



Practice Innovation through Technology in the Digital Age: A Grand Challenge for Social Work

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GRAND CHALLENGES FOR SOCIAL WORK INITIATIVE

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Grand Challenge 9: *Harness Technology for Social Good*

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The Grand Challenges for Social Work are designed to focus a world of thought and action on the most compelling and critical social issues of our day. Each grand challenge is a broad but discrete concept where social work expertise and leadership can be brought to bear on bold new ideas, scientific exploration and surprising innovations.

We invite you to review the following challenges with the goal of providing greater clarity, utility and meaning to this roadmap for lifting up the lives of individuals, families and communities struggling with the most fundamental requirements for social justice and human existence.

The Grand Challenges for Social Work include the following:

1. Ensure healthy development of all youth
2. Close the health gap
3. Stop family violence
4. Eradicate social isolation
5. End homelessness
6. Promote smart decarceration
7. Reduce extreme economic inequality
8. Build financial capability for all
9. Harness technology for social good
10. Create social responses to a changing environment
11. Achieve equal opportunity and justice
12. Advance long and productive lives

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Practice Innovation through Technology in the Digital Age: A Grand Challenge for Social Work

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Information and communication technology (ICT) has the potential to dramatically shift and enhance social work practice in the coming decade. Integrating technology into social work and creating practice innovations through ICT will make transformative social change possible. Technology integration can create practice that includes flexible, on-demand, personal, and individually-paced services. Potential integration of specific technologies, including gaming, gamification, mobile technology, social media, robotics, the quantified self, and wearable technologies represent tremendous potential for practice gains. Beyond specific technologies, there is the opportunity to transform the social work profession to be ready to respond to and leverage any technology that becomes available. This paper delineates these possibilities and the specific goals for achieving this challenge.

Key words: technology, mobile, social media, social work practice, digital, innovation

Information and Communication Technology (ICT) is transformational in its power to connect, create access to, and embolden new opportunities to rethink social work practice. Though the possibility for practice innovation through digital technologies has been documented (e.g., Barak & Grohol, 2011), social work practitioners and scholars remain hesitant to drive and fully embrace this movement. As the world becomes increasingly reliant on technology, a grand challenge for social work is to harness technological advancements and leverage digital advances for social good. Meeting this challenge would result in more accurate, timelier targeted services. Social service recipients would benefit from improved assessment, intervention, and real-time feedback. Social services would be available to people who traditionally have been excluded because of geography, transportation, and scheduling barriers. Enhanced by innovative integration of ICT, social work would have a broader reach to the benefit of society as a whole.

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Compared to the business sector, social work has been slow to adopt technology (Zorn, Flanagan, & Shoham, 2011). Limited resources, ethical and legal considerations, lack of training, and social work's historical reliance on face-to-face communications have fueled this lag. Despite the slow start, ICT is beginning to permeate social work structures. Social workers use technology for administration in human service agencies and for communication in practice. These basic uses represent a fraction of technology's capacity to enhance practice and to reshape social context (Goldkind & Wolf, 2015). Social work has an important role to play in not only harnessing the power of ICT to improve practice, but in ensuring that ICT is developed to support social good.

Although technological innovation continuously alters the landscape of human possibility, it does not guarantee the momentum towards the values of social justice. Social work is both uniquely positioned and ethically obligated to ensure that the drive of technological evolution is a project open to all, and that it does not replicate or amplify existing inequalities. (Goldkind & Wolf, 2015, p. 85)

LEVERAGING TECHNOLOGY FOR PRACTICE INNOVATION IS A COMPELLING CHALLENGE

Harnessing ICT for social good has the potential for large-scale social impact. More than 2 billion personal computers are in use (Credit Suisse, 2015), and more than 3.2 billion unique subscribers are using mobile technology throughout the world (GSMA & ATKearney, 2013). The use of mobile technology use alone represents 47% of people on the planet; therefore, nearly half of the world's population can access services, information, and support wirelessly.

In addition to granting access to a global marketplace, ICT also connects populations previously marginalized by geography, disability, or economics. The widespread availability of mobile technology represents a dissipating digital divide between wealthy and poor (James, 2011). Wireless technologies (e.g., WiFi, 4g) are removing the economic barriers faced by those previously unable to connect to the Internet or receive online services or support. Such technologies also provide access across rural and urban areas and among populations previously cut off from wired infrastructure.

