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Adopting e-Social Work Practice:
Pedagogies for Student Decision-Making to Address Technology Uncertainty

David A. Wilkerson

Samantha N. Wolfe-Taylor

M. Killian Kinney

Address Correspondence to:

David A. Wilkerson, Assistant Professor, Indiana University School of Social Work, INAD
2020K 301 University Blvd., Indianapolis, IN 46202-5156. E-mail: dawilker@iu.edu

Abstract

Social work educators can address the Grand Challenge of “harnessing technology for social good” and prepare students for information and communication technology (ICT)-mediated practice. This project considered student technology uncertainty in an introduction to e-Social Work (e-SW) practice course. e-SW practice includes advocacy, research, and practice in the field of social work through the innovation and use of information and communication technologies to create better outcomes and services for clients and organizations that serve them. Educators can participate in guiding the development of e-SW to infuse the profession’s core values and ethical standards. A convergent parallel mixed methods design included pre- and post-test e-SW self-efficacy survey and student reflection. The e-SW practice self-efficacy scale and sub-scales significantly increased and thematic analysis identified that the course addressed student needs for increasing their knowledge and confidence prior to engaging in e-SW practice. Privacy and security regulation compliance showed the least increase in self-efficacy and should be an area for additional development in future e-SW courses. The findings contribute to a growing literature supporting the need for investment in harnessing technology for future growth in the field of social work.

Keywords: social work education, distance education, e-social work practice, technology adoption, scholarship of teaching and learning

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The American Academy of Social Work and Social Welfare's 12 Grand Challenges for Social Work includes the challenge to harness technology for social good (Barth, Gilmore, Flynn, Fraser, & Brekke, 2014). Berzin, Singer, and Chan's (2015) working paper for this challenge described technology's potential for opening a new practice frontier to social work practitioners and their clients. The fact that social workers make up 60% of the face-to-face mental health workforce in the United States (National Association of Social Workers, 2015) highlights the importance of social work participation in the emerging service transformation.

Information and communications technologies (ICT) have an inestimable societal impact; however, their influence in the field of social work practice is still emerging. Berzin and colleagues (2015) identify a lag in social work's participation in ICT service transformation and describe several limiting factors—of particular interest, a lack of training. Schools of social work provide the necessary training for social workers to obtain licensure and seek employment in a range of disciplinary fields, including family and child services, health, mental health, and school social work. However, Berzin and colleagues (2015) recommend that social work educators also address training needs by developing curricula in ICT-mediated practice. In so doing, educators can guide the development of *e-social work (e-SW) practice*—the term we coined for ICT-mediated telehealth and telebehavioral health practices that encompass the profession's core values and ethical standards toward better client outcomes and social change.

Degree of Uncertainty and Adoption

The field's lag for participation in ICT service transformation (Berzin et al., 2015; Perron, Taylor, Glass, & Margerum-Leys, 2010) can speak to the degree of uncertainty

associated with adopting innovations for technology-mediated social work services delivery. Diffusion of Innovation Theory (DIT) (Rogers, 1995) and numerous innovation diffusion studies (Rogers, 2010) provide theoretical grounding for this view. The theory identifies five categories of “ideal types” of adopters of innovations. These include: innovators, early adopters, early majority, late majority, and laggards (Rogers, 1995). These categories range from those who understand that there is risk in adopting new ideas yet are willing to be the key creators of innovations, to those who are ultimately resistant or unable to adopt the innovation unless it has been tested and proven successful. Common to each of these categories is the recognition that innovation holds uncertainty for potential adopters. As we see it, the resolution of uncertainty is a key proposition in the theory’s models of diffusion and adoption of innovation. Social variables in DIT strongly influence uncertainty. These include the influence of a social network of peers and near-peers and their centrality to the resolution of uncertainty and decisions to adopt innovation.

Self-efficacy and Adoption

Ellen, Bearden, and Sharma (1991) extended DIT by considering resistance to change as a further issue for diffusion researchers. Researchers found that variables other than the social variables central to DIT govern resistance to technology-based change. Ellen et al. (1991) found self-efficacy to be a determinant for resistance to change. Self-efficacy is the appraisal of one's capabilities and resources for achieving a desired outcome (Bandura, 1997). Low self-efficacy reduces motivation, effort, and persistence. Ellen and colleagues (1991) found that those with lower self-efficacy were more resistant to technology-based change.

