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Communities of participation: A comparison of disability and aging identified groups on Facebook and LinkedIn

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ABSTRACT

Communication-oriented Internet technologies and activities such as social media sites and blogs, have become an important component of community and employment participation, not just in the specific function of activities, but as a link to larger communities of practice and professional connections. The occurrence of these activities, evident in their presence on *Facebook*, *LinkedIn* and other online communities, represents an important opportunity to reframe and re-conceptualize manifestation of communities especially those in which distributed networks and communities substitute for geographic proximity, offering new opportunities for engagement, especially those who might be functionally limited in terms of mobility.

For people with disabilities, as well as the aging, increasingly interacting online, the readiness of social networking sites to accommodate their desire to participate in conjunction with their readiness as users to maximize the potential of platform interfaces and architecture, are critical to achieving the medium's potential for enhancing community and employment benefits. This essay explores representation/presence of disability and aging using as frames, *Facebook* and *LinkedIn* groups. Target identity/member groups on *Facebook* and *LinkedIn* were cataloged to explore the presence and representation of disability and aging identities in a socially networked setting.

The groups for this study were identified using the search feature designed into the platform architecture, which allow a user to search on specifically designated entities or keywords. Findings suggest that from a policy perspective, institutions need to be cognizant of population characteristics as well as platform opportunities implementing advocacy and relevant support services for people with disabilities and older adults to full ensure engagement and participation.

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1. Introduction

Historically, life and work activities were place-based in the physical environment. However, advances in information and communications technologies (ICT) during the late 20th and early 21st centuries have meant that many everyday life activities from shopping to personal communications, are replicated in online, virtual environments. The "Information Society," as manifest in computing, virtual networks, and data-driven systems has also radically altered more traditional forms of community engagement and employment participation (West, 2009; Hampton et al., 2011), as well the loosening of the physical/geographic dimensions from the social nature of community and the growing prevalence of online social networks to maintain community participation (Ganley and Lampe, 2009). This trend in the broader society has been mirrored in the workplace, where social networks have become central not just to productivity, but to social capital. These technologies and their applications, whether in e-mail or social networking websites, may also help or hinder employee participation and promotion potential, depending on the usability of the ICT, employer and employee readiness (Baker et al., 2006; Bricout, 2004; Fugate et al., 2004). For people with disabilities, as well as the aging, increasingly interacting online, the readiness of social networking sites to accommodate their desire to participate, in conjunction with their readiness as users to maximize the potential of platform interfaces and architecture, are critical to achieving the medium's potential for enhancing community and employment benefits. The occurrence of these activities, evident in their presence on Facebook, LinkedIn and other online communities, represents an important opportunity to reframe and re-conceptualize manifestation of communities especially those in which distributed networks and communities substitute for geographic proximity, offering new opportunities for engagement, especially those who might be functionally limited in terms of mobility.

A variety of social conditions add complexity to the description of social networking and community. Coinciding with the increasing ubiquity of ICTs in contemporary society and work has been the overall aging of the population in developed countries. The graying of society in many developed countries has been the object of a good deal of interest, especially as it impacts the demographic characteristics of the workforce. For employees who may face potential work performance-related limitations, such as a worker "aging into disability," advanced ICTs and associated new media pose a considerable challenge (Baker et al., 2006). For older adults ICT use is predicated on factors such as accessibility, cost, perceived ease of use, perceived usefulness and performance (Arning and Ziefle, 2007; Phang et al., 2006). Questions arise about the level of accessibility and usability of new media and technologies: in particular, whether new technologies are serving as facilitators or barriers to community participation, and what policies and practices can be developed to address this gap (Kaplan et al., 2006; Bricout et al., 2010). If these barriers can be mitigated, aging members of society may be able to harness the potential of these technologies and social media platforms to increase social and work participation. However, if barriers persist, these same individuals are at risk of further exclusion as ICT continues to advance and new media become increasingly important to full engagement in modern life.

Communication-oriented Internet technologies and activities, such as social media and networking sites and blogs, are moving from cutting edge practices to common practice, not just in the course of work-specific functions and tasks, but also in terms of participation in larger communities of practice (CoP). Communities of practice are organized around learning, professional socialization and development activities in a supportive environment (Anderberg, 2007) Less formally organized exchanges are also possible using these media, including the development of peer collaborations and the cultivation of professional connections (Millen et al., 2002; Schleyer et al., 2008). The occurrence of these activities, evident in their presence on Facebook, LinkedIn, and other online communities, represents an important opportunity to reframe and re-conceptualize the operation of community, especially those in which distributed networks and communities substitute for geographic proximity. In addition to bolstering social capital, in the context of the workplace, such tools have potential as possible accommodations, such as telework or distributed work, whether for people with disabilities or aging workers.

This essay explores the interrelationship of community and representation/presence of disability and aging, using as examples targeted *Facebook* and *LinkedIn* groups. The authors' choice of these two sites is correlated to their prominence in social media in the United States and much of the European Union (EU). As of July 2011, *Facebook* had over 750 million active users, 50% of whom used the service on any given day (Facebook.com). This dominance among social networking sites indicates *Facebook's* relevance for study. While *Facebook* is generally associated with community and group interaction, and is increasingly used for work and business related purposes, *LinkedIn* is the largest platform dedicated solely to *professional* networking. With over 115 million registered users in over 200 countries as of July 2011, *LinkedIn* represents an exemplar for those scholars seeking to understand the interplay of employment and social networking (LinkedIn.com).

