VIRTUAL PATIENT SIMULATION TRAINING FOR CLINICAL SOCIAL WORK

DIAGNOSTIC ASSESSMENT AND SKILLS EVALUATION

BY

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DISSERTATION

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DEDICATION

This dissertation is dedicated to my grandparents Ruben and Eunice Washburn who taught my father, who then passed on to me, everything I needed to be successful: a strong work ethic, a love of learning, a sense of responsibility to those who count on me, and compassion for those whose daily life is a struggle.

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DIAGNOSTIC ASSESSMENT AND SKILLS EVALUATION

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ABSTRACT

Despite successful completion of advanced clinical training and professional licensure,

many clinicians lack adequately developed clinical assessment skills, resulting in misdiagnosis of

mental health issues.   Skill deficits may result from systemic factors associated with current

clinical training programs including the widespread use of passive/observational learning and

limited experiential learning opportunities, inadequate practice with live clients in field

placements, and unstandardized assessment measures. This study evaluates standardized virtual

patient simulation to determine the impact of these simulations on students' self-efficacy,

diagnostic accuracy and clinical interviewing skills. This project also compares students'

performance on Objective Clinical Structured Examinations (OSCEs) using both standard actor

patients and virtual patients.

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Although the terms "client" or "consumer" are commonly used in place of the term "patient" within the field of social work, the majority of prior research related to this dissertation uses the term "patient" when describing someone who receives clinical services. The use of the term "patient" in this dissertation is not meant to pathologize, nor is it meant to imply that a medical model of mental health is endorsed by this author. Rather, to ensure consistency with prior literature, the term "patient" will be used to refer to anyone receiving clinical services.

CHAPTER ONE: INTRODUCTION

VIRTUAL PATIENT SIMULATION TRAINING FOR CLINICAL SOCIAL WORK

DIAGNOSTIC ASSESSMENT AND SKILLS EVALUATION

Social Work is currently one of the fastest growing professions in the US, with over 10,000 Masters level social workers graduating from CSWE accredited programs each year. The majority of these students are later employed in settings in which they engage in direct clinical practice. Students coming from these accredited MSW programs are expected by employers and third party payers to be competent in assessment as outlined by the current Educational Policy and Accreditation Standards (EPAS) (CSWE, 2015). Social workers provide over 60% of American mental health services, including conducting diagnostic assessment and screening (Kelly & Clark, 2009). However, there is currently a shortage of social work and other direct services professionals who are proficient in brief assessment and diagnosis of common mental health disorders (Becker & Kleinman, 2013).

Misdiagnosis of mental illness remains as a constant barrier to effective intervention in primary care and routine mental health settings (Norman & Eva, 2009). Costs associated with mental illness are higher than those for cardiovascular disease, chronic respiratory disease, cancer, or diabetes (Insel, 2008; Bloom et al. 2012) and are currently estimated at *2.5 trillion dollars* worldwide. . The World Health Organization (2013) estimates that the "cumulative global impact of mental disorders in terms of lost economic output will amount to US$ 16 trillion over the next 20years" (p. 7). Nearly two thirds of the costs associated with mental illness are indirect costs such as lost productivity, which may be significantly minimized through accurate initial diagnosis and appropriate treatment (Singh & Rajput, 2006).

Accurate, empirically-informed assessment and diagnosis is necessary for engaging in the process of Evidence-Based Practice (EBP), which has emerged as the preferred approach to the treatment of mental health disorders (Drake et al., 2001; Grady & Drisko, 2014; Mullen, 2006; Satterfield et al., 2009). Misdiagnosis, however, often results in ineffective treatment, and may further worsen client outcomes. High levels of co-morbid mental illnesses, limited diagnostic specificity in relation to symptom presentation (American Psychiatric Association, 2013) and insufficient training resulting from lack of extensive practice opportunities with live clients (Auger, 2004; Cooper-Bloinsky & Napier, 2014) along with highly unstandardized assessment measures (Aeder et al., 2007; Hodges, 2003; Rawlings, Bogo, Katz & Johnson, 2012) all contribute to the problem of misdiagnosis. Unfortunately extensive practice with live clients is often unavailable to Masters level mental health trainees (Badger & MacNeil, 1998, 2002). In certain situations, clinical interactions with inexperienced practitioners may actually *harm* clients (Flanagan, Nestel & Joseph, 2004; Jansen, 2015) belonging to vulnerable populations such as children, the elderly and trauma survivors, as well as individuals from traditionally underrepresented groups such as Latino/as, African-Americans, Asian-Americans and those who identify as gay, lesbian, bisexual, transgender or queer (Alarcón et al., 2009; Auger, 2004; Jansen, 2015; Primm et al., 2010; Rutherford, McIntyre, Daley, & Ross, 2012).

One solution proposed to address the issue of limited "safe" practice opportunities with live clients is to use standard (actor) patient simulations for teaching and assessing basic clinical skills (Carter, Bornais, & Bilodeau, 2011). Standard actor patients have been used extensively in medical education since the 1960's (Cleland, Abe, & Rethans, 2009; McGaghie, Issenberg, Cohen, Barsuk, & Wayne, 2011; Singh et al., 2013; Stevens et al., 2006) but are a relatively new and underutilized component of social work training (Badger & MacNeil, 2002; Miller, 2004;

Rawlings, 2012; Taylor, Burley & Nestel, 2015). Standard patients are actors who are trained by a team of clinicians to present as clients with psychosocial issues commonly seen in practice situations. Standard patient simulations provide students with additional practice opportunities in a safe and controlled environment. Unfortunately these types of simulations are not without drawbacks. Simulations using actor patients are often costly (Triola et al., