the dominant OSN system in the United States (Mostyn, 2010). Not to be ignored, however, is Facebook's recently-discontinued "lite" website, which provided a Facebook experience that included fewer graphical elements and was easier for screen reader software to interpret. Several respondents indicated a preference for this site in their comments and feedback.

A marked difference in the characteristics of OSN usage was found between the high OSN usage and low OSN usage groups. Only two of the low OSN respondents used OSN systems other than Facebook. In that sense Facebook's universal appeal and acceptance was validated. This finding may also imply that participation in Facebook less of a distinguishing factor than participation in other systems. Additionally, the nature of OSN usage by the high OSN usage and low OSN usage groups was found to differ slightly, with the high OSN group indicating more usage of OSN systems to connect with professional contacts. This difference might be attributed to a usage pattern whereby OSN users increase the scope of their OSN usage over time. It could also speak to preferences by some respondents whether or not to include both professional and personal socializing in the same environment, as Skeels and Grudin (2009)

observed. Finally, this researcher found it interesting that three out of 11 high OSN respondents

work in government (versus one low OSN respondent), and four out of 11 low OSN respondents

work in nonprofit (versus one low OSN respondent). The smallness of the sample and the extent

to which word-of-mouth recruitment of participants occurred may exaggerate this comparison.

Still, it does raise the question about the relationship between industry and OSN usage.

Representation of other industries within the sample was limited.

Use of OSN by persons who are blind was found to be common and diverse, motivated

by several factors including the accessibility of the systems. This finding's primarily

significance to the research problem lies in its validation of the study's implicit assumption that

persons who are blind use OSN. Additionally, diversity of usage made it possible to consider

how different types of usage may relate to professional development.

OSN Usage and Professional Achievement

A positive relationship between OSN usage levels and professional achievements was

observed in the survey data. Similarly, however, a positive relationship was also noted between

Braille usage and professional achievement and there was a less pronounced relationship

between traditional predictors and professional achievement indicators. These other

relationships do not necessarily negate the value of the relationship between OSN usage and

achievement but instead provide balance and context to understanding the role of OSN usage in

the lives of persons who are blind. For instance, OSN usage may be one of several activities or

attributes that contribute to professional achievement by persons who are blind.

Users of Twitter demonstrated more professional achievement indicators than non-users

by a significant margin. Additionally, users of Twitter outscored users of Facebook and users of

LinkedIn, even considering that all three of these groups overlapped considerably. Twitter

differs from the other systems in that it acts more as a platform for voicing one's thoughts and

opinions than it does as a means by which to connect with others. In that sense, Twitter's

stronger relationship to professional success may have been a result of the types of people who

are drawn to use it. Users of Twitter have something meaning to say (although the jury might be

out on that statement after looking across the sea of tweets), exhibit the confidence and skill to

communicate it clearly, and are able to maintain an audience of followers. These abilities are

factors for success in many other areas of life, including one's profession. Still, this concept

builds upon the notion of contributing to one's professional achievement through the use of OSN

systems.

A strong relationship was noted between OSN usage related to one's profession and

professional achievement. As noted above, high OSN usage respondents tended to use OSN to

connect with coworkers and professional associates more than did low OSN usage respondents.

Further examination of this relationship revealed that those respondents who used Facebook and

Twitter to connect with coworkers and professional associates had higher achievement scores

than those who did not use these systems for professional purposes. An interesting twist to this

finding is that the converse was true for Twitter, albeit by a small margin and taking into account

that Twitter users outperformed users of other systems regardless of professional usage. The

findings related to professional usage of Facebook and Twitter suggest that mixing professional

and personal online socializing may yield positive professional outcomes.

Summary

In this chapter simple statistics combined with grounded theory analysis to explore the

data in light of the research problem. Computation of scores for OSN usage, professional

achievement, traditional predictors, and Braille usage facilitated the categorization of

respondents in each of these areas. Examining relationships between categorical groups yielded

indications that a positive relationship does exist between OSN usage and professional

achievement, especially when OSN usage includes professional connections. In the next chapter

conclusions will be formed based upon the findings in this chapter.

Chapter 5 – Conclusion

In this study this researcher reviewed the existing literature relevant to the research problem, designed a research method to address the uniqueness of the problem, collected survey data, and analyzed the data. In this chapter, conclusions are formed concerning the relationship of online social networking systems usage by blind persons to their professional achievement. In addition, challenges and limitations of the study are disclosed and this researcher identifies future work that might be done in relation to this study.

OSN Usage and Professional Achievement for Persons Who Are Blind

This researcher believes this project contributes to the literature. The findings help to explain that college-educated blind professionals who use online social networking systems experience greater professional achievement than those who do not use these systems, demonstrating a positive relationship exists between OSN usage and professional achievement. This relationship is similar to the relationship between Braille usage and achievement, and stronger than the relationship between traditional predictors of success and achievement.

The relationship between OSN usage and professional achievement was especially pronounced under two specific conditions. Those persons who included professional contacts in their OSN activity experienced greater professional achievement than those who limited their OSN usage to personal contacts. While a causal relationship was not established, this finding may encourage ambitious blind persons to include an OSN presence in their professional repertoire. Also, users of Twitter significantly showed more achievement indicators than non-users of Twitter. Whether Twitter is simply the OSN system of choice for high achievers or Twitter contributes to achievement was not determined.