Researchers have also used self-efficacy to extend DIT through the development of other models of technology adoption. Tsai (2014) researched the intention to use telehealth services

and found self-efficacy had a significant effect on perceived ease of use and perceived usefulness, two items from the Technology Acceptance Model (TAM). Olson and Appun (2017) researched the Technology Adoption Process Model (TAPM) to understand conditions needed for adoption of technology affordances within higher education. In their model, user self-efficacy was highly dependent upon the perceived ease of use and the perceived usefulness of the technology innovation (Olson & Appun, 2017).

Reasons for the adoption lag. The field of social work has not yet used models like TAM and TAPM to clarify issues central to the profession's lag in the adoption of e-SW practice innovations. However, the lag can arise from many sources that bear on practice self-efficacy, ease of use, and usefulness of innovation. Ramsey and Montgomery's (2014) systematic review of technology-based mental health interventions delivered by social workers between 2001 and 2012 described reluctance due to discomfort with the use of technology, time requirements for learning to use technology, and concerns about client privacy and confidentiality. Schoech (2008) discussed liability issues that create uncertainty among social workers about the use of technology across geographic licensure boundaries. Reamer (2013) discussed social workers' responsibility to ensure that technology-mediated communications have trustworthy encryption safeguards. Herie and Martin (2002) discussed the concern that ICT-mediated interventions pose threats to the type of relationship reciprocity that conveys basic social work concerns like trust and caring. Reimbursement is another source of uncertainty, as private insurances and Medicare set limits on the types of ICT-mediated services that may be eligible for reimbursement (Centers for Medicare & Medicaid Services, 2013).

e-Social Work Pedagogical Research

Educators interested in following Berzin and colleagues (2015) recommendations for developing curricula for e-SW practice will need to address student uncertainty regarding the use of technology to deliver social work services. Because self-efficacy has been an important variable in the research on the adoption of technology innovations, we researched student e-SW practice self-efficacy and uncertainty about the adoption of e-SW practice with an introductory, semester-long, distance education e-SW practice course. We developed the course to provide students with an opportunity to make intentional decisions about the adoption of e-SW practice. Pedagogical strategies included: (1) student reflection on technology's fit with their helping-style and the client populations with whom they intend to work; (2) student comparison of beginning to end-of-course changes in their e-SW practice self-efficacy and (3) student development of an e-SW practice model that includes an initial plan for managing privacy and information security.

We identified the following research questions to explore these pedagogical strategies and their usefulness for developing curricula in e-SW practice:

1. Does ICT practice education impact student e-SW practice self-efficacy?
2. What aspects of e-SW practice self-efficacy demonstrate the greatest change following course delivery?
3. What concerns do students have regarding training in e-SW practice?

Methods

We used a convergent parallel mixed methods design (Creswell & Planko, 2011) that merged quantitative and qualitative data collection via bookend assignments in an introductory e-SW practice course delivered over multiple semesters. We selected a mixed methods approach for the sophistication and strength of triangulating data from multiple data sources to create a

more complex understanding of an experience (Creswell, 2014). Research participants were graduate social work students who were taking the e-SW practice course as an elective after completing their foundation and intermediate coursework.

Participants and recruitment

Our analytic sample was comprised of 50 students, whom we recruited from the introductory e-SW practice course using convenience sampling. We used a random number generator to select a stratified sample of 10 students. As approved by the IRB, we informed students of the study and collected consent for their participation. We did not compensate students for their participation.

e-Social Work Practice Course and Assignment

We first offered the introduction to e-SW practice course to students in 2016. The course description is as follows:

This course provides an overview of technology-mediated practice delivery and the role of social work in this field. The course outlines various desktop computing and mobile technologies that are used to mediate social work practice activities. Populations that are currently receiving tele-behavioral health and other e-SW services and the types of services being delivered will be reviewed, as well as the strengths and limitations of these services. In addition to a focus on individual and group-based services, examination will include how and why technology-mediated services develop within organizations and how organizations can evaluate the effectiveness of the technology-mediated services being provided. Use of technology to deliver social work practice activities poses a range of ethical, legal, privacy and other risk-management issues. The course will examine how social workers can respond to these issues to protect their clients and practice

ethically. This will include the production of a practice model that includes a plan for managing privacy, information security and mediating social presence through technology in social work practice.

