Late Adapters? How Social Workers Acquire Knowledge and Skills About Technology Tools

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Late Adapters? How Social Workers Acquire Knowledge and Skills About Technology Tools

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ABSTRACT

Little is understood about the scope of information and communication technology (ICT) use in practice for agency-based social work professionals, and still less is known about how such practitioners acquire and avail themselves of opportunities to learn about ICT tools. This study asked a sample of social work field supervisors (n = 371) to describe their personal and professional ICT use, to rank the technological sophistication of their agency, to describe the barriers and facilitators to ICT use in their organizations and to operationalize environmental opportunities for acquiring new skills and knowledge. The authors examine factors that may influence technology use: asking if organizational culture is related to uptake in the professional context, and if self-reported individual resistance to innovation and change can explain voluntary adoption of ICT tools. The results offer a portrait of how agency-based social workers are using technology in personal and professional life, describe how these supervisors learn about developing technologies for practice, and highlight the gaps in technology infrastructures among agencies, pointing to directions for further exploration.

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Competing values framework; information and communication technology; passive innovation resistance; technology adoption

Introduction

Use of information and communication technologies (ICT) has exploded across personal and professional life, reshaping culture and altering human relationships. Perrin and Duggan (2015) report that currently in the United States, 84% of households have Internet access, and 68% of adults in the United States are smartphone owners (Anderson, 2015). Around the world, the use of mobile technologies is proliferating: of the world’s estimated 7 billion people, 6 billion now have access to mobile phones (Zheng & Ni, 2006).

Technologies have infiltrated our personal and professional selves at nearly every level of existence, changing the essential activities that comprise work within many sectors of the economy. The rise of telecommunications has accelerated the sharing, delegation and delivery of information, escalating...
the demand for accountability and increased efficiencies. While many markets and areas of the U.S. labor force have embraced the multiplying potential of technology, social work has been slow to do so (Parrott & Madoc-Jones, 2008; Steyaert & Gould, 2009).

Social work’s uncertain attitude toward technology is evident in professional training, despite the fact that continuing education in social work is based on the imperative to avoid professional obsolescence (Faherty, 1979; Kane, Hamlin, & Green, 2001). Implementation of continuing education for social workers in the United States is characterized by “a large lacuna with respect to quality assurance” (Thyer & Pignotti, 2016, p. 137). Yet the real imperative of exchanging evidence of continued professional training for ongoing professional licensure guarantees that social workers regularly confront a bewildering array of options that make sporadic delivery of learning objectives (Funk, 2007; Thyer & Pignotti, 2016). In this environment, it is unclear if agency-based social workers have access to professional development that addresses evolving technologies for professional practice.

**Literature review**

The encounter between social work and technology has generated debate, dialogue, and literature. Yet documentation of actual use among agencies and practitioners is rare, and no census mechanism exists to chart how (or how effectively) practitioners in the United States are adapting practice to meet a changing culture (Berzin, Singer, & Chan, 2015). This study offers a point in time snapshot of how professional social workers; those who are agency-based supervisors, make voluntary use of technology in their personal lives, how they use technology professionally in the context of an agency, and how they learn about new technological developments relevant to their work.

A vast body of academic and popular sources documents the explosion of technology use across the lifespan in the developed world (Campbell & Park, 2008; Smith, 2012). Though it comprises a significant proportion of the U.S. economy, at 5% of gross domestic product (Privett & Erhun, 2011; Sherlock & Gravelle, 2009), the nonprofit sector has only gradually adopted technology tools as central to infrastructure and service delivery. A 2010 nationwide survey of 1,100 nonprofits found that nearly all nonprofits report using technology to further their mission, yet two thirds reported that technology was underutilized within their organization (Geller, Abramson, & de Leon, 2010). Technology appears first as a tool to manage resources: most nonprofits are tracking financial and operations data and use it to make decisions about budgeting or programs (NTEN, 2012). Client-facing services are slow to be transformed by technology.
Measured in fiscal terms, technology is not a priority for nonprofits. Geller and colleagues (2010) found that organizations devoted an average of 4.2% of annual spending to technology, while funders report that they do not set aside resources specifically to cultivate technology planning or use by grantees (Gahran & Perlstein, 2012).