The compelling nature of this challenge stems from not only the magnitude of use, but also the possibility of solutions. Digital and technology-based solutions have the power to create massive change and radical transformation in who is served and how. Technology has fundamentally shifted the way humans communicate with each other and their environment (Mishna, Bogo, Root, Sawyer, & Khoury-Kassabri, 2012), made disruptive shifts in philanthropy (Arrillaga-

Andreesen, 2015), and created transformational opportunities for new interventions in mental and behavioral health practice (Barak & Grohol, 2011; Chan & Holosko, 2015).

Three facts make the challenge of integrating technology and social work practice a compelling priority for both the profession and the general public. First, the professional reach of social workers is unparalleled in human service delivery. There are more social workers (640,000) providing services than all other mental health care professionals combined, including mental health counselors and marriage and family therapists (166,300), psychologists (160,200), psychiatrists (25,080), and school and career counselors (262,300) (Bureau of Labor Statistics, 2015). Second, the small body of literature on the integration of practice and technology comes mostly from psychologists and counselors rather than social workers (Singer & Sage, 2015). This translates into a gap between the direct practice expertise of social workers and the growing body of literature on how and when to best integrate technology into practice. Third, although many social workers find themselves using technology with their clients, several limitations prevent the intentional integration of technology into practice (Mishna et al., 2012):

- Limited education and training prevent many practitioners from knowing how to incorporate technology effectively (Mishna, Bogo, & Sawyer, 2015).
- Limited exposure to innovative applications of technology to therapeutic work creates misperceptions about their use (Freddolino & Blaschke, 2008; Langlois, 2011; attempts to respond to this limitation can be seen through increasing literature on this topic Groshong & Mishna, 2015), social work participation in podcasts such as the Social Work Podcast¹ and the inSocialWork Podcast,² and social work participation in the international organization, human services Information Technology applications (husITa).³
- Limited evidence related to the uses of technology also prevents their widespread adoption. A recent systematic review of social work interventions using technology found that out of 17 studies that met criteria for good validity and high intervention fidelity, only three evaluated the role that technology played in the intervention (Chan & Holosko, 2015). The implication is that there are very few social work interventions that use ICT, and even less empirical information about the role that the technology plays in the intervention.
- Limited financial resources hinder the adoption and testing of technologies in the field. Although the availability of mobile technology, wireless services, and low-cost apps has

¹ Available at <http://www.socialworkpodcast.com/>.

² Available at <http://www.insocialwork.org/>.

³ For more information, visit <http://www.husita.org/>.

removed several barriers, social workers are adapting and modifying technologies developed for nonsocial work purposes. Though many sectors are developing technologies that will improve the emotional, behavioral, and cognitive well-being of people, the promise of innovating and integrating technology into social work practice has yet to be realized.

Considering the reach of social work, the potential for innovation, and the inevitability of social workers using technology in practice, social work must meet this grand challenge to harness the benefits of ICT.

BENEFITS TO SOCIETY

Flexible and on-demand services

Existing social services are limited by geography, office hours, provider training and characteristics, and cost. Social work has the opportunity to significantly reduce those barriers by integrating ICT into practice. Doing so enables people to receive services over the internet, cell phones, instant message chat, social media, games, and in virtual reality settings (Barak et al., 2009; Kumar et al., 2013). People in remote locations who lack access to transportation, are homebound, need to or prefer written over spoken communication, or face limiting disabilities can now access services through ICT social services (Barak & Grohol, 2011; Brownlee, Graham, Doucette, Hotson, & Halverson, 2010).

Integrating screening and identification with social media has the potential to serve billions of people. For example, Facebook partnered with Forefront: Innovations in Suicide Prevention and the School of Social Work at the University of Washington to launch new tools on the social media site to help support people who have indicated risk for suicide.⁴ The tools allow users who see a post that suggests the author might be considering suicide to access a series of response options. The person who flags the concern is encouraged to message the person about their concern, contact another Facebook friend for support, or connect with a suicide helpline. Facebook will also review flagged posts, creating multiple opportunities for intervention. Crisis chat lines and other text-based services provide 24/7 access for those who prefer texting or who want to remain anonymous.