The course initiated student decision-making on the adoption of e-SW practice using a self-assessment survey and a structured reflection assignment of their e-SW practice self-efficacy. Students completed the survey and structured reflection in the first and last modules of the course, from which we collected quantitative and qualitative data.

Quantitative Data Collection Methods

Quantitative data collected from the assignments consisted of a self-administered e-SW practice self-efficacy survey pre- and post-test, which we developed based on Bandura's (2006) guide for development on self-efficacy scales and delivered in the first and last modules of the course. We developed scale items using an a priori strategy with item construction based on content areas used to design the introduction to e-SW practice course. These items included technology platforms, best practices, ethical practice, risk management, telehealth policies, telehealth regulations, professional liability, and social work licensure. As recommended by Bandura (2006), we obtained content validity by constructing items based on the students' perceptions of their capacity to perform an activity. We obtained face validity through a review of items by two telehealth social work practitioners. The final survey consisted of 22 items and six subscales. Students were asked to rate their self-efficacy on the items on a 9-point Likert scale ranging from "not comfortable" to "very comfortable". We used IBM SPSS 24.0 (IBM Corp., 2016) for all data analyses.

Qualitative Data Collection Methods

Qualitative data collected from the assignments consisted of structured reflections in the first and last modules of the course that required students to write about their self-efficacy and goals for the e-SW practice course, as guided by several questions (Table 1). Two researchers analyzed the data using thematic analysis (Braun & Clarke, 2006). On an individual basis, each researcher read and coded the first reflection, then compared for codes and emerging themes. Researchers built consensus on codes to create a code book with operational definitions. They collaboratively analyzed the second reflection to strengthen consensus and identify additional codes. Researchers split the remaining transcripts, which they first individually coded then reviewed together. Their analysis began with 21 initial codes; two codes were collapsed (lack of confidence in technology use and lack of confidence in practice while using technology) to create 20 final codes. They then reviewed the final codes for final definitions and exemplar quotes. Once immersed in the data, the researchers decided to conduct a simple content analysis of the codes identified in the students' reflections in the e-SW practice goal setting portion of the assignment. The researchers used Dedoose (SocioCultural Research Consultants, 2018) for all qualitative analysis.

Table 1. *Assignment Pre-and Post-Reflection Questions*

Table 1 <i>Assignment Pre-and Post-Reflection Questions</i>	
First Module Pre-Reflection	Final Module Post-Reflection
<ol style="list-style-type: none"> 1. What is your level of confidence in your use of technology, based on the items from the technology self-efficacy scale? 2. What do you know about ICT's that fit with your client population? For instance, would your clients prefer asynchronous communications? 3. What ICT modes and platforms would you like to use for delivery and become competent in using? 4. What is your personal style of helping (Sensorimotor, Concrete, Formal, or Dialectic-Systematic) and how does it fit with #1-#3? 5. Based on all of the above what are your goals for this course? 	<ol style="list-style-type: none"> 1. Compare and contrast your pre-and post-self-efficacy surveys. There may have been increases in your self-efficacy, no changes or even a drop, based on your current knowledge of the field. 2. Did you meet your goals for this course? If so, what was helpful? If not, what could be improved? 3. Finally, discuss whether the course influenced your decision to adopt technology for practice and what that decision was. 4. What aspects of the course were helpful, regardless of your decision? Readings? Module content? Discussions? Assignments?

Results

Quantitative Findings

Cronbach's alpha indicated a high level of internal consistency for the self-efficacy scale in both the pre-test ($\alpha = .974$) and post-test ($\alpha = .951$). Paired sample t-tests run for mean summary scores of the self-efficacy scale and subscales demonstrated a significant increase (Table 2). Notably, the greatest increase in confidence was for the subscales of Engagement (+2.88 points) and Practice (+2.75 points), while overall highest confidence was reported for Ethics and Goals.

Table 2. *Self-Efficacy Scale and Subscales*

	<i>M(SD)</i>		Δ	<i>t</i> -test
	Pre-test	Post-test		
Self-Efficacy (22 items)	5.21 (1.92)	7.49 (0.97)	2.28	8.41**
Digital (4)	4.41 (2.06)	6.69 (1.25)	2.28	7.59**
Ethics (4)	6.82 (1.92)	8.10 (0.82)	1.28	4.87**
Compliance (2)	5.90 (2.54)	7.75 (1.26)	1.85	4.80**
Engagement (3)	4.39 (2.44)	7.27 (1.17)	2.88	8.21**
Goals (6)	5.30 (2.14)	7.85 (1.13)	2.55	8.05**
Practice (3)	4.28 (2.28)	7.03 (1.69)	2.75	8.30**

Note. (N=50). Based on mean summary scores. Δ = post-pre scores. * $p < .001$ with with a Bonferroni correction.

The descriptive statistics showed a consistent increase in confidence with e-SW practice skills. The self-efficacy scale used a 9-point Likert scale that was recoded into three attributes, and frequencies were reported (Table 3). All items consistently increased, with most students reporting feeling “more confident” to “very confident”. The introductory e-SW practice course did not seem to change students’ confidence levels for *Maintain professional boundaries when using social media*, which were, overall, already high. The greatest increase observed was for *Synergize individual and group learning in psychoeducational groups* (+3.02) and each of the Engagement subscale items (+>2.80). Global scores showed that more than 2.10 times higher percentage of students reported feeling “more confident” to “very confident” with skills at the end of the course (Figure 1).

Table 3. *Descriptives for Self-Efficacy Scale Items*

	<i>f</i> (%) Pre / Post			<i>M</i> (<i>SD</i>)	Δ
	Not Confident– Somewhat Confident	Moderately Confident	More Confident– Very Confident		
Global score for all items	343(31.2) / 23(0.02)	332(30.2) / 184(16.7)	425(38.6) / 893(81.2)	5.21(1.92) / 7.49 (0.97)	2.28
Digital					
1. Handle glitches or other forms of computer or technology failure	17(34.0) / 3(6.0)	18(36.0) / 19(38.0)	15(30.0) / 28(56.0)	4.82(2.3) / 6.46(1.7)	1.64
2. Conduct a risk analysis to ensure data security	32(64.0) / 9(18.0)	14(28.0) / 19(38.0)	4(8.0) / 22(44.0)	3.16(2.1) / 5.88(2.1)	2.62
3. Use digital technology appropriately to facilitate client outcomes	18(36.0) / 1(2.0)	14(28.0) / 11(22.0)	18(36.0) / 38(76.0)	4.91(2.5) / 7.06(1.3)	2.15
4. Use digital technology to facilitate strong client-social worker relationships	17(34.0) / -	17(34.0) / 12(24.0)	16(32.0) / 38(76.0)	4.74(2.3) / 7.34(1.2)	2.60
Ethics					
5. Maintain professional boundaries when using social media	- / -	13(26.0) / 1(2.0)	37(74.0) / 49(98.0)	7.64(1.5) / 8.34(0.9)	0.70
6. Employ valid informed consent procedures	8(16.0) / -	12(24.0) / 1(2.0)	30(60.0) / 49(98.0)	6.54(2.4) / 8.18(.9)	1.64
7. Protect client health information when using digital technology	9(18.0) / 1(2.0)	13(26.0) / 6(12.0)	28(56.0) / 43(86.0)	6.33(2.5) / 7.66(1.3)	1.12
8. Comply with NASW and ASWB codes of online conduct	7(14.0) / -	12(24.0) / 2(4.0)	31(62.0) / 48(96.0)	6.76(2.3) / 8.22(1.0)	1.46
Compliance					
9. Comply with the HIPAA guidelines in use of digital technology	9(18.0) / -	13(26.0) / 5(10.0)	28(56.0) / 45(90.0)	6.32(2.4) / 7.82(1.3)	1.50
10. Comply with state licensure regulations for online practice	15(30.0) / -	13(26.0) / 7(14.0)	22(44.0) / 43(86.0)	5.48(2.9) / 7.68(1.3)	2.20

Engagement					
11. Verify client psychological safety in their remote location	23(46.0) / -	12(24.0) / 15(30.0)	15(30.0) / 35(70.0)	4.33(2.5) / 7.14(1.2)	2.81
12. Obtain a valid assessment of needs including suitability for online services	22(44.0) / -	10(20.0) / 9(18.0)	18(36.0) / 41(82.0)	4.50(2.5) / 7.48(1.2)	2.98
13. Develop a mutual communications turnaround agreement	22(44.0) / 1(2.0)	11(22.0) / 15(30.0)	17(34.0) / 34(68.0)	4.34(2.7) / 7.18(1.6)	2.84
Goals					
14. Use a client-centered approach to online practice	11(22.0) / -	19(38.0) / 6(12.0)	20(40.0) / 44(88.0)	5.63(2.3) / 7.86(1.3)	2.23
15. Use online interventions that are evidence-based	18(36.0) / -	17(34.0) / 6(12.0)	15(30.0) / 44(88.0)	4.87(2.3) / 7.74(1.3)	2.87
16. Facilitate culturally competent online communications	16(32.0) / -	16(32.0) / 4(8.0)	18(36.0) / 46(92.0)	5.07(2.4) / 7.78(1.2)	2.71
17. Develop an agreed upon plan for crisis and emergency services	11(22.0) / -	19(38.0) / 3(6.0)	20(40.0) / 47(94.0)	5.31(2.4) / 7.92(1.2)	2.61
18. Develop an agreed upon plan for ending online services	14(28.0) / -	19(38.0) / 5(10.0)	17(34.0) / 45(90.0)	5.12(2.5) / 7.88(1.2)	2.76
19. Collaborate with other service providers as needed	9(18.0) / -	19(38.0) / 5(10.0)	22(44.0) / 45(90.0)	5.81(2.3) / 7.94(1.3)	2.13
Practice					
20. Facilitate the development of mutual support in online group-work	19(38.0) / 3(6.0)	17(34.0) / 11(22.0)	14(28.0) / 36(72.0)	4.57(2.5) / 7.00(1.8)	2.43
21. Manage asynchronous group interaction to meet therapeutic outcomes	22(44.0) / 3(6.0)	18(36.0) / 11(22.0)	10(20.0) / 36(72.0)	4.24(2.3) / 7.04(1.7)	2.80
22. Synergize individual and group learning in psychoeducational groups	24(48.0) / 2(4.0)	16(32.0) / 11(22.0)	10(20.0) / 37(74.0)	4.04(2.3) / 7.06(1.7)	3.02
<i>Note.</i> Δ = difference between pre and post-test scores					

Figure 1. *Confidence with e-SW by Percentage*

Qualitative Findings

Students demonstrated interest in meeting a wide range of educational goals and learning needs prior to engaging in e-SW practice. Overall, participants self-identified 23 goals. Among these goals were: becoming more informed in the types of e-SW practice that are currently in use and confirmed as beneficial by evidence in the literature; becoming more comfortable with the rules and regulations surrounding the use of e-SW practice with a client; and discerning how existing ICTs that have shown promise can best be integrated into their own e-SW practice based on their helping style. Students met 78% ($n = 18$) of their 23 self-identified goals.

An analysis of the students' goals resulted in five codes: 1) to better understand the application of e-SW in practice; 2) increased comfort with e-SW practice and technology; 3) to better understand the application and services of e-SW practice; 4) to apply, integrate e-SW

practice in future practice; and 5) social justice advocacy through e-SW services. We arranged the codes based on the percentage of participants meeting the goals under each, ranging from highest to lowest (Table 4).

Table 4. *e-SW Goals*

Table 4 <i>e-Social Work Goals</i>		
Goal (<i>n</i>)	Status (%)	Examples (<i>participant</i>)
To better understand the application of e-SW practice (8)	Met Goals (75%)	To become more informed in the types of ICTs that are currently in use and confirmed as beneficial by the evidence in the literature. (1) To learn and become more educated in the state laws, policies and license regulations regarding telebehavioral health to ensure that I'm always in compliance. (2) After looking at...some of the areas that I feel like through our surveys that I need to improve in, I think that I need to...obviously become more...understanding of computer apps...that would be available...as well as state regulations for the course... (3) One to become familiar with industry standards, expectations and best practices for using technology when providing behavior health services. (4) My goals for this course are to 1. Get more comfortable with the rules and regulations surrounding the use of ICTs with a client. (I feel like having this information would increase my confidence levels in working with ICTs). (5) Becoming familiar with the technology that is available in telebehavioral health and medicine. (8)
	Unmet Goals (25%)	Become more familiar with gaming technology. (4) To learn more and become more confident in the area of ethical practice and legal considerations, aka HIPAA. (6)
Increased comfort with e-SW practice and technology (2)	Met Goals (50%)	To become comfortable...be able to...maybe have therapy or...do therapeutic sessions with...like with my clients online. I feel like I tend to not be as comfortable with that. (3)
	Unmet Goals (50%)	To become more comfortable with my technology use, especially on how to use this for clinical purposes, but also to handle glitches if they occur. (2)
Better understand the application and services of e-SW practice (8)	Met Goals (100%)	To develop a better understanding of how ICTs impact clients during therapy and group functioning. (1) To better understand how telebehavioral health is delivered, especially asynchronously. (2)