The impetus of the study was to understand the degree to which people with disabilities, and older adults utilize these websites for social and professional networking. The extent to which older adults are underrepresented may suggest that limitations in website accessibility and usability, are positively related to social exclusion, social status, social participation and capital (Cresci et al., 2010). In addition, the current study examines the way in which the target groups utilize online social networks in order to get a sense of community formation, group identity, and the relevance of these services to employment. Target identity/member groups on *Facebook* and *LinkedIn* were surveyed to explore the presence of identity of disability, aging and group participation in a socially networked, or virtual, setting. The groups for this study were iden-

tified using the search feature designed into the platform architecture, which allow a user to search for specifically designated entities or keywords. Findings raise some interesting possibilities about the ways in which online activity, most commonly viewed as at the domain of young professionals (Skeels and Gruidin, 2009), can be reimagined as an extension of community for people with disabilities as well as the aging. These online social networks have the potential to increase community participation of these individuals.

Given an emphasis on the ways in which social media and social networking websites facilitate the creation of communities, the authors have chosen to take a stakeholder-based approach. This approach emphasizes the multidimensional nature of determinants of engagement in social networking. A stakeholder-based approach also highlights the salience of online social network participation for achieving broader community and employment inclusion offline.

2. Key stakeholders – people with disabilities and the aging

The importance of these technologies comes into focus when we recognize that there are some 51.2 million Americans with disabilities (about 18% of the population) and more than 84 million persons with different types of disabilities in all EU/EEA countries, all part of an estimated 650 million globally (WHO, 2011) who have some kind of long-term or conditional disability, including sensory, physical, mental, or self-care needs (Baker et al., 2010). The related functional impairments may pose a challenge to users of the technologies, impeding access. There remains, in addition, a lack of awareness of the needs of the disability community, either individually or as an underserved group, which may exacerbate a "disability" digital divide in terms of development of social media and online social networking platforms. Once accessible, social media can deliver opportunities for engagement, and specialized information services in multiple formats for people with disabilities. It can also offer enhanced employment opportunities, access to health care information and on-line services, emergency preparedness, and greater participation in a community. Access may be limited, however, by a general lack of awareness of technologies or access options, as well as economic, technological, and regulatory restrictions. For individuals with disabilities, equal access to accessible content, services information, and telecommunications technologies remains a major concern despite the existence of widely promulgated standards for web access (Baker and Moon, 2008; Baker et al., 2009; Klein et al., 2003; Myhill et al., 2008).

In the US, a variety of barriers exist to the full technological participation of people with disabilities, and it has been only relatively recently (2007) for instance, that websites were explicitly recognized as issues of concern. In the EU, the core group of disabled persons for whom e-accessibility is relevant comprises some 84 million persons in Europe, of whom 50 million are in the age range 15–64 and 34 million are in the age range 65 and above (Eurostat). As there is a wide variety of impairments, needs are very diverse and, likewise, a great variety of solutions is needed. Up to 15% of the population across the European Union has a disability, such as a visual, hearing, speech, cognitive, or motor impairment (INCOM, 2008).

In terms of online social media participation, research exploring the participation of people with disability, especially with respect to the use of social media and virtual environments is rather sparse (Forman et al., 2011). This is especially interesting, given one aspect of digital "life" where more than 20% of gamers are believed to have some degree of functional limitation (Ingham, 2008). Research involving online social environments typically was of individuals who frequent chat rooms and other venues of discourse oriented toward the interests of the disabled community. Beyond these specialized settings, little attention has been paid to the inclusion of users with disabilities, in more general, non-targeted virtual environments such as Second Life, or social media platforms such as Facebook and LinkedIn. Additionally, the question of how individuals identify themselves in these virtual environments has received little attention in the literature (Forman et al., 2011).

Another group, that in many respects share characteristics of people with disabilities, especially in terms of social marginalization, are older adults. With the decline in mortality from infectious diseases by the mid-20th century, increasing numbers of Americans reached adulthood and began surviving into old age, a phenomenon termed the "second epidemiological transition" (Grob, 2002). In 1900, only 6% of the population was aged 60 or older. However, by 1995, at least 17% of the population could be considered elderly. Such was the impact of this shift toward a longer lifespan that scholar Howard Chudacoff (1989) has called attention to the emergence of "age consciousness," especially as it related to the growing class of senior citizens. As Woods (2008) notes, "there are an unprecedented number of older people" across the world (p. 2). Figures presented by the United Nations in 2006 show that the number of older people will rise to in excess of 839 million by the year 2025. This is a very significant finding, portending fundamental changes in the areas of healthcare, employment, and social policy.

Research has demonstrated the ongoing potential for physical, mental, and social growth late in life through training, productive activities and positive supports (Ferguson and Goodwin, 2010; Hao, 2008; Voelcker-Reghage and Willimczikm, 2006). The notion of "successful aging" refers to optimal physical, psychological and social possibilities for living among senior citizens. Aging, therefore, has become an intrinsic part of continued participation in the modern social fabric, and it involves not only biological changes that occur across the lifespan, but also reflects the prevailing cultural and societal conventions related to growth and development of individual along the life trajectory (O'Hanlon and Coleman, 2008).

Within the context of community and participation, a recent survey in the UK has highlighted some alarming trends. The Health Survey for England found that 36% of men and 31% of women had little contact with friends in their local community, and that there exists a severe lack of perceived social support. Geographical location (and lack of access to amenities) was

correlated with poorer health in males, while participation in organizations was significantly related to better health in women. Those over the age of 80 were at particular risk of social exclusion, and they were less likely to engage in any form of adult learning. As the Information Age continues to progress and as virtual interactions become more commonplace, these findings point to isolation-related hazards for older individuals unable or unwilling to utilize social networking websites, in terms of heightened social exclusion, as well as diminished community and workplace participation.