ICT-enhanced services do not exclude face-to-face social work, but instead can work to support traditional models. For example, ICT enables social workers to decide whether to provide just

⁴ See <http://www.intheforefront.org/forefront-and-facebook-launch-suicide-prevention-tool>.

text-based therapy, or to augment face-to-face intervention with texting with a client (Dubus, 2015). Indeed, the field will advance when it bolsters the work of traditional practice with the use of technology to flexibly and effectively meet the needs of consumers.

Personalized and individually-paced services

Traditional services are also limited by rigid structures and timeframes. For example, clients often wait three weeks for an intake appointment, wait another three weeks to be assigned a therapist, and then have weekly appointments dictated by either treatment manual or agency protocols. Interactive computer-, web-, or app-based programs enable the consumer to get the services they need at their pace and when they want them. Self-paced treatment has been shown to enhance individual commitment and participation in treatment (Proudfoot, 2013).

The most recent programs and apps modify content based on user input, providing a personalized treatment experience. Mobile devices allow constant access, can be programmed with alerts, can do in-the-moment recording and assessment, and deliver intervention at set times.

Supplementing traditional apps with global positioning system (GPS) technology (present in many mobile devices) allows behavior tracking that can even have built-in alerts to notify the user when they are in a no-go zone (e.g., a bar or casino). Research suggests interventions that use these modalities, including GPS and self-paced internet modules, often with cognitive behavioral interventions, create positive outcomes and increased effectiveness (Griffiths, Farrer, & Christensen, 2010; Lintvedt et al., 2013). As personalized services become more sophisticated, the challenge for social work is to understand when, where, and how to work with these self-paced technologies to improve outcomes for consumers.

USING TECHNOLOGY FOR PRACTICE INNOVATION IS FEASIBLE

Social work has integrated and leveraged technology in the past, and constantly develops new ways to harness this potential. Recent accomplishments across a range of technologies suggest that they can and will be successfully applied for social work practice.

A comprehensive review and metaanalysis found that ICT mental health services were effective in reducing client symptoms and improving functioning (Barak, Hen, Boniel-Nissim, & Shapira, 2008). Importantly, ICT technologies appeal to populations that have not had access to traditional social services. For example, young adult men—a demographic that traditionally eschews therapy—have been successfully engaged using social media (Best, Manktelow, & Taylor, 2014). Sexual minority youth have found online environments to be safer than offline

environments and were more interested in engaging in clinical social work services online than offline (Craig, McInroy, McCreedy, Di Cesare, & Pettaway, 2015).

Gamification and gaming

A growing number of interventions are applying *gamification*, the integration of gamelike mechanics to nongaming environments, to support the learning of specific behaviors (Langlois, 2011). Reward and recognition systems, such as badges, promote positive in-game behavior to be used in other environments. Research has shown the effectiveness of gamification in the treatment of depression (Rao, 2013), substance abuse, and violence prevention (Schoech, Boyas, Black, & Elias-Lambert, 2013).

In contrast to gamification, *gaming* represents the incorporation of actual games into an activity, in this case a therapeutic intervention. One example includes the video game Tetris used effectively as part of therapeutic treatment approach for posttraumatic stress disorder (Holmes, James, Coode-Bate, & Deeprose 2009). Han and colleagues (2010) used gaming for symptom reduction in clients with schizophrenia. Further extensions of therapeutic interventions relying on virtual gaming worlds provide opportunities for simulation and role playing (Gaggioli & Riva, 2007). Other researchers have integrated three-dimensional computer gaming for clinical work (Matthews & Coyle, 2010). A more basic, but impressive, use of gaming is in the treatment for Cognitive Enhancement Therapy (CET), which uses computerized problem-solving tasks in addition to a face-to-face group intervention to treat schizophrenia. Results demonstrate how this intervention not only improves cognitive functioning and social skills but also stops grey matter tissue loss in the brain (Eack, 2012).

Such success of using ICT to enhance practice represent both the feasibility and the possibility for further work in this area. Though there is a need to consider practical, regulatory, and ethical considerations to practicing in the digital age (Dombo, Kays, & Weller, 2014), social work has made progress. Many of these strategies are in their infancy with huge opportunities to transform practice (Goldkind & Wolf, 2015; Schoech, Boyas, Black, & Elias-Lambert, 2013).