Achievement comparison based upon Braille usage and traditional predictors placed the OSN usage relationship to achievement in context. Building upon this researcher's *a priori* expectation is that online social networking is an extension of human communications, OSN usage should not be considered in a vacuum. Instead, it can be an effective branch of one's social presence, providing social and professional opportunities that might not be available through other channels.

<div align="center">*Limitations of the Study*</div>

In designing the study, this researcher faced certain challenges and. Of primary concern was the limited size of the sample. The net sample of 22 respondents provided adequate data for exploratory purposes, but did not allow for meaningful statistical analysis. The limited response may be attributed to several factors, including available time to complete the study, accessibility issues in the SurveyMonkey system (despite its Section 508 compliance), and a perception that only users of OSN systems were invited to participate in the study.

In addition, this researcher suspected that the sample included a higher proportion of respondents who were generally tech-savvy, high-achieving, and tenured in the workforce than exists in the general population of persons who are blind. This limitation stemmed from the methods used for recruiting participants, which included word-of-mouth and distribution to persons who are in leadership roles in the NFB and *The Braille Monitor*. While this bias within the sample prevents generalization of categories outside of the study, it does not necessarily negate the study's findings concerning the relationship between OSN usage and professional achievement in persons who are blind.

Opportunities for Future Work

Despite these limitations, the researcher instituted a variety of validating procedures and controls. These included reviewing existing literature relevant to the research problem, designing a research method to address the uniqueness of the problem, collecting survey data, and analyzing the data. The study was successful in that evidence of a relationship between online social networking usage and professional achievement in blind persons was demonstrated. At the same time, opportunities to build upon this work became apparent.

This research was designed to explore the ability of online social networking systems to provide a unique social channel that can support professional achievement for blind persons. In particular, this researcher supposed that OSN's ability to mask, or at least de-emphasize, users' blindness might lessen social stigma and allow for more direct and unbiased interaction, resulting in improved opportunity to advance in one's profession. As an early attempt at investigating the linkages between OSN and professional achievement by the blind, this research provides opportunities for other researchers to undertake further studies. Initial opportunities for future work might be found in applying a similar methodology to a larger and more diverse population of blind persons that includes both users and non-users of OSN. Such an approach would address the limitations of this study and provide more authoritative results than this study.

In addition, the tendency of Twitter users and those who used OSN to connect to professional contacts to achieve higher than other groups opens the door for focusing analysis on usage trends and making a more detailed comparison between systems. Similarly, industry-specific analyses similar to Niesz's (2007) analysis of social networking by teachers provide numerous contexts and perspectives in which to explore practical impacts of OSN usage. The issues of causality and precursor characteristics that contribute to achievement might be

addressed by comparing both online and offline social activities. All of these approaches could

include either only persons who are blind (as did this study) or a combination of blind and

sighted persons, allowing for comparison based upon having sight.

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Appendix A

The following survey was completed by 22 respondents, whose answers to these

questions provided the primary data used in this study.

Are you currently enrolled as a student at Regis University?	- Yes - No
What is your employment status?	- Employed full-time - Employed part-time - Not employed, but seeking work - Not employed, not seeking work
When were you first diagnosed as legally blind or recognized as legally blind?	- From birth - After birth but before reaching adulthood - After reaching adulthood - I am not functionally or legally blind
What is the highest level of education you have attained?	- Some high school - High school diploma or GED - Some college 2-year college degree 4-year college degree - Some post-graduate work - Post-graduate degree
How may years have you been in the workforce?	Open-Ended Response
Describe your level of comfort and competence with computers.	- I am an expert in using computers and am often consulted by others to help with computer issues - I am very comfortable using computers and can carry out my work efficiently and effectively using them - I know enough to get my job done, but need help from time to time - I am not comfortable using computers and often need help doing so - I do not use computers
In what industry/field do you (or do you intend) to work?	- Agriculture, Mining - Construction - Finance, Insurance, Real Estate - Government - Health Care - Internet - Manufacturing - Retail, Wholesale - Services - Transportation - Communications, Utilities - Nonprofit
How many years have you been involved in your industry/field of work?	Open-Ended Response
What is your current (or target, if not employed) position/title?	Open-Ended Response