It is evident that many biological and social factors influence the experience of aging (Rowe and Kahn, 1998). While there are many functional limitations associated with aging, the scholarly literature is now beginning to emphasize the notion of "healthy" or "successful" aging (i.e., Reichstadt et al., 2010; Westhoff and Hopman-Rock, 2002), in lieu of the older, somewhat anachronistic "deficit model," which attributes problems faced by older workers to their aging processes. Models based on healthy or successful aging attempt to take broader contexts into account. A typical example of this comes from EU policy, which highlights the notion of "productive aging" – keeping people in the labor market longer, rather than "forced" retirement. However, with older age come the inevitable experiences of physical, psychological, and social loss. Such gains and losses are part of the life cycle. Some older persons cope better with these changes than other, and some have better adaptation strategies, which others can learn from. Cognitive decline is a very frequent functional limitation associated with the aging process, and with it comes an array of associated disability and distress, for both the individual and their caregivers. Structural and socioeconomic factors also play a role in further limiting the percentage of older adults in disadvantaged subpopulations that achieve successful aging outcomes (McLaughlin et al., 2010). However, with the advent and use of many new technologies (as highlighted in the current paper), cognitive decline in this population may not be as pronounced as was once thought, due to the preventative nature of engaging in such technological advances. In short, ICTs and the new media they facilitate may act as social supports to keep older individuals engaged in the community and employment.

3. Community and participation

Community can be conceptualized as a bounded place where individuals, groups, organizations and institutions interact. Community also is defined by social networks, social capital shared practices, beliefs and a sense of belonging, and to which properties such as capacity, cohesion, resilience, and vulnerability can be attributed (Partington, 2005; Patterson et al., 2010; Williams, 1999). In addition, communities can be a locus of affiliation or identification (Bricout and Gray, 2006; Williams, 1999). Hence, they can form online, in virtual space, around shared identities (Anderberg, 2007) or various interests, whether shared or competing (Baker and Ward, 2002; Campbell et al., 2009). Although the links are not seamless, online communities and relationships bridge to their offline counterparts, mediated by individual, social and environmental attributes (Mesch and Talmud, 2006). While civic communities, typically defined by political jurisdictions, increasingly have online presences, such as e-government, these formal presences are only one of several ways in which communities operate online. In addition one-fifth of the US population composed of people with disabilities, it is predicted that in the United States by 2030 people aged 65 and older will comprise another 20% of the population, with implications for health care, lifelong learning, and independent living (Massaro, 2003; Sharit et al., 2008). Thus, the community participation of older adults is a focus of contemporary social policy in the United States, the United Kingdom, Canada, and the European Union informed by similar notions of successful aging, defined in part by extended employment and volunteering in which older adults contribute to the market and volunteer sectors (Minkler and Holstein, 2008). The participation of people with disability and older adults in society generally, and in community more specifically, has been the focus of a growing body of literature. Two alternate models of participation have emerged as especially influential in the research literature, each offering important empirically-based insights into the ways in which these populations engage in productive roles and activities. Understanding the parameters of participation particularly in the migration from offline to online contexts, is critical to properly framing the potential of social media to transform the boundaries of community participation.

Two key models of participation have informed contemporary conceptualizations and assessments of social participation: the International Classification of Functioning, Disability and Health (ICF) (i.e., Rejeski et al., 2008; Wilkie et al., 2006) and the Disability Creation Process (DCP) model (i.e., Desrosiers et al., 2004; Desrosiers et al., 2009). Although each is self-contained and generated distinct assessment tools, they are in many ways complimentary; describing complex multi-factorial and multi-dimensional person–environment interactions though a different lens. The ICF defines participation in terms of the individual's involvement in life situations: complex activities that encompass roles, rather than discrete tasks (Jette et al., 2003). Participation is assessed by his or her current or usual environment 'performance' with environment inclusive of the physical, social technological surround. Personal factors, such as background, endowment and adaptation have yet to be specified in a clear taxonomy. The ICF notion of participation puts less emphasis on the place where participation is enacted; in that sense it is a 'generic' perspective rather than one situated in local context and meaning. The ICF permits an evaluation of an individual's competence to participate. In an archival analysis of 1388 older adults, for instance, Rajeski and colleagues found that cardiovascular disease was associated with lower levels of participation, while a weight loss intervention was associated with greater mobility.

As an alternative to the ICF, the DCP model adds an explicit socio-cultural context to social participation which is defined in terms of the effective performance of valued daily activities and social roles, or so-called 'life habits' (Dumont et al., 2004). Situating social participation squarely in a socio-cultural context through 'life habits' valued by the target person adds a helpful dimension to understanding participation (Brown et al., 2004). Findings on the participation of adults using the

Assessment of Life Habits measure have found, in parallel to the ICF-based studies, that physical and mental abilities do play a role in the degree of social participation (Anaby et al., 2009), yet functional capacity does not tell the whole story. Desrosiers and colleagues' (2009) study of 'normally aging' older adults' life habits in a sample of 350 older adults, grouped in three categories: 65–69, 70–74, and 75–79 years of age, found that participation in the older adult sample was fairly constant in the younger cohorts, but declined in the oldest group as fewer valued activities were done. However, satisfaction remained stable across age groups, suggesting both a 'response-shift' (re-evaluation of quality of life indicators) and a continuing engagement in life activities or roles, independent of assessments of capacity or functional independence. The authors point out that participation is a broader concept than functioning or independence, pointing to the role of interdependence in social participation, including, as shall be seen later, participation in the domain of employment and the virtual workplace.