The potential of technology to transform social work has motivated impassioned pleas to speed the pace of adoption (Berzin et al., 2015; Goldkind & Wolf, 2014) while simultaneously generating dark forecasts of a future in which the relational dynamic of the discipline is replaced by a mechanical imperative to manage information (Kreuger, 1997). In this climate of conflicting advocacy, little empirical research documents how technology is being used in practice, a gap which slows adoption by the guardians of professional knowledge and resources—from the institutions that provide social work education, to agencies, to federal and state entities that mandate programs and disburse funds (Ceranoglu, 2010; Berzin et al., 2015). The transformation of culture enforced by the proliferation of technology challenges social work practice at the macrolevels, mezzolevels, and microlevels (Groshong & Mishna, 2015). A limited literature of small-scale studies documents that nearly all extant consumer technologies have been deployed in limited contexts in the field (Reamer, 2013): 2015 meta-analysis. Chan and Holosko (2015) assessed 17 published articles documenting technology-based interventions and found that all indicated positive intervention outcomes, asserting that most were of “good” or “fair” quality in terms of their validity. In a 2007 study, Zhang and Gutierrez describe the specific demands of social service organizations as a unique set of conditions for the introduction of technology. According to the authors, the professional values of social workers require that the project of ICT-adoption be articulated in terms of utility not just to employees, but additionally to the organization and to clients. Also, these new systems or practices need to be advocated by professional peers, and not pose a threat to the existing organizational ecology of resources, including competency, hours, funding and hardware. At the individual level, research has aligned technology adoption with the variables of individual age (greater age corresponds to elevated resistance), with the degree to which adoption of technology is voluntary, with the perceived ease of uptake and utility of the technology, and with the subjective norms of the environment in which the technology is presented (Venkatesh & Bala, 2008; Venkatesh, Morris, Davis, & Davis, 2003). In the particular context of social work, resistance to the adoption of technology has been associated with the paucity of technological training available in the majority of social work degree programs, with the lack of professional standards that define technological competency, with debate over ethical implementation, and with concerns that technology might
interfere with the relationships on which social work is based (Berzin et al., 2015; Reamer, 2015; Wolf & Goldkind, 2016).

**Environmental learning opportunities for social workers**

There is a developing consensus that effective and responsible use of technology is an ethical responsibility for social workers (Harris & Birnbaum, 2014; Reamer, 2013). Around the world, ongoing education is defined both as a fundamental right of social workers (International Federation of Social Workers, 2010), and as an ethical responsibility for which the individual practitioner must assume responsibility (Hussein, 2011). In the United States, Continuing Professional Development (CPD) or Continuing Professional Education (CPE) is a requirement for professional accreditation (National Association of Social Workers). Maintaining professional social work licensure is regulated at the state level, and nearly all states require CPE and documentation of those activities (Congress, 2012).

Beyond broad agreement on ongoing learning as a core professional value, however, there is a paucity of literature describing the efficacy of formal continuing education (Congress, 2012; Nissen, Pendell, Jivanjee, & Goodluck, 2014) or the mechanics by which lifelong learners within the field continue to discover learning opportunities, practice new skills, or gain expertise (Schinke, Smith, Gilchrist, & Wong, 1981). Little of the scant existing literature is based on research. The call to lifelong learning in social work is vague compared to other disciplines, and students, if acquainted with the contract for lifelong learning they assume by adopting the Code of Ethics, leave formal training without a map of how or where such learning may be sought. Though new educational guidelines addressing technology in social work have come into being, these standards attest to the importance of technology without offering specific curriculum or articulating required professional competencies (Berzin et al., 2015).

**Theoretical framework**

This study explores how social work supervisors make use of information and communication technologies personally and professionally. The study looks at whether individual and agency characteristics influence the uptake of these tools. This design uses the Passive Innovation Resistance (PIR) Scale to interrogate social workers’ individual attitude toward innovation, charting its relationship to their use of technology both personally and professionally. Additionally, we use the Competing Values Framework to explore the influence of organizational climate on environmental opportunities for professional development focused on new technologies. Lastly, the study asks
participants to describe which professional learning opportunities they employ to advance their understanding of technology for practice.

**Passive innovation resistance**

This study assumes that resistance to change is a natural and expected phenomenon (Bovey & Hede, 2001; Erwin & Garmann, 2010), and makes use of the construct of PIR, defined by the literature as “resistance to changes imposed by an innovation” (Talke & Heidenreich, 2014). An influential construct, which describes how consumers adopt new products (Heidenreich & Handrich, 2014), PIR targets the intrinsic and unconscious human response to the encounter with specific innovation, before an individual has deliberately elected to evaluate a novel tool (Heidenreich & Kraemer, 2015a). PIR is critical, and distinct from active innovation resistance or tool-specific resistance, which takes place after a tool or strategy has been evaluated (Talke & Heidenreich, 2014). PIR is conceptualized to include an individual’s resistance to change as well as their satisfaction with the status quo (Heidenreich & Handrich, 2014). Thus, a person with higher levels of PIR will be satisfied with the tools and strategies they already use and less open to change.