Comparing your 2008 income to your 2007 income, was your 2008 income:	• Less than your 2007 income • The same as your 2007 income • Greater than your 2007 income by up to 5% • Greater than your 2007 income by more than 5%
Comparing your 2009 income to your 2008 income, was your 2009 income:	• Less than your 2008 income • The same as your 2008 income • Greater than your 2008 income by up to 5% • Greater than your 2008 income by more than 5%
Over the past two years, has your degree of responsibility in your work/position:	• Increased • Stayed about the same • Decreased
Describe the level of satisfaction that you gain from working in your field.	• I am passionate about my field of work and can see myself in the same general field for the rest of my career • I enjoy my field of work and take satisfaction from doing it, but would consider another field of work if it was presented to me • My field of work is not particularly satisfying or important to me • I dislike my field of work
Describe the level of expert recognition you have achieved in your field of work	• I have been formally recognized in my field of work by awards, publications, nomination to boards and committees, and/or title • People both inside and outside of my organization seek me for advice in my field of expertise, but I have not been formally recognized • Only people inside of my organization seek me for advice in my field of expertise • I am not especially recognized as an expert in my field of work
In the past two years, has your level of expertise in your field of work:	• Increased significantly • Increased moderately, as would be expected • Not increased
Do you read Braille?	• Yes • No
Where do you use Braille? (multiple selections allowed)	• Labeling • Reading for pleasure • Taking notes • At work • Personal • Professional reading • Professional writing • Personal communication • Other
How long have you used Facebook?	• I don't use Facebook • 1-6 months • 6-12 months • 1-2 years • More than 2 years

How often do you access Facebook?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
How many Facebook Friends do you have?	Open-Ended Response
Describe the nature of your Facebook usage.	• Strictly personal, no business/professional • Mostly personal, some business/professional • A balance of personal and business/professional • Mostly business/professional, some personal • Strictly business/professional, no personal
Are you Facebook friends with any of your current coworkers?	• Yes • No
Are you Facebook friends with people outside of your company who are involved in your field of work (including customers, vendors, competitors, and other professional contacts)?	• Yes • No
Are you a member of any Facebook groups related to your work?	• Yes • No
Describe your comfort level using Facebook.	• I am very comfortable using Facebook • I am moderately comfortable using Facebook • I am not comfortable using Facebook
How long have you used LinkedIn?	• I don't use LinkedIn • 1-6 months • 6-12 months • 1-2 years • More than 2 years
How often do you access LinkedIn?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
How many LinkedIn Connections do you have?	Open-Ended Response
Describe the nature of your LinkedIn usage.	• Strictly personal, no business/professional • Mostly personal, some business/professional • A balance of personal an business/professional • Mostly business/professional, some personal • Strictly business/professional, no personal
Are you connected with any of your current coworkers?	• Yes • No
Are you connected with people outside of your company who are involved in your field of work (including customers, vendors, competitors, and other professional contacts)?	• Yes • No
Are you a member of any LinkedIn groups related to your work?	• Yes • No

Describe your comfort level using LinkedIn.	• I am very comfortable using LinkedIn • I am moderately comfortable using LinkedIn • I am not comfortable using LinkedIn
How long have you used MySpace?	• I don't use MySpace • 1-6 months • 6-12 months • 1-2 years • More than 2 years
How often do you access MySpace?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
How many MySpace friends do you have?	Open-Ended Response
Describe the nature of your MySpace usage.	• Strictly personal, no business/professional • Mostly personal, some business/professional • A balance of personal an business/professional • Mostly business/professional, some personal • Strictly business/professional, no personal
Are you MySpace friends with any of your current coworkers?	• Yes • No
Are you MySpace friends with people outside of your company who are involved in your field of work (including customers, vendors, competitors, and other professional contacts)?	• Yes • No
Describe your comfort level using MySpace.	• I am very comfortable using MySpace • I am moderately comfortable using MySpace • I am not comfortable using MySpace
How long have you used Twitter?	• I don't use Twitter • 1-6 months • 6-12 months • 1-2 years • More than 2 years
How many Twitter feeds do you follow?	Open-Ended Response
Describe the nature of your Twitter usage.	• Strictly personal, no business/professional • Mostly personal, some business/professional • A balance of personal an business/professional • Mostly business/professional, some personal • Strictly business/professional, no personal
Do you follow any of your current coworkers on Twitter?	• Yes • No
Do you follow any people outside of your company who are involved in your field of work (including customers, vendors, competitors, and other professional contacts) on Twitter?	• Yes • No

How often do you check Twitter activity?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
How often do you tweet?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
Describe comfort level using Twitter.	• I am very comfortable using Twitter • I am moderately comfortable using Twitter • I am not comfortable using Twitter
Do you tweet about topics related to your field of work?	• Yes • No
How many followers do you have on Twitter?	Open-Ended Response
How often do you use e-mail?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
Do you use e-mail to communicate with people at within your organization?	• Yes • No
Do you use e-mail to communicate with people in your field of work outside of your organization?	• Yes • No
Describe your comfort level using e-mail.	• I am very comfortable using e-mail • I am moderately comfortable using e-mail • I am not comfortable using e-mail
Does your organization employ an private intranet, collaborative technology platform, portal or other system that functions like an online social networking system (examples might include SharePoint, Lotus Notes, discussion forums, etc.)?	• Yes • No
How often do you use your organization's private intranet/collaborative system?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
Describe your comfort level using your organization's private intranet/collaborative technology.	• I am very comfortable using it • I am moderately comfortable using it • I am not comfortable using it

How often are you active (posting or viewing) in discussion forums, industry group portals, and other websites outside of your company related to your field of work?	• Several times a day • Once a day • Several times a week, but not daily • Weekly • On occasion • Never
Describe your comfort level using these systems.	• I am very comfortable using them • I am moderately comfortable using them • I am not comfortable using them