For older adults, social participation in community is critical to the formation of social capital, or reciprocal bonds of trust, and is associated with better health (Richard et al., 2008). The same can be said to be the case for people with disabilities. In the offline world, social participation benefits from resources in the community environment that facilitate social interaction such as sporting venues, performance venues, and venues for food and drink (Richard et al., 2008). In a cross-section study of 282 older adults from low-, average-, and high-income neighborhoods, Richard and colleagues found that more user-friendly neighborhoods that facilitated walking, combined with frequent walking were associated with higher levels of social participation, as was perceived accessibility of key resources and user vitality. Online communities, whether structured formally as 'communities of practice' (CoP) or regularly interacting, self-regulating groups of people with a common interest and a focus on social learning out of which a new knowledge, individual, group or professional identity is formed (Anderberg, 2007; Campbell and Uys, 2007; Hall and Graham, 2004), or simply as a platform for informal exchanges employing the web and social media (Bricout and Baker, 2010) can foster social participation in a manner analogous to offline communities. Thus Internet-based platforms, and more particularly, social media, have the potential to support not only communities of interest, but also toward the development of distributed workplace social networks for people with disabilities and older adults, enhancing not only social learning and knowledge, but also employment related skills and competence.

4. Information and communication technology

Technology, particularly ICT, has the potential to improve the quality of life of for people with disabilities as well as for older adults: to foster lifelong learning and enhance social status (McConatha, 2002). Moreover, the number of ICT users is rising, both among people with disabilities, as well as among older adults. While studies are beginning to appear on the use of the Internet and Internet related information technologies (e.g., Bradley and Poppen, 2003; Finn, 1999; Grimaldi and Goette, 1999; Guo et al., 2005; Seymour and Lupton, 2004), the landscape of the disability divide is just coning clear (Dobransky and Hargittai, 2006; Jaeger and Xie, 2009). Barriers such as cost, accessibility, awareness, and basic interest, have replaced earlier divide issues related to basic access (Baker and Moon, 2008; Bricout and Baker, 2010).

Looking at the older population, a third of adults aged 65 or older are using computers, and there has been a 10% increase in computer usage by older adults since 2004. This proportion is predicted to increase further with the aging of the Baby Boom generation (Cresci et al., 2010; Nahm et al., 2009). Arguably, older adults as well as people with disabilities stand to gain more from information technology, which can serve as a hedge against social isolation, a resource for accessible services and health information, more than any other group in the population (Cresci et al., 2010). Indeed, several studies have found that, contrary to popular conceptions, older adults have both the competence and desire to use ICT (Cresci et al., 2010), and has become nearly an essential tool to them (Jaeger and Xie, 2009). Some particularly striking examples are found in the domain of web-based applications such as online user-created content (UCC), including videos (Ryu et al., 2009). Another domain in which older adults have been found to use web-based applications skillfully includes health information, for example, health intervention (Bond et al., 2010) and in the form of discussion boards (Nahm et al., 2009).

4.1. Web competence

Competence in using the web is critical to engaging the full potential of social media to expanding the workplace community for employees with disabilities and older adults to the benefit of their employability and workplace participation. Studies that examine aging-related changes over the course of adulthood are particularly instructive in this vein. In a regional mixed-methods study of 109 randomly selected individuals in four age categories (18–29, 30–39, 40–54, and 55–80) and three educational categories (primary, secondary, or college equivalent) who used the Internet at least once a month for more than one application (i.e., e-mail), participants were interviewed on their Internet experience and then given a series of nine assignments to assess web-based factual problem-solving competence (Van Deursen and Van Dijk, 2009). The study revealed that educational attainment was strongly related to Web-based factual skill, as was age in an unexpected way; older adults actually conducted fewer irrelevant searches, suggesting that online information skills are related to educational level and experience, rather than a function of age of first introduction to ICT (i.e., youth). A similar conclusion emerged from a quasi-experimental study involving a structured interview, Internet search, and structural knowledge ('Pathfinder') tasks of 50 adults, 40 older adults in two groups (60–70, 71–85) and a comparison group of 10 younger adults (18–39). The study found that knowledge of the Internet was not a unique predictor of web information-seeking performance, and that older adults performed about as well on simple tasks as younger ones (Sharit et al., 2008). Declining cognitive abilities and limited

Internet knowledge, accompanied by a deficit in perceptual speed and processing, may have confounded some older adults who did not do as well on complex information-seeking performance as the younger adults. However, the findings also suggested the possibility that verbal fluency and lifelong learning knowledge might also come into play, positively, for older adults, particularly for those with relatively undiminished cognitive abilities (i.e., 'normal aging'). For other older adults, cognitive training bolstered by good web design should enable finding useful information on the web in a reasonable time, provided that the interactions between Web-based systems and users is symbiotic and evolves to compensate for user changes (Sharit et al., 2008). Clearly, developing and maintaining web competence is important for older adults seeking work-related benefits of social media. Perhaps even more basic to fully engaging with the online benefits, accessibility and usability are a joint function of relevant personal and environmental factors, and thus require a multi-pronged approach to accommodating older adults that targets characteristics of the user, the online platform, the adaptive interfaces and the transactions between them.

5. Accessibility

Cognitive abilities are not the only differentiating factor in online participation by people with disabilities. Racial and ethnic factors (people of color, linguistic minorities) as well as socioeconomic (SES) factors (low SES), often strongly correlated with geography (i.e., inner-city residents), are associated with lower levels of online participation, although there are encouraging trends since 2000 showing Internet use increases in African American and English-speaking Hispanic users aged 65 and older (Cresci et al., 2010). In a two-stage study of 1410 inner city Detroit adults with an average age of 72 years old, computer usage overall was comparable to general samples of older adults (27% vs. 21%), with Internet searches constituting the most common activity, but in this sample, as in general population samples, those with poorer health and lower SES were likely to engage in less computer use (Cresci et al., 2010). This suggests social policies that foster greater computer use and training in the most vulnerable populations within the older adult population as a critical first step towards increasing accessibility.