**Organizational culture and the competing values framework**

Scholars of management agree that organizational culture is critical in fostering effectiveness, adoption of innovation, staff satisfaction and other organizational characteristics (Erwin & Garman, 2010; Schneider, Ehrhart, & Macey, 2013). One theoretical framework for understanding organizational culture is the Competing Values Framework (CVF).

CVF organizes the opportunities, challenges, and focal points that executives must manage across into four quadrants. It calls attention to “how opposing values exist in organizations” and how “individual organizations are likely to embrace different mixtures of values that are reflected in their desired ends and in the means to attain them, such as their structural designs and mechanisms of co-ordination and control” (Zammuto & O’Connor, 1992, p. 711). CVF is widely used in the literature, and, as an assessment, has been administered to more than 10,000 organizations globally (Ostroff, Kinicki, & Tamkins, 2003). Depicted as a four-quadrant model, the horizontal axis represents organizational focus as either internal or external; the vertical axis focuses on organizational adaptability as either flexible or controlled (Adams, Zafft, Molano, & Rao, 2008). The quadrant focused on here, the Open Systems model emphasizes readiness for change and innovation, and the values are associated with growth, creativity, and adaptation (Rojas, 2000). This study explores the effect of organizational culture, and specifically an Open Systems orientation, on the adoption of ICTs in both agency and personal life.
**Study questions**

This exploratory study sought to address these primary questions:
1. How are agency based social work supervisors using information and communication technology in their personal and professional lives?
2. What, if any, impact do individual or organizational characteristics have on participants’ technology use?
3. How and at what rates are agency-based social work supervisors accessing life-long learning opportunities related to technology for social work practice?

**Methods**

**Design**

An electronic survey was used to collect data for this study. The sampling frame consisted of a cohort of social work field supervisors situated in human services settings in the Tri-State Region (this commonly denotes New York State, Connecticut, and New Jersey). The list was accessed with written permission from the investigators’ field director. An e-mail invitation and survey link were e-mailed anonymously to the 1,600 field supervisors, inviting them to participate. This was followed by three e-mails and one phone call to all of the possible respondents. Responses were collected anonymously online and supervisors did not submit the names of their organizations. This research was conducted with Institutional Review Board approval from the authors’ university.

**Sample**

A total of 371 completed surveys were collected. Despite employing tactics to increase response rate suggested by Dillman (2000) and others, the response rate was 23%. Although this response rate was lower than desired, it is not far outside the norm for online survey responses (Fricker & Schonlau, 2002; Kaplowitz, Hadlock, & Levine, 2004).

The sample for this investigation is comprised of \( n = 371 \) social work supervisors currently employed in human service settings in a large metropolitan area in the northeastern United States. The majority of the participants are women (87%) who hold a Master’s degree in Social Work (90%). The remainder of the sample held BSW degrees (1%), JD and MBAs (1% total), other masters degrees (4%), with 4% holding Ph.Ds. With respect to age, most of those who participated in the survey are 51–60 years old (34%), with 31–40 year olds (21%), and 41–50 year olds (26%) being roughly equally represented; and younger supervisors 21–30 (7%) and older supervisors 61–70 (12%) having less representation in the sample. Lastly, field supervisors in the sample appear to have significant practice experiences with
42% of them holding 21 or more years in the field; and 20% of them holding at least 16 years in the field. All told, 93% of the field supervisors had a decade or more practice experience in agency settings.

**Instrument**

Data was collected using an online survey comprised of two standardized measures: the Passive Innovation Resistance (PIR) Scale (Heidenreich & Handrich, 2014) and the Organizational Climate Measure (Patterson et al., 2005). The Child Welfare Electronic Advocacy Survey, developed by McNutt (2007) and adopted in previous work by (Goldkind, 2015), was used to capture both personal and professional technology use as well as to solicit the barriers and facilitators of technology use. The Child Welfare Electronic Advocacy Survey, developed by McNutt (2007) and adopted in previous work by (Goldkind, 2015), was used to capture both personal and professional technology use as well as to solicit the barriers and facilitators of technology use. These measures, their reliabilities, and validities are discussed in detail as follows.

The PIR Scale (Heidenreich & Handrich, 2014) is used to measure individual personal orientation to innovation and change. The authors used exploratory and confirmatory factor analytic techniques to provide acceptable evidence of construct validity. In a companion article (Heidenreich & Kraemer, 2015b), acceptable evidence of unidimensionality was provided and composite reliability exceeded .80. In the context of this study, Cronbach’s alpha coefficient for the overall scale is (α = .75). The PIR is an 18 item scale tapping both personality-specific and situation-specific measures that assess individual differences in consumer predisposition to resist innovations, which emerges from their inclination to resist change and to gravitate toward the status quo (Heidenreich & Handrich, 2014). Items are scored using a 7-point Likert-type scale from 1 (strongly disagree), 2 (disagree), 3 (somewhat disagree), 4 (neither agree or disagree), 5 (somewhat agree), 6 (agree), to 7 (strongly agree). Appendix A contains the exact items of the scale.