		<p>To have a better understanding as to how my preferred style of helping may positively or negatively impact my use of technology when providing behavioral health services. (4)</p> <p>Finally, I would like to gather recommendations about the best platforms to utilize with clients and how to continue learning more about different technologies available. (I feel that being able to offer the latest and greatest technology as a platform will be beneficial in working with youth especially). (5)</p> <p>To understanding more about ethical codes of online conduct... (7)</p> <p>To understand more about connecting that risk analysis and identifying threats and vulnerabilities...valid informed consents over technology. (7)</p> <p>To understand more about the nuances of confidently and effectively tending to clients over technology and cultural confidence while using technology. (7)</p> <p>To learn more about doing presentation that integrate Power Point style and use verbal and video delivery methods which would have made this much shorter. (8)</p>
Apply, Integrate e-SW in future practice (4)	Met Goals (75%)	<p>To discern how the existing ICTs that have shown promise can best be integrated into my own practice based on my helping style. (1)</p> <p>I would also like to learn how to best use ICTs to work with clients and further the work that I'm able to do (I hope to learn more about the benefits of synchronous and asynchronous communications through this course). (5)</p> <p>Learning more about how to incorporate tele-behavioral health and technology into my future social work practice in a culturally sensitive way. (6)</p>
	Not specified (or discussed) (25%)	<p>To – I use Google apps – sorry Google docs at work now and I would really like to become more fluent in Google docs to be able to share documents, say I'm doing cognitive behavior therapy and I'm tracking things with my clients – I'd like to be able to share those documents between myself and client – parent, maybe teachers at school, so overall, I'd like to improve in that area. (3)</p>
Social justice advocacy through e-SW services (1)	Unmet Goals (100%)	<p>Advocating for populations in communities who face barriers in accessing and using technology as I believe it is a crucial tool in empowering and advancing the education of low-income individuals. (6)</p>
Note. Of the qualitative analytic sample (N=10), only eight identified clear concrete goals.		

Following delineation of the five codes, we identified three primary themes: 1) e-SW practice course goal attainment, 2) confidence with e-SW practice and technology, and 3) student educational and practice benefits from the e-SW practice course (Table 5). Through the structured reflection assignment, students were able to verbalize their concerns regarding training in e-SW practices. For example, one student reflected on their skepticism in being able to provide e-SW practice:

“I was originally skeptical on being able to build rapport and establish strong relationships through this delivery method.” (Participant 2)

However, this same participant described the impact ICT practice education had on their e-SW practice self-efficacy upon completion of this introductory course:

“Through this course, I have been able to increase my competence in using technology to facilitate strong client/social worker relationships, which is significant for me because I was originally skeptical on being able to build rapport and establish strong relationships through this delivery method.” (Participant 2)

The data gathered, through the thematic analysis on the structured reflection assignment, offers us more insight and validation of the quantitative findings, while providing more depth and breadth on how the participants perceived their levels of e-SW practice self-efficacy, their concerns regarding training in e-SW practices, and whether ICT practice education impacts students' e-SW practice self-efficacy.