ACHIEVING PROGRESS IN THE NEXT DECADE

Technological innovation is not only about products and platforms, which will continually change; it is about integrating these changing products to meet the aims of the social work field. Different technologies can be leveraged in ways not previously considered. Mobile technology, social media, robotics, gaming, gamification, the quantified self, and wearable technologies represent avenues to create change in how social workers understand and intervene in social

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problems. There are technologies that have yet to be discovered that can be integrated into our problem-solving skill set. So, it is not the methods or the technologies themselves that are the practice opportunity, it is what these technologies could mean for our field.

Solving this challenge could mean creating new opportunities for engagement, intervention, and assessment over the next decade. New technologies have the potential to shape training opportunities, shift assessment and intervention approaches, and reshape the professional–client relationship. These could in turn change the way consumers of social services experience services and improve outcomes.

Reshape training opportunities

Each year, internships train and allow thousands of social work students to confidently provide social services to Consumers. Integrating digital communications, including social media, into social work training provides opportunities to engage with students on a different level. It influences how students will come to practice, and their competency in accessing and being part of this digital climate (Hitchcock & Battista, 2013).

Audio podcasts

Students are increasingly using audio podcasts as an adjunct to traditional written material in social work education. Audio podcasts provide students with the ability to “learn on the go,” and address learning needs for students with visual impairments. They can also be used as part of a comprehensive training program to improve dissemination of programs and practices; provide “booster” sessions; and improve treatment adherence, fidelity, and provider acceptance.

For example, agencies can use podcasts when rolling out an empirically supported intervention (ESI). Knowing that providers will see clients with a variety of needs—not just those that can be met by the ESI—the agency can use short audio recordings to improve treatment adherence and fidelity. Prior to each session, social workers can listen to a two- to three-minute summary of the goals, rationale, and interventions used in the session. These audio booster sessions are available as part of a podcast series that social workers can access on their smart phones. Pilot research by Salloum and Smyth (2013) found that student interns and postmasters-level clinicians found podcasts useful in implementing a manualized treatment.

Other technology-based training opportunities

Though podcasts have been used successfully and have a clear link to education, the use of other technologies are only beginning to be explored. Early research suggests virtual reality can be

used to improve clinical training and provide simulated experiences to support work in the field (Yellowlees & Cook, 2006; Reis, Freire, & Monguet, 2010). The creation of avatars may be used to further enhance social work training and provide students practice opportunities with feedback (Eun-Kyoung & Lee, 2014). Used in other fields, but not consistently in social work, gamification may provide new opportunities for badges and incentive structures that may enhance learning outcomes. Furthermore, integrating mobile technologies into the classroom environment helps students rethink their application to practice.

What classroom technology use can achieve

Technology-based training opportunities support practice across geographic locations. For example, ICT allows deployed members of the military to attend accredited social work graduate programs. Videoconferencing and online mechanisms provide new possibilities to cross former geographic boundaries of field placement. They also provide ways to connect to supervision and course material in the moment for simulation training.

Technology provides a way to prepare social workers for today's clients. Integrating multiple technology platforms into the training space prepares social workers for practice with people whose relationships are ultimately and completely influenced by technology (Perron, Taylor, Glass, & Margerum-Leys, 2010).

Technology also offers a platform on which to teach conceptual frameworks rather than teaching discrete technical skills in a decontextualized manner. There are increasingly more practice cases available for social work educators to generalize conceptual frameworks that map the right tools for the right tasks.

Lastly, classroom technologies provide the bridge between classroom learning and technology use in practice. Technologies have become vital to frontline practice processes, such as service user engagement, need assessment, intervention for behavioral changes, and program evaluation (Chan & Holosko, 2015). Introducing technologies in the classroom setting allows students to experiment with and test technologies in the safety of the academic setting.

Shift assessment and intervention approaches

Whether or not the field will achieve a future when “nearly anything a social worker does face-to-face could theoretically be done online” (McCarty & Clancy, 2002, p. 153), ICT has the bold possibility to transform its intervention approaches within the next decade.

Artificial intelligence

Technology provides access to real-time assessment, intervention, and feedback (Kumar et al., 2013). It provides the opportunity to provide crisis intervention in the moment through mobile applications or even robotics. Consumers would benefit from the integration of artificial intelligence into intake phone calls. Intake phone calls could be analyzed in real time using algorithms to detect optimal response patterns, improving client satisfaction, and improving client–therapist match. These “artificial intelligence” technologies have revolutionized customer service operations and could be modified to improve consumers’ experiences with social service delivery.