The Organizational Climate Measure, this measure is comprised of three of the 17 subscales derived in the construction of a multidimensional measure of organizational climate using confirmatory factor analysis techniques (Patterson et al., 2005). The first subscale, Outward Focus, is composed of five items; Innovation and Flexibility is composed of six items and Reflexivity is composed of five items (see Appendix B). Items are scored using a 5-point Likert-type scale from 1 (never), 2 (rarely), 3 (sometimes), 4 (often), to 5 (frequently). As reported by Patterson and colleagues, the internal consistency reliability coefficients, that is, Cronbach’s alpha coefficients (α=) are .83, .86, and .76, respectively. In the context of this study, the corresponding reliability coefficients are .73, .92, and .88, respectively.
McNutt’s Child Welfare Advocacy Survey was adopted in order to measure professional and personal technology use (2007; Goldkind, 2015). The organizations who participated in the study were asked to describe their level of use of an array of 27 electronic advocacy strategies, including social media tools, for example, Facebook, blogs and podcasting, as well as direct electronic communication tools such as e-mail, chat rooms, and Listservs. Specifically, the participants were asked to indicate whether they used each strategy (a) not at all, (b) sometimes, or (c) regularly. For the purposes of operationalizing the use of electronic advocacy strategies, a unidimensional summary score, (i.e., the mean of the electronic strategy items) was estimated for each of the organizations in the study sample. The internal consistency reliability of this summary measure is $\alpha = .90$.

Respondents were asked to report where they learn about new technical developments related to professional practice using a list of eight possibilities: professional journals I purchase and read on my own time; professional journals procured by my agency and read on agency time; professional association meetings I attend on my personal time; in-service professional development workshops; external professional development workshops I am sent to by my agency; continuing education courses I am required to take for licensure; and postgraduate courses I seek out for my personal satisfaction. Participants scored their use of each of these on a 5-point Likert-type scale from 1 (never), 2 (rarely), 3 (sometimes), 4 (often), to 5 (frequently).

Last, in order to understand how respondents view the technology environment in their agencies, a question was included asking respondents to characterize the technology environment as:

- **Struggling**: “We are struggling, we have a failing infrastructure, and our technology time and budget generally go toward creating workarounds, repairing old equipment, and duplicating tasks.”

- **Functioning**: “We keep the lights on, we have basic systems in place to meet immediate needs. Leadership makes technology decisions based on efficiencies, with little-to-no input from staff/consultant.”

- **Operating**: “We keep up, we have stable infrastructure and a set of technology policies and practices. Leadership makes technology decisions based on standard levels according to industry/sector information and gathers input from technology staff/consultant before making final decisions.”

- **Leading**: “We’re innovators, we recognize that technology is an investment in our mission, and leadership integrates technology decisions with organizational strategy. Technology-responsible staff are involved in overall strategic planning.”

This characterization is based on a U.S. nonprofit technology support organization’s annual survey of the nonprofit technology landscape (NTEN, 2014).
Findings

The purpose of this investigation is to describe patterns of personal and professional technology use in a sample of agency-based social worker practitioners’ use of ICT tools. Looking at whether organizational or individual characteristics impact their adoption. Additionally, we interrogate how participants access the available opportunities for professional learning about new ICT developments in the field. To that end, the participants were asked about their personal and professional use of various ICT tools. Table 1 reports the findings with regard to personal use.

As seen in this table, respondents make regular use of the most ubiquitous technologies of interpersonal communication. Both e-mail (99%) and texting (98%) for personal use are nearly universal, while four out of five respondents use social media (82%). Newer technologies, and those used for purposes other than interpersonal communication, drop sharply: 27% of those surveyed use personal fitness technologies, while blogging and Twitter both show a usage rate of 19%.

The relevant data describing professional use of information communication technologies is presented in Table 2. Again, the imperative of communication informs those categories with the highest use: e-mail (99%) and texting (83%) are the ICTs deployed most frequently in a professional context, followed by web-based conferencing (75%). A variety of technologies, including online surveys (70%), electronic records management (68%), cloud computing/file sharing (57%), video teleconferencing (54%), case management software (52%), social media (51%), are less pervasive, but still employed by over half of respondents. And, in the professional context, the drop off in usage across technologies is much less steep: falling gradually from message boards/listservs (50%), online petitions (47%), and data management (44%), to online voting (34%), fund raising (31%), and geographical information systems/mapping (26%). All other types of professional use entries are endorsed by less than 25% of the study participants.