Table 5. *Thematic Analysis Results*

Themes	Major Codes	Sub Codes (f)	Definition	Exemplar Code (participant)
E-SW Course Goal Attainment	Met goals	Acknowledgement of met goals (13)	Explicit verbal recognition of self-defined goals not met without reflection	“Did I meet my goals? For my first video...my course goals were to develop confidence using including technology and complying with NASW and ASW codes about the ethical online conduct, I would say 'yes', I have a really good sense of that now. Learning how to conduct risk analysis and identifying threats and vulnerabilities – I would say 'yes', I feel really confident about that now. Learning to employ valid informed consent procedures – I feel very confident about that now...” (7)
		Self-awareness of met goals (8)	Explicit verbal awareness and reflection on met self-defined goals	“The most notable change in responses was my ability to comply with state licensure regulations for online practice and I was originally terrified of this because I didn't want to violate any laws or policies and jeopardize myself professionally or cause harm to clients. However, through this course I have a much greater understanding of the risks associated with tele-behavioral health as well as my state laws and licensing board policies and expectations.... However, through this course, I have been able to increase my competence in using technology to facilitate strong client/social worker relationships which is significant for me because I was originally skeptical on being able to build rapport and establish strong relationships through this delivery method.” (2)
	Unmet goals	Acknowledgement of unmet goals (4)	Explicit verbal recognition of self-defined goals not met without reflection	“I believe that I was able to meet the latter two goals, but still have not fully met my first goal. The entire course helped me better understand all of the complexities of how tele-behavioral health is delivered, so I don't think I could credit any one reading, module or assignment for this.” (7)
		Self-awareness of unmet goals (5)	Explicit verbal awareness and reflection on met self-defined goals	“The one area that I indicated uncertainty in my initial survey was licensure, state regulations and HIPAA compliance. While the modules on ethical practice and legal considerations were helpful introduction to these topics, including a very brief overview of HIPAA compliance issues, I still don't feel fully confident in these areas. This experience was eye opening for me because these regulations are incredibly complex. I plan to learn as much as possible about these topics in my concentration practicum and try to apply them in a way that will further my learning before I enter into independent practice” (6)

Confidence with e-SW practice and technology	SW Practice skills (not including technology)	Confidence in practice (not technology) (10)	with practice being therapy as well as other forms of social work	"In a traditional setting, I feel that one of my strengths is building strong relationships and engaging with clients, but fear that I may not be successful with this in this setting, in the tele-behavioral setting." (2)
		Lack of confidence in practice (but not technology) (4)	with practice being therapy as well as other forms of social work	"My confidence in engaging clients is relatively low only because legitimate social work practice using technology is something new for me and balancing this with learning a new technology is going to take a little bit of time. So similarly, my confidence in practice with individuals had comparable lower scores. And then there's group work – by nature I'm more individual-oriented than group-oriented, so this is going to be an area I imagine I will need a little bit of practice in." (1)
	SW Practice skills with technology	Confidence in technology use (19)		"I also felt that I improved in my comfort level in being able to conduct therapeutic sessions...via technology – that was also a goal for me and I felt like the mock interview really proved to me that although during the mock interview I felt like I was mechanical...I still was able to realize that it really wasn't that much different than being in person and then just being able to practice so the mock interview gave me a lot more confidence, so I feel I did improve in that area as far as being able to conduct myself using technology in my field." (3)
		Confidence in telehealth adaptability (14)	Creative interpretation of technology to their practice (current or future)	"when I was teaching at a community college, many of my low-income students didn't have access to computers or internet at home...they often used their phones or tablets to write papers and type papers, which usually resulted in more typos and lower quality work and lower grades than the students who used desktop word processing software...I encouraged them to make use of the computers and internet access to the school's internet technology center or through their local libraries where low-income populations in areas that had access to those kinds of resources...do have access, but this required advanced planning, it requires extra time on campus which can be challenging for students who work long or irregular hours...and I observed the technology competency...was particularly challenging for older students and for students who were low-income...so these barriers make it difficult for low-income students to pursue higher education successfully, which is why I think it's a social justice issue...and in my last – my practicum last quarter, I frequently interacted with clients via text because that was their preferred method of communication because the cost of data minutes were at a premium, but when they were connected to Wi-Fi, they could send unlimited text messages...so I think it's important to meet clients where they are when it comes to technology and to use the technology...that makes them most comfortable" (6)
		Lack of confidence in technology use in practice (38)		"My limited exposure to utilizing [many forms of technology] for behavioral health services is where I have confidence to build. My lack of experience has prevented me from learning things specific to ICTs in terms of keeping patient information safe, responding to emergencies effectively, building relationships with clients and ensuring ethical and compliant standards are met." (4)
Student Educational and Practice Benefits from e-SW Course	Theoretical lessons learned from content	Theoretical lessons learned from content (35)	Discussing readings, technology, in current and future practice, recognizing the applicability of the reading's content	"I particularly found the modules to be most helpful. I think the readings were a little bit dense sometimes, but the modules did a nice job of bringing that information alive and helping me understand that I'm more of a kinesthetic learner, so modules tend to sort-of help me to see things come alive, so that really helped. I also found the assignments to be interesting, though provoking and really practically useful. I may not have absolutely love doing each assignment, but there's no doubt that I knew as I was doing each assignment that it was going to have a direct practical impact on my practice moving forward and my ability to engage in tele-mental health, so I'm grateful for that." (7)