The quantified self

The potential exists for assessment to go beyond self-reporting through the use of constant biological signaling to supply information. *The quantified self* refers to collecting data about daily life using wearable sensors. It expands the potential for clients to gather constant data that can be used for assessment and intervention purposes. GPS technology can track activity using real-time location data. Sensors that create targeted interventions aimed at responding to changes in noise, body metrics, ingestion, and location have begun to create a practice environment that extends far beyond the traditional therapeutic context (Goldkind & Wolf, 2014).

Real-time tracking and interventions across multiple technology platforms can help create more individualized care models. Blending multiple sources of digital data and intervention create the possibility to personalize therapy creating a blend of supports for each client (Barak & Grohol, 2011). Furthermore, it provides enhanced opportunities for client self-management (Craig & Calleja Lorenzo, 2014).

Treatment fidelity through ICT

ICT can enhance treatment fidelity through standardized instructions and algorithms that ensure intervention procedures and contents are followed. ICT can also be used to track treatment fidelity and encourage adherence to protocol. For example, Sage (2014) documented a case of a medium-sized nonprofit agency that offered a range of social services and used blogging to support their intervention fidelity. The agency employed facilitators in different regions to meet family members and child welfare stakeholders and discuss child safety concerns. Coordinated via a blog, the practitioners could practice independently yet coherently implement the intervention as planned. Compared to general social work interventions, treatment fidelity in ICT-enhanced interventions is in fact more widely upheld; for example, among the 17

technology-enhanced interventions Chan & Holosko (2015) reviewed, 82% had specific strategies to enhance treatment fidelity, compared to only 39% of nontechnology enhanced interventions (Tucker & Blythe, 2008).

Technology also stands to shift practice in the next decade by providing social workers and their clients with more simulated testing environments. Social work practice that takes advantage of virtual reality (VR) environments and gaming may employ these techniques (Gregg & TARRIER, 2007; Rothbaum, Malcoun, Rizzo, & Josman, 2010). The use of VR environments is not just a novel approach to traditional treatment. For example, Virtual Reality Exposure Therapy enables community dwelling veterans to address PTSD symptoms in a virtual combat environment, overcoming a known treatment barrier in addressing PTSD in combat veterans (Rizzo, John, Newman, Williams, Hartholt, Lethin, & Buckwalter, 2013).

Access to specialized populations

Technology provides opportunities to provide specialized populations access to social work practice. There are social workers in almost every system (e.g., education, justice, mental health, welfare, medicine, policy, law); therefore, it has the greatest potential to serve people who are involved in multiple systems (e.g. child welfare, juvenile justice), or whose problems and concerns do not fit within existing frameworks. Unfortunately, this breadth comes with a lack of depth. Most social workers receive masters-level advanced generalist training, which allows them to work across systems and with a variety of problems. A common student complaint is that social work training is not specialized to address specific problems.

The ICT revolution challenges this assumption by demonstrating the possibility to reach as many individuals in the “long tail” (i.e., the “head”) of a bell curve (Anderson, 2008). ICT enables social workers to provide services to more consumers with fewer common problems. For example, agency-based social workers often work with disruptive disorders such as attention deficit hyperactivity disorder (ADHD). Social workers who develop expertise in working with comorbid ADHD and depression (Singer, 2006) are unlikely to find many youth who are clients at their agency who will benefit from that expertise. Using internet technologies to reach thousands of consumers, social workers will be able to provide specialized services to many youth with unique problems. For social workers who do focus on creating this specialized knowledge, ICT becomes the pathway to apply that knowledge. And for clients with distinct needs and profiles, ICT allows much broader access to social workers who can meet their needs. Thus, the “long tail” of consumer needs is more likely to be addressed now with ICT than previously possible.

These opportunities form the basis of a new practice context in which data is widely available, care is shaped by virtual and face-to-face opportunities, social workers are available to reach the broadest population of clients, and professionals wield multiple support mechanisms for their clients.

Reshape the professional–client relationship

A profound way ICT can make progress in the next decade is to reshape the professional–client relationship. A multiyear research project by Mishna and colleagues (2012) found that technology tends to “creep in” to the professional–client relationship. ICT can reshape communication between clients and practitioners, support new thinking about the roles of the social worker, and create new opportunities for collaborative problem-solving.