Data showing participants’ description of where they learn about new technical developments related to professional practice is shown in Table 3. The portrait of how respondents gain new knowledge about technology is stark. Across all items, less than 40% of respondents even “sometimes”

Table 1. Social workers personal technology use.

<table>
<thead>
<tr>
<th>Variable name</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mails</td>
<td>291</td>
<td>99.0</td>
</tr>
<tr>
<td>Texts (SMS)</td>
<td>287</td>
<td>97.6</td>
</tr>
<tr>
<td>Blogging</td>
<td>57</td>
<td>19.4</td>
</tr>
<tr>
<td>Twitter</td>
<td>55</td>
<td>18.7</td>
</tr>
<tr>
<td>Social Media (Facebook, Friendster, MySpace)</td>
<td>240</td>
<td>81.6</td>
</tr>
<tr>
<td>Quantified Self (Fitbit, Jawbone, Heartrate monitors, etc.)</td>
<td>80</td>
<td>27.2</td>
</tr>
</tbody>
</table>

Note. SMS = Short Message Service.
encounter new learning about technology, and those categories most frequently endorsed are those that are agency sponsored: in-service professional development workshops (39%), and external professional development workshops I am sent to by my agency (35%).

Participants in the study were next asked to characterize the “technology environment” in their agency on a scale ranging from struggling to leading,
described previously. The frequency distribution of the responses to this question finds that 8% of the respondents characterize their agencies as “struggling,” more than a quarter (28%) indicate that their agencies are “functioning,” half (50%) describe their agencies as “operating,” and the remainder of the respondents (14%) describe their agencies as “leading.”

Bivariate correlations were used to assess the relationship between the social workers characteristics and their personal and professional technology use. A Pearson’s correlation was computed to assess these relationships. None of the personal technology use relationships were found to be significant while, the relationship between professional technology use and innovation/flexibility, outward focus, reflexivity, passive innovation resistance, gender, academic background and leading technology environment were all found to have a significant correlation coefficient. These findings are summarized in Table 4.

In order to better understand technology use at the organizational level, a series of one-way analyses variance were conducted, in which social workers who characterized their agencies as (a) struggling, (b) functioning, (c) operating, or (d) leading with respect to technology use were compared with regard to their own personal and professional use of the ICTs under investigation. With respect to personal use, no differences were found among social workers in the four types of agencies ($F = 0.25, \text{df} = (3,283), p = .86$). However, differences were found among social workers with respect to their use of professional technology ($F = 5.45, \text{df} = (2,283), p = .001$). Follow-up pairwise comparisons found that agency social workers who characterized their agencies as “leading” with respect to their use of technology ($\text{mn} = 1.61$) were significantly different from agency social workers in “struggling” agencies ($\text{mn} = 1.49, p = .04$), “functioning” agencies ($\text{mn} = 1.44, p < .001$), and “operating” agencies ($\text{mn} = 1.50, p < .01$). Also, social workers in “operating” agencies were found to be significantly different from social workers in “functioning” agencies ($p < .05$).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Professional Technology Use</th>
<th>Personal Technology Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and flexibility</td>
<td>.213*</td>
<td>−.007</td>
</tr>
<tr>
<td>Outward focus</td>
<td>.158*</td>
<td>−.011</td>
</tr>
<tr>
<td>Reflexivity</td>
<td>.140*</td>
<td>.010</td>
</tr>
<tr>
<td>Environmental opportunities</td>
<td>.248*</td>
<td>.123</td>
</tr>
<tr>
<td>Barriers and facilitators</td>
<td>.070</td>
<td>−.089</td>
</tr>
<tr>
<td>Passive resistance to innovation</td>
<td>−.116*</td>
<td>.017</td>
</tr>
<tr>
<td>Age</td>
<td>.069</td>
<td>−.140</td>
</tr>
<tr>
<td>Gender</td>
<td>−.153*</td>
<td>−.032</td>
</tr>
<tr>
<td>Academic background</td>
<td>−.166*</td>
<td>−.052</td>
</tr>
<tr>
<td>Years in field</td>
<td>.094</td>
<td>−.149</td>
</tr>
<tr>
<td>Leading vs. nonleading org</td>
<td>.202*</td>
<td>.008</td>
</tr>
</tbody>
</table>

*Significant at the .05 level.
In order to possibly explain these differences, a second series of comparisons was undertaken, in which social workers who described their agencies as “leading” with respect to technology were compared with their counterparts in the remaining three types of agencies. More specifically, these two subgroups of agency social workers were compared on a number of characteristics which might be able to “interpret” the meaning of the distinction between “leading” and “nonleading” technology agencies.

More specifically, the two groups of agency social workers were asked to describe their agencies’ (a) organizational “climate”; (b) barriers to, and facilitators of, technology use; and (c) environmental opportunities for technology use. In addition to these organizational factors, the following individual factors were also examined: (d) resistance to technology, (e) age, (f) gender, (g) academic background (MSW vs. all other), and (h) years of experience.

With respect to “organizational climate,” our measure taps the following three dimensions: (a) innovation and flexibility, (b) outward focus, and (c) reflexivity. Each of these dimensions is a multi-item scale comprised of 4-point Likert items wherein higher scores are indicative of greater innovation/flexibility, outward focus, and reflexivity. As seen in Table 5, the mean scores for these three measures indicate that this sample of agency social workers consider their agencies to be innovative, “forward leaning,” and reflexive. With respect to the information communication technologies under investigation, both personal and professional use were assessed by asking respondents to indicate their degree of use on a 3-point scale, 1 (do not use), 2 (use sometimes), and 3 (use regularly). As seen in Table 5, on average, the respondents do not use information communication technologies extensively. The PIR Scale was used to determine the degree of resistance exhibited by the respondents to use of technology. Higher scores on this measure indicate a greater resistance to using technology. As displayed in Table 5, the mean of this measure indicates that, on average, there is not a particularly strong resistance among the respondents to using technology.

Each of these eight variables: (a) organizational climate, (b) environmental opportunities, (c) organizational barriers and facilitators of technology use, (d) resistance to technology, (e) age, (f) gender, (g) academic background

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>( \bar{x} )</th>
<th>( \text{Std(X)} )</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational climate: Innovation &amp; flexibility</td>
<td>323</td>
<td>3.53</td>
<td>.78</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Organizational climate: Outward focus</td>
<td>323</td>
<td>3.93</td>
<td>.65</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Organizational climate: Reflexivity</td>
<td>323</td>
<td>3.46</td>
<td>.77</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Passive innovation resistance</td>
<td>301</td>
<td>3.26</td>
<td>.60</td>
<td>1.41</td>
<td>5</td>
</tr>
<tr>
<td>Barriers &amp; facilitators</td>
<td>274</td>
<td>6.91</td>
<td>2.20</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Environmental opportunities</td>
<td>283</td>
<td>2.43</td>
<td>.844</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Personal use of ICT</td>
<td>294</td>
<td>1.98</td>
<td>.40</td>
<td>1.17</td>
<td>3</td>
</tr>
<tr>
<td>Professional use of ICT</td>
<td>294</td>
<td>1.50</td>
<td>.23</td>
<td>1.07</td>
<td>2.48</td>
</tr>
</tbody>
</table>

ICT = Information and Communication Technology.
(MSW vs. all other degrees), and (h) years of experience was used as a covariate in a series of one-way analyses of covariance in which the “factor” or grouping variable regroups the agency social workers as employees of a “leading” technology organization or not. Prior to conducting these eight analyses, a t-test comparing agency social workers in leading and nonleading (struggling, functioning, and operating) agencies on professional use was conducted to ensure that recoding the grouping variable from a four-category to a two-category version did not change the prior finding that agency social workers who characterized their agencies as “leading” with respect to technology use report significantly greater use of professional technology than do their counterparts in struggling, functioning, and operating agencies. Dichotomizing the agency social workers into those working in “leading” as opposed to those working in “nonleading” agencies did not change the original finding ($F = 12.16$, df = (1,285), $p = .001$).

None of the eight analyses of covariance—which individually controlled for (a) organizational climate, (b) environmental opportunities, (c) organizational barriers and facilitators of technology use, (d) resistance to technology, (e) age, (f) gender, (g) academic background (MSW vs. all other degrees), and (h) years of experience—was able to reduce the statistically significant mean difference between agency social workers working in leading versus nonleading agencies regarding the professional use of information communication technologies to statistical insignificance. Moreover, a ninth analysis of covariance in which all eight factors were simultaneously controlled fared no better. None of the possible “explanations” of the difference in professional technology use between social workers working in agencies which they characterize as “leading” as compared to their counterparts who characterize their agencies as “nonleading” is able to account for the observed difference in professional technology use.

**Discussion**

These findings present a snapshot of U.S. agency-based social work practice with respect to technology usage, challenging the simple notion that social workers are inherently suspicious of technology, and that agencies are universally behind the curve on technology adoption. While social worker supervisors may not be informed assessors, few define themselves as resistant to using technology, most are embracing technology in a context of personal choice, and a majority (64%) define their agencies as “operating” or “leading” in the context of technology adoption. While only 14% describe their agencies as regularly conversant with technological innovation, very few identify them as unable to engage technology at all.