Drawing upon the still limited sources for informing practice, several broad guidelines are suggested for increasing the online participation of people with disabilities and older adults: (1) increase the usability (end user fit) of online search engines by developing training in search engine use and building search engine features that incorporate 'mental models' to support complex task performance (Sharit et al., 2008), (2) provide tools to assure the quality and veracity of online information (Massaro, 2003), (3) design for ease of use and affordability as features of the technology to promote adoption (Cresci et al., 2010; Ryu et al., 2009), (4) ensure that online applications and content are relevant to older adults goals and needs, which can include reducing the complexity and cognitive demands (Massaro, 2003; Sharit et al., 2008), and (5) provide training in Internet use, use strategies and information skills, as well as knowledge about the Internet (Van Deursen and Van Dijk, 2009; Sharit et al., 2008). Some of these elements can be seen in existing websites, such as the NIHSeniorHealth Website (NIH, 2003). Internationally, the World Wide Web Consortium's (W3C), Web Content Accessibility Guidelines (WCAG) 2.0 launched in December, 2008 provide parallel principles and guidelines for online accessibility from a 'universal design' standpoint aimed at a comprehensive approach to accessibility across populations (W3C, 2008). Guidelines such as the WCAG 2.0 and those proposed here will help bridge the 'digital divide' that separates people with disabilities from opportunities for social and productive activities that otherwise might be beyond reach due to online accessibility barriers; whether barriers to information gathering, learning, informal social exchanges, volunteer activities. The guidelines are also key to access in the domain that is perhaps the single most important factor in retaining independence financially: paid employment. Paid employment, accomplished via ICT from a remote site, whether mobile or fixed, constitutes telework, to which the discussion turns next.

5.1. Telework and social media

Telework, defined as paid work using ICT at least one day a week from a non proximate (out of office) site increases employment opportunities for individuals who are not able to travel to a central location, due to mobility or transportation issues, as well as for those who must alter their schedule due to fatigue or care needs (Baker et al., 2006; Bricout et al., 2010). Given the central role of employment and work in social participation, these features make telework a key tool in remaining engaged in society, and an appealing work arrangement, especially those who have appropriate independent work habits and would benefit from a flexible schedule with performance-based evaluations. Online participation is highly relevant to telework, both as a platform for enhancing work performance, and as a resource for increasing employability (hiring, retention and promotion). Effective telework practices require a good person-environment 'fit', adequate equipment, interfaces and bandwidth and access to online resources (Lee et al., 2007; Leede et al., 2008; Shia and Monroe, 2006; Shin, 2004). Discussions of telework and the virtual (online) environment have tended to focus on intra-organizational exchanges and learning, whether over an intranet or the web, or across dispersed virtual teams. Although attention has been given to the 'richness' of the online media for collaboration (Lee et al., 2007) little emphasis has been paid to the 'richness' of online media, particularly social media, as platforms for work-related social connections, exchanges and learning that enhance employability. Web-based platforms for social interaction and networking, such as blogs have the potential to increase work-related social networks and relationships (Changsorn, 2008). For older adults, social media have the potential to foster participation

in an online community that will promote employability by linking older adults to broader social networks and social capital useful in identifying and securing employment, as well as providing links to online employment sites, websites that offer information, training and knowledge relevant to obtaining and maintaining jobs, or job advancement. In the absence of prior empirical studies in the domain of online communities and employment for older adults, a study of employment-related social media groups was conducted to analyze the characteristics of groups focused solely on employment purposes within the *Facebook* and *LinkedIn* platforms. Census-like data was collected on the groups to understand scope (purpose) and span (number of members) within the sub-group of older adult and disability groups.

6. Methodology

In order to explore the identity representation of both aging (older adults) and disability within these socially constructed virtual spaces, surveys was conducted of member groups within both the *Facebook* and *LinkedIn* platforms. Given the size (in terms of number of participants), malleability, and the presence of formal agencies and groups associated with specific groups/causes currently using the platform, this was deemed the most representative research environment. The data for this analysis were collected through the above activity between July 30th and August 10th 2010 and a similar period in 2011.

These platforms are particularly useful as they offer the freedom of representational choices that range from near correspondence to the real world to complete abstraction. This broad range of categories spans multiple domains with varying degrees of utility to the analysis: wellness or healthcare, advocacy, civic participation, employment, or professional purposes. Interestingly, while *Facebook* was designed to socially connect individuals, users have exploited the uses of this (and platforms like it) for informal business opportunities, support groups, information dissemination, and so on. It should be reiterated that LinkedIn is primarily branded as a social network for employment and professional connections.

There are an estimated 620 million groups in the *Facebook* platform, which has a population/user base of approximately 750 million registered users (O'Neil, 2010; www.facebok.com, 2011). There are about 1013,000 groups and an estimated 115 million members within the *LinkedIn* platform (LinkedIn.com). For context, the *Encyclopedia of Associations* has information on over 135,000 nonprofit organizations worldwide (Encyclopedia of Associations, 2009), although obviously an identity group and a recognized organization are not by any means equivalent.

The groups selected for this study were identified using the search feature common with both platforms. The tool allows a user to search on specifically designated entities or keywords. The keyword/search engine approach has been used successfully in a number of different applications, especially in exploratory designs (Beard et al., 2009; Fang and Lee, 2009; Norris, 2009). Through the search function one can conduct searches for services, groups, individuals, places, events, and so on. Group database records contain standard information: a group charter (can vary in length); identification of group owners and visible members; a log of all notices distributed by the group and when the group was formed. Once the search results were returned, the mission statement of each group was read to verify that the group's main focus pertained to the keywords that were searched. For a group to be included a relationship had to be established to one of the target variables, "aging" (i.e., older adults) or "disability", by reference to several selection criteria:

(1) Within the name and/or charter of the group, does the group use the terms "aging," "senior," or "elder"? For the contrast group, were terms association with "disabilities," "disabled," or suggest the presence of "handicap or impairment" found?
(2) Did the group have more than five members; and is the group English-language based (non-English language terms were not used in the search).

There are known aggregate characteristics of *Facebook* users. The average *Facebook* user is connected to 80 community pages, groups, and events, with the average user creating approximately 90 pieces of unique content each month. This is in the context of over 150 million *Facebook* users accessing the platform via mobile devices each month. Table 1 below depicts a more nuanced comparison of users of both platforms (Quantcast.com, May, 2010). More recent data suggests that the gender difference is narrowing on *Facebook* to 51% Male to 49% Female ratio (http://www.kenburbary.com/2011/03/facebook-demographics-revisited-2011-statistics-2/).

Methodologically, concerns have been raised in the literature about the validity and complexity of conducting behavioral research solely within virtual spaces. Yet, many online platforms present evolving cultures with their own social institutions that are becoming more significant to society at large (Noveck, 2004). A growing number of researchers have demonstrated the feasibility and importance of developing research methodologies that keep pace with the evolving realities of technological change (Boellstorff, 2009). Therefore, ethnographic and other empirical research methods and analyses are critical to understanding how group identities are different in immersive virtual settings from those in the traditional "real" world environment. This study surveyed groups that identified themselves as referencing disability groups as well as those associated with aging or older adults, for comparison.

The returned groups had very similar characteristics, both for the aging and disability searches. These groups were categorized into one of the following "types" of groups: Aging in Place, Community/Participation, Employment, Healthcare/Wellness/Lifestyle, Politics/Government/Civic Engagement, or Professional/Business. Upon further examination of the actual

Table 1
Facebook and *LinkedIn* platform user statistics.

	LinkedIn (%)	Facebook (%)
Gender		
Male	52	45
Female	48	55
Age		
3–12	1	4
13–17	4	22
18–34	26	42
35–49	38	20
50 +	32	12
Race		
Caucasian	83	75
African American	5	13
Asian	7	5
Hispanic	4	6
Other	1	1
Household income		
$0–30 K	11	14
$30–60 K	19	24
$60–100 K	31	30
$100 K +	38	32
College educated		
No college	25	47
College	48	40
Graduate school	27	13

group function, obtained through the group charter, the groups were sorted into the following types: Advocacy, Education, Service, Outreach, or Networking. In the following section, the results of this analysis are discussed.

7. Results

The data collected for this study were strictly descriptive in nature. For this foundational study, the individual cases were sorted thematically by category and analyzed for patterns within the groupings of the keywords used for the search. A unique attribute that was immediately apparent during the search, is that in stark contrast to the technology's efficient distribution of information by groups within the platform database, human error distorted the keyword search and refinement process, such that a question-based rubric had to be developed as an analytic tool to properly sort the groups. For example, a group was defined as having five or more members, with a business or work related theme. All individual support pages were excluded, and the groups had to be focused in the themes in question. The threshold for inclusion was that they not just mention aging or disability within text, but had to clearly make those topics the focus. Table 2 highlights the results from adding these constraints.

Graphs 1 and 2 (below) depict the results from the keyword searches within the platforms that were valid based on the criteria discussed above. As evidence by these graphs, *LinkedIn* (Figs. 1a and 1b) evidenced a far broader distribution of thematic groupings than did *Facebook* (Figs. 2a and 2b). One of the primary causes of this is the greater proportionality of community-focused groups within the *Facebook* platform that the formation of ad hoc community groups is one of the fundamental principles by which the *Facebook* platform operates.

The total number of groups that were returned within the search varied greatly, again reflecting fundamental differences between platforms. Even more compelling is the percentage these returns reflect of the whole. Fig. 2 depicts this variance.

As noted in the Fig. 3 below, *LinkedIn* evinced a greater prevalence in several categories in line with expectations – Employment and Professional/Business focused groups, whereas, *Facebook* evidenced larger numbers in the Community/Participation and Politics/Civics focused groups. Yet there were, however, several surprising outcomes. *LinkedIn* results indi-

Table 2
Analysis of validity of the returned groups.

	2010		2011	
	LinkedIn	Facebook	LinkedIn	Facebook
Total groups matched	1428	3449	2210	7921
Total matched groups – VALID	343	190	695	1052
Percentage of the search that were false hits (%)	75.98	91.79	68.55	86.72

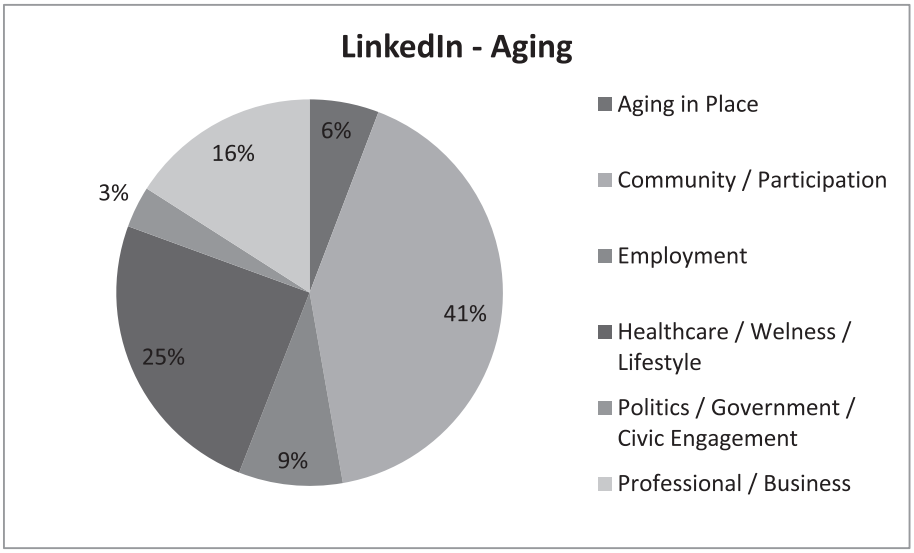

Fig. 1a. Analysis of keyword searches in LinkedIn (2011) Data.

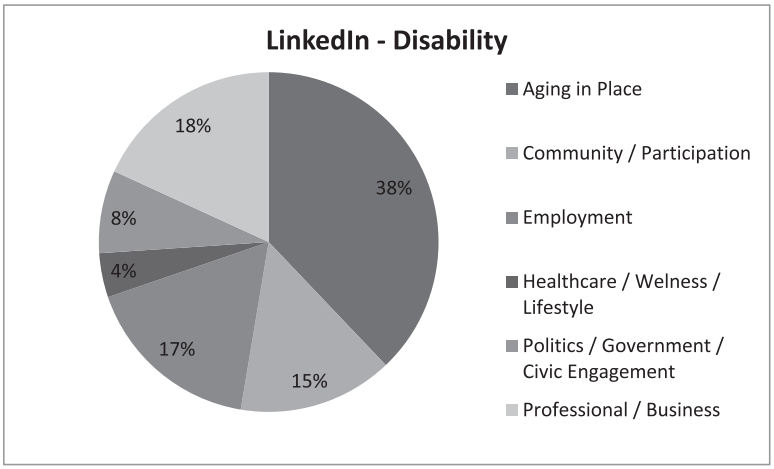

Fig. 1b. Analysis of keyword searches in LinkedIn (2011) data.

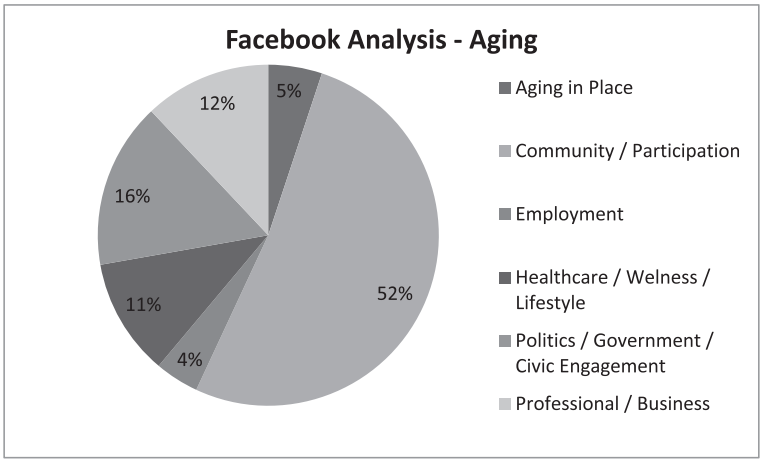

Fig. 2a. Analysis of keyword searches across Facebook (2011) data.

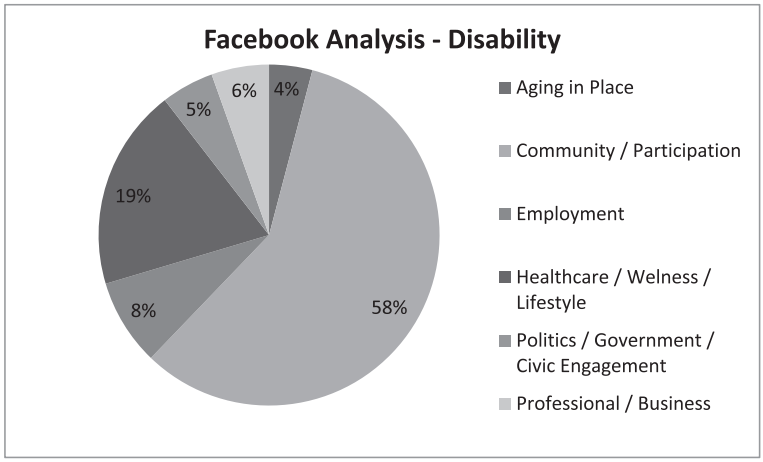

Fig. 2b. Analysis of keyword searches across Facebook (2011) data.

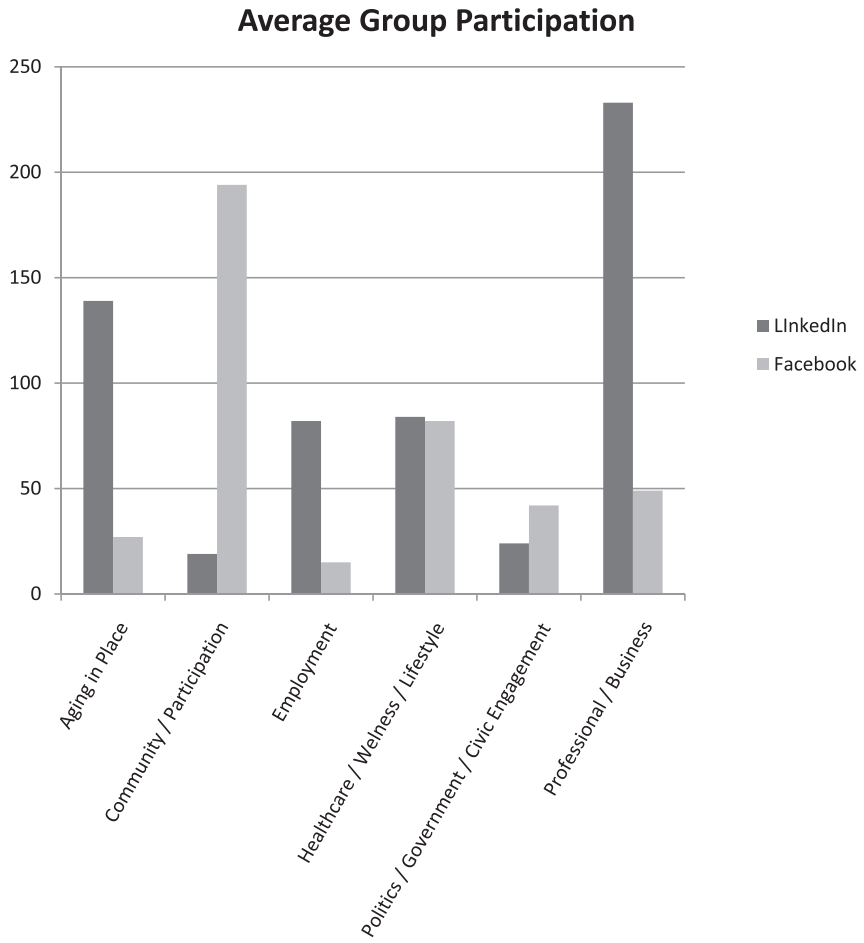

Fig. 3. Average categorical group activity based on number of members in the group (2011) data.

cated a higher percentage of groups within the Healthcare/Wellness/Lifestyle category than did *Facebook*. *LinkedIn*, a platform focused on professional and employment activities barely topped Facebook within the Employment focused category. These results show, while the general consensus depicts *Facebook* as a tool for community development and socially-focused

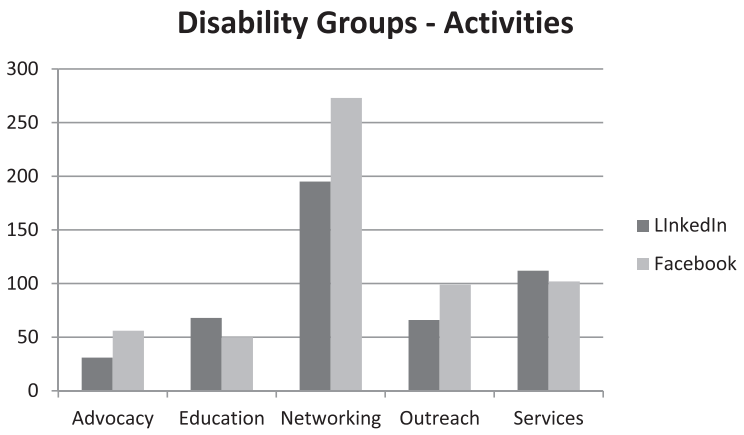

Fig. 4. Categories of group activity within employment and disability groups (2011) data.

activities and paints *LinkedIn* as a primarily business driven tool, the applications for both are evolving to tools used for both professional and social activities.

The participation in these groups also varied greatly. An interesting observation was that the category of groups where LinkedIn experienced higher levels of affiliated group member participation was the inverse of those on Facebook. Groups with the highest participation in Linked In were those with the lowest activities with Facebook and vice versa (see Fig. 3 below). Interestingly, average participation within the Healthcare/Wellness/Lifestyle groups in both platforms was nearly the same, despite the presence of more groups in *LinkedIn*.

Clearly, this level of activity is not sufficient to accurately depict group activities, but it can, nonetheless, serve as an indicator of the group's reach. To address this issue, the group descriptions and first page of wall posts were analyzed to understand what activities were the foci of these groups. The results are found in Fig. 4 below. The results of this analysis are in line with what would be expected based on common use perceptions of the different platforms. The one interesting data point from this analysis is that there are more networking-specific opportunities in the groups catalogued in Facebook as compared to the LinkedIn platform.

Given that this study is exploratory, future research might wish to extend their analysis further. The use of a multimodal system of in-world surveys and interviews, in addition to social and cultural modeling employing advanced analytical tools such as QSRI's NVivo qualitative software, appears to be an appropriate next step, as the data management burden is increased with a far larger data set.

8. Conclusion

Users across all categories of social networking are fast approaching one billion in number, and apparently continuing to grow globally in membership and importance as new user demands adapt and expand the online platforms' applications. It has been recognized as an important platform in modern, global society, not just from the standpoint of social communities, but also, as a tool for government, business, and within the workplace. At issue is what types of users will spur the adaptations, and how ready are the platforms to accommodate such adaptations. For older adults, who are increasingly interacting online, the readiness of social networking sites to accommodate their work-related community needs, in conjunction with their readiness as users to maximize the potential of platform interfaces and architecture, are critical to achieving the medium's potential for enhancing workplace community benefits.

This study looked at two major social networking platforms to compare the access the participation of people with disabilities as well as aging users, as manifested by self-indentifying participation in online groups. Actual participation (as indicated by group activity) was revealed to be low as a proportional activity of groups). This suggests that there is an unexploited potential for increasing the channels of participation available to people with disabilities and older adults, provided that personal (i.e., competence, functionality, etc.) and environmental factors (i.e., medium accessibility, usability, etc.), and the transactions between them, are maximized.

The results of the platform analysis show that regardless of the underlying infrastructure or ethos of the initial platform, the needs of people will be met through unique and innovative adaptations as long as the technology is flexible and responsive enough to permit it. In other words, the technology must be receptive to the needs of older adults forming workplace communities and related activities online, both as a matter of design and of functionality. Ideally, as the technology matures and innovations are introduced, the user base also matures and vice versa in a reciprocal, mutual fashion. Unfortunately, this feedback loop from user groups to system design and functionality is far from a given, particularly for older adults for whom the popular misperception as computer or web illiterates can pose a barrier to participation in the development and implementation process. It is important to take into consideration potentially game-changing pockets of innovation associated

with these technologies that help scaffold the learning and participation of groups that are unfamiliar with the potentials of these technologies. These innovative engagement practices and perspectives on participation are particularly important for the social media engagement of populations that remain on the far side of the digital divide. Useful models can be distilled, articulated and adapted to specific purposes, ultimately to be disseminated to specific user groups. This will entail an educational process for social network designers and providers as well as advocacy and relevant support services for older adults extending their workplace communities online.

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