New methods of communication

Communication between clients and practitioners looks different with the inclusion of ICT, including the sending and receiving of texts from clients; being available to clients 24/7; and the potential interactions between clients and practitioners on social media (Mishna Bogo, Root, Sawuer, & Khoury-Kassabri, 2012; Reamer, 2013). New methods of communication impact not only the availability, but also the timing and extent of therapeutic interactions. While interactions may be brief, these methods pave the way for continuous and 24/7 exchange.

Rethinking social work roles

ICT also paves the way for new thinking about the boundaries of the professional relationship. While these boundaries have been set forth to prevent exploitation or harm, (British Association of Social Workers, 2002; National Association of Social Workers (NASW), 2008), the contemporary professional–client relationship is in fact multifaceted. Social workers can serve in traditional roles in a therapist-patient relationship, or may see enhanced roles as facilitator, organizer, or support-builder. Given the proliferation of social media and technology-based communications, the boundaries of social workers may shift in their attempts to build networks of support, cultivate external support systems, and aggregate multiple support avenues. No longer is the activity confined to the office or the designated therapeutic environment. Social work roles may also shift as access to more readily available information leads practitioners to play the role of aggregator and legitimizer of information sources. Some argue that these shifts create new informational roles for the professional (Parton, 2008).

Collaborative problem-solving

Technology also allows enhanced participation in prevention and intervention efforts, leading to more collaborative therapeutic problem-solving. Social media becomes a powerful tool for leveraging the collective crowd to engage in these efforts. Virtual communities and social media platforms provide new opportunities to engage wider networks of support and the “crowd” role in problem-solving. Technologies such as podcasting and photovoice enable anyone (including consumers of social services) to *tell their stories*. Currently, consumer voices are part of the conversation when the profession invites them to be part of the conversation. Having ready access to the lived experiences of consumers relocates the center of authority from social work professionals to people who are the traditional consumers of social services. The availability of such stories paves the way for new approaches to collaborative problem-solving.

To support these new relationships, may require new boundary definitions or new approaches to the practitioner-client relationship. O’Leary and colleagues (2013) criticized that the existing professional code of ethics may not pay enough attention to why and how boundaries are set. One possible solution is adopting a more contextualized and dynamic construct of the professional–client relationship. It is likely that technologies can enable social work professionals to achieve this goal. At present, a social media user can arrange different types of users to view his or her profile information at different privacy levels. As the functional features of social media sites are becoming more advanced, future technologies in principle may allow social work professionals to negotiate and indicate different relationships. Service users may also accept, reject and indicate particular types of connection defined by professionals. Technologies, therefore not only create the space for new relationships and new boundaries for clients and professionals, but also may be used to support these new roles.

WHAT WILL MEANINGFUL PROGRESS LOOK LIKE?

Seeing how far social work has come in its relationship with technology makes progress in a decade not only promising, but inevitable. Technology shifts at a rapid pace and social work is poised to be part of these advances. Social workers can begin to play a more active role in guiding the development side with their content knowledge and exploiting technology created for other purpose by ensuring the following markers of meaningful progress.

Significant shifts to curricula and pedagogy

Accreditation bodies across the globe, such as the NASW, Association of Social Work Boards (ASWB), and the Quality Assurance Agency for Higher Education (QAA), support technology

inclusion and have set new standards technology support regarding learning and practice (NASW & ASWB, 2005; QAA, 2008). However, these standards mostly note the value of technology and do not suggest concrete curricular arrangement. Hill and Shaw (2011) and Watling and Rogers (2012) have identified the salient questions regarding the effect of technology on social work practice, but they have not offered much at the pedagogical level. Further progress will only be achieved with significant changes to social work training and pedagogy that supports technology infusion across courses and across schools (Craig & Callega Lorenzo, 2014; Hitchcock & Battista, 2013)

Specific targets

1. Educational research grants to develop reliable and valid measures to evaluate the development of digital literacy among social work students and practitioners
2. Commitment from Deans and Directors from teaching and research-intensive schools to support and value educational research as a legitimate form of scholarly inquiry
3. Commitment from Deans and Directors to expand curricula that incorporate the use of technology in social work and to encourage faculty to work in this area
4. Development of an accessible repository of technology-related assignments, syllabi, and teaching materials that meet accreditation standards
5. Freely accessible webinars and podcasts for social work faculty on current trends in technology and practice

Social work research in technology

Investment in research around social work practice and technology is critical to harnessing this potential. A focus on evidence-based practice requires that technology use comes after a successful demonstration of efficacy. A lack of empirical research on technology-based interventions has inhibited practitioners (Ceranoglu, 2010). Funding significant research in this area and testing its use would remove this barrier to full implementation. Furthermore, it supports the understanding of what technologies are best incorporated in social work.