The findings suggest that nearly all respondents are regularly conversant with more than one technology, refuting the narrative that social workers
are techno-luddites. The pattern of voluntary personal suggests that this population is motivated to adopt ICTs by an interest in interpersonal communication. This pattern of use is mirrored in the professional context, where technology is most used to communicate. The next most-used category of technologies (including online surveys [70%], electronic records management [68%], cloud computing/file sharing [57%], video teleconferencing [54%], case management software [52%], and social media [51%]) is, at least in part, comprised of techniques to manage resources and increase the efficiency of work processes. These findings may suggest that those ICTs in most frequent use are those which allow users to perform traditional tasks more effectively, rather than those that enable novel strategies of interaction, advocacy, or interpretation of data.

The pattern of professional technology use by social workers described here is, at least in part, determined by the agencies in which they work: individual usage reflects an organization’s emphasis on and ability to commit resources to the project of incorporating technology. Indeed, our results document that an agency’s profile of technology uptake is highly correlated with a supervisor’s use of ICTs: showing a significant difference in professional technology use between social workers working in agencies which they characterize as “leading” and their counterparts who characterize their agencies as “nonleading.” This challenges hypotheses that attempt to locate resistance to technology within the individual, and supports research like that of Stam, Stanton, and Guzman (2004) and Venkatesh and colleagues (2003), which aims to add the variable of context to describing the infusion of technology into the individual routines that ultimately characterize the implementation of organizational goals.

However, the portion of the study dedicated to describing ongoing professional learning yields the finding that only a small percentage of respondents sought out opportunities to learn more about technology for professional use. Most participants received continuing education about technology only as it was provided by their agency. Frost (2001) points out that individual lifelong learning is not a spontaneous phenomenon, and that it relies on the engine of organizational context. As such, the field of social work has designated employers and agencies as responsible for promoting lifelong learning in order to support the ethical obligation of maintaining meaningful services for clients (McConnell, 2012; NASW, 2008), and the absence of such systematic support could inhibit the quest to acquire appropriate technological skill. If, as described here, agency-driven professional development is the primary conduit for creating awareness of the potential of technology to enhance practice, then this should become a site for the energetic infusion of information and innovation. Others have suggested elsewhere that effective introduction of technology into social service will require that new technologies be articulated in the terms of the elemental
values that inspire social work: relationship, advancement of mission, and the imperative of client benefit (Kreuger & Stretch, 2000; Zhang & Gutierrez, 2007).

Ultimately, these results invite research to query the assumption that underlies the imperative to infuse technology into social work practice: that technology-enabled social work is an ethical imperative because it serves clients better. If professionals in leading technology agencies use more technology, do they offer more effective services? This question is unanswered here, and should inspire debate.

**Limitations**

This study offers a look at how agency-based social work supervisors make use of popular technologies in the distinct contexts of personal and professional life. We ask if select organizational or individual characteristics influence the adoption of technology tools. Additionally, the study aims to document the channels for on-going professional learning. Both the sample and the web-based data collection tool used in this study are limitations that could inform the design of conceptually related research.

Eysenbach (2004) notes the biases that can result from web-based surveys (i.e., the nonrepresentative nature of the Internet population) as well as the self-selection of participants (volunteer effect). Wyatt (2000) echoes similar concerns, but suggests that cost efficiencies, coupled with the ease of implementation and execution make the use of electronic surveys compelling. Given the subject matter, and the pervasive belief that technology uniformly yields benefit, respondents may reflect extremes of attitude toward ICTs. Given the lack of scholarship focusing on continuing education for social workers broadly, and on technology topics specifically, the authors believe that these limitations do not outweigh the value of the research.

Another limitation is the lack of information about practice settings. A full 20% of the sample characterize their agency as focusing on mental health, however, without additional information describing service type, annual budget or mission, it is difficult to surmise more about the differences a setting might imply for technology usage. In terms of the sample, it is limited to social work supervisors, and it is largely female, age 40 to 60, with 16-plus years accrued in the field. Though this population does not describe how a generation of native users of technology are incorporating ICT into their work, it does represent a demographic that is responsible for conveying professional knowledge in agencies—which are the primary setting for the newest generation of social workers. Respondents to this survey are the gatekeepers of practice know-how, those who direct students in their field placements and who oversee and evaluate entry-level social workers (McPhail, 2004). The
results from this study do not, however, allow us to generalize across gender, to speak to how agency administrators make use of technology or define their agencies in terms of technological fluency, or to have a sense of how new social workers, born into a technology-rich environment, would respond to these questions or conditions.