Discussion

This research evaluated pedagogical strategies developed for an introductory e-SW practice course to address student uncertainty about the adoption of e-SW practice and services delivery and to study course effects on e-SW practice self-efficacy. We asked, "Does ICT practice education impact student e-SW self-efficacy?" Traditional social work students have demonstrated reductions in their practice self-efficacy following coursework and field education

(Holden, Meenaghan, Anastas, & Metrey, 2002), while students in the introductory e-SW practice course experienced a consistent increase in their online practice self-efficacy. The findings indicate that the ethics subscale significantly increased, albeit minimally in comparison to the other self-efficacy subscales. Of the self-efficacy subscales, regulation compliance showed the least increase, indicating an area for additional development in future e-SW practice classes.

The thematic analysis (Table 4) provides a more in-depth review of the specific educational goals that assisted in increased practice self-efficacy. This analysis can provide social work educators with some foundational objectives to address the Grand Challenge of “harnessing technology for social good” by preparing their students for e-SW practice. For instance, a student's reflection on compliance with practice regulations identified further educational goals:

“This experience was eye opening for me because these regulations are incredibly complex. I plan to learn as much as possible about these topics in my concentration practicum and try to apply them in a way that will further my learning before I enter into independent practice.” (Participant 6)

We also asked, “What concerns do students have regarding training in e-SW practice?” As students progressed through the course, they were able to identify their developmental limitations in e-SW practice. Initially, students reflected on how little they knew about the nature and extent of opportunities for e-SW practice. At the end of the course, they were able to identify the practicality and importance of providing e-SW practice to underserved populations in need of mental health and behavioral health services. Through additional training and learning, their confidence in providing e-SW practice increased. Upon completion of the course, students were

able to identify technology tools, apps, policies, regulations, and resources that would best guide them in their own adoption of e-SW practices with their selected clients and vulnerable populations.

This study's importance to social work education and practice is its demonstration of pedagogical strategies that provide social work students with opportunities to focus and reflect on their uncertainty about the adoption of e-SW practice. Students found that the course reduced gaps in their practice education that result from the emergence of ICT-mediated services delivery. This study demonstrates that students need time to understand the roles that such technologies will play in their future practice. Interaction with course content, instructors, and peers is important for students to determine their level of confidence in e-SW practice and services delivery and to set goals for further training to manage ethical, legal, privacy, and other risk-management practice issues. Finally, the opportunity to focus and reflect on the adoption of e-SW practice provides students with an entry point to participate in addressing the significant gaps in health service accessibility and utilization for large population groups in the United States.

Limitations

Although this research was carefully prepared, there were limitations that are important to discuss. Because we collected data as part of the course's assignments, we had no demographic information about the participants. This limited our ability to make comparisons across groups. In addition to the lack of demographics, the smaller sample size prohibited advanced statistics. While using the same sample for this mixed methods design increases similarity and improves comparison (Creswell, 2014), recognition of self-selection bias needs to occur because convenience sampling was used to determine the sample for the qualitative and

quantitative analysis. Also, due to this research being the first of its kind in social work education, we are unable to compare limitations of this study to other studies in the field. Finally, the survey used to assess students' self-efficacy was not a validated instrument, as its questions were created from the goals and objectives outlined in the introductory e-SW practice course.

Conclusion

The Council on Social Work Education Futures Task Force (2018) identified harnessing technology as one of two main areas of uncertainty for the future of social work. Our research addresses this uncertainty by demonstrating educational outcomes for social work students participating in an introductory e-SW practice course. Pedagogical strategies focused on helping students make decisions about their adoption of e-SW practice through a self-evaluation of their e-SW practice self-efficacy. The findings contribute to a growing literature supporting the need for investment in harnessing technology for future growth in the field of social work.

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