Specific targets

1. Incentive grants to fund interdisciplinary research on integrating technology into social work practice
2. Focused grants that support research on technology in social work. Specific research priorities would include the following:

- a. Research on technology-infused interventions that include specific evaluations of the effect of the technology on the intervention (following recommendations by Chan and Holosko [2015])
 - b. Research on technology-assisted assessment and measurement, such as on-person (i.e., wearable) technologies
 - c. Research on the efficacy of adapting and modifying technologies used for nonsocial work purposes towards solving social problems (e.g., social media, gaming, wearable technologies, robotics)
 - d. Research on technology-assisted interventions (e.g., self-guided computer-, web-, app-based interventions) and hybrid interventions wherein social workers use ICT during the intervention (e.g., computer assisted training in Cognitive Enhancement Therapy [Eack, 2012])
3. Increased visibility of research on technology in social work at major social work research conferences and in premier social work journals

Inclusion of technology in practice

The field of social work has the opportunity to develop, test, and refine interventions that use technology. Taking on this challenge involves leveraging technology towards practice innovation. It means developing and implementing practice innovations that use mobile applications, gamification, big data, and the internet of things (the network of objects that are equipped with sensors allowing them to get and receive data) (Goldkind & Wolf, 2014). Harnessing the power of technology will mean shifting practice to include technology when appropriate and to use its potential for social good.

Specific targets

1. Ongoing evaluation of technologies currently in use in the field, technologies field instructors and agencies believe would enhance practice, technologies used by consumers, and technologies students are using that could be adapted for use in practice settings
2. Training programs (possibly continuing education units) for social workers to learn digital storytelling, photovoice, and other technology-enhanced advocacy tools
3. Training programs (possible CEU) for social workers currently in practice to advance their use of technology-based interventions and the inclusion of technology in their practice

4. Advocacy for interstate licensure that enables social workers to provide services online without violating state licensing laws

WHAT WILL IT TAKE TO GET THERE?

It is clear that much work needs to be done to harness the power of technology to respond to social work practice challenges, but social work cannot do it alone. There is a distinct need for interdisciplinary collaboration, requiring partnerships with technologists, computer scientists, software engineers, and business management. Schools of social work must establish relationships with physics, computer science, and other departments that are developing artificial intelligence and computer programming. These partnerships will pair the most capable programmers and app developers with content experts who are able to determine technology needs (Aguirre, McCoy, & Roan, 2013). Such cross-sector partnerships will create changes that extend beyond the field and into the future of a technology-rich social service delivery system.

Social work investment and resources are required to leverage what exists and to build stronger infrastructure to support new innovations. This requires significant disruption to our traditional practice models and openness to putting social work's strongest scholars and practitioners to work on this challenge. The field has the opportunity to develop and test a set of interventions and systemic practices that would support social work goals using technology—an opportunity to consolidate thinking on technology. A paradigm shift in the social work profession is necessary to see technology as an imperative, not extraneous, too difficult, or burdensome. There is the potential to create a new generation of social workers and a new breed of social work that fully harnesses technology for social good.

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ABOUT GRAND CHALLENGE 9

Harness technology for social good. The digital revolution presents unprecedented opportunities to tackle society's most vexing problems. Social media and digital communications make it possible to bring help and support to people in need, engage entire communities in improving social conditions, and respond to early warning signs on social trends. Electronic social and health records promise to put vital information at the fingertips of practitioners and clients and enhance service quality and program effectiveness in real time. Advances in information technology and computational science make it possible to mine massive stores of data to accelerate scientific progress and fast track social policy solutions. Looking ahead, social work has a critical role to play in how to deploy these immense digital assets to solve pressing social problems in ethical, equitable and effective ways. For society to benefit from the promise of the digital revolution, social work, and the broader social and human services sector, must develop an organizational and professional culture that embraces digital technology and data analytics, respects the need for privacy, and integrates the best digital tools and approaches into practice and policy.

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