**Future directions**

Defined by the mandate to engage the fit between person and environment, the discipline of social work must attend immediately to the accelerating impact of technology on individuals, culture, and their mutual interaction across the terrain of social and professional life. Preliminary research documents the hesitant pace of technology adoption across the field (Goldstein & Glueck, 2015; Stam et al., 2004), yet the methodology of this study (which asks participants to describe their use of specific technologies) as well as the findings (which document the ubiquitous use of technology to enhance professional communication, and moderate rates of use of technology for management tasks) point to the need for research that more clearly delineates within the category of “technology,” as it documents the phenomenon of uptake. The successful integration of technology into professional practice may require that research further refine the description of cultural, structural, or conceptual barriers to technology adoption (reaching beyond classic extrinsic limitations of funding, time, and training) and begin to define the terms that make technology relevant to agency-level workers in order to posit an alternative model by which it can be made accessible and compelling to agency-based social workers. If, as this study suggests, professional social workers do not implicitly resist learning to use new technologies, can emerging research document how the introduction of technology reflects or amplifies organizational culture and relationships, or suggest how agencies can begin to engage technology to evolve innovation in practice, rather than merely to seek maximal efficiency of an aging paradigm?

Research such as this study, which documents that only 14% of social work supervisors define their agencies as “leading” in technological terms, makes clear the need for resources that support technology adoption by agencies. While some resources—like funding—represent well-articulated needs, other facilitating forces have yet to be defined by professional dialogue. How could funders, administrators, or practitioners facilitate knowledge transfer between those agencies who have seen technological success and those that struggle still? What kinds of conversations or practice best challenge the bias that the relational core of social work is threatened by the advent of technology? Is the limited saturation of agency-based social work by technology a reflection of persistent systemic inequality—that is, is innovative service delivery the unique purview of privilege? Which technologies, once in use, truly
benefit clients? Last, and critically, given the new Council on Social Work Education Educational Policy and Accreditation Standards Standard in the United States, how will schools of social work convey the imperative of evolving technological literacy to the newest generation of social work professionals?

**Conclusion**

This research yields a snapshot of technology adoption by social work supervisors working primarily in the area of mental health in a metropolitan area of the northeastern United States. While specific in scope, the study shows that the majority of these professionals define their agency setting as technologically functional, though few identify theirs as leading. They use technology in their personal lives, and use it to communicate and to enhance workflow in the workplace. Few among respondents sought to expand their relevant professional knowledge about technology. The research suggests that the areas of agency-sponsored professional development, client facing technology interventions, and the dissemination of practices out of leading technology agencies may be particularly potent locations for intervention in the service of accelerating the adoption of technology across the field of social work.

**References**


Appendix A

Passive Innovation Resistance Items
1. I generally consider changes to be a negative thing.
2. I like to do the same old things rather than try new and different ones.
3. I’d rather be bored than surprised.
4. If I were to be informed that there’s going to be a significant change regarding the way things are done at work, I would probably feel stressed.
5. When I am informed of a change of plans, I tense up a bit.
6. When things don’t go according to plans, it stresses me out.
7. Often, I feel a bit uncomfortable even about changes that may potentially improve my life.
8. When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.
9. I sometimes find myself avoiding changes that I know will be good for me.
10. I often change my mind.
11. I don’t change my mind easily.
12. My views are very consistent over time.
13. Overall, my personal need for innovations in the field of technological products has been by far not covered in the past.
14. Overall, I consider the number of innovations in the field of technological products as being too low.
15. Overall, I consider the pace of innovations in the field of technological products as being too low.
16. In the past, I was very satisfied with available technological products.
17. In my opinion, past technological products were completely satisfactory so far.
18. Past technological products fully met my requirements.

Appendix B

Competing values framework items

Outward Focus
1. New ideas are readily accepted here
2. This organization is quick to respond when changes need to be made
3. Management here is quick to spot the need to do things differently
4. This organization is very flexible, it can quickly change procedures to meet new conditions and solve problems as they arise
5. Assistance in developing new ideas is readily available

Innovation & Flexibility
6. People in this organization are always searching for new ways of looking at problems
7. This organization is inward looking; it does not concern itself with what is happening in the external environment
8. Ways of improving service to clients are not given much thought
9. Client needs are not considered top priority here
10. This organization is slow to respond to the needs of the client

Reflexivity
11. This organization is continually looking for new opportunities in the environment
12. In this organization, the way people work together is readily changed in order to improve performance
13. The methods used by this organization to get the job done are often discussed
14. There are regular discussions as to whether people in the organization are working together effectively
15. In this organization, objectives are modified in light of changing circumstances
16. In this organization, time is taken to review organizational goals and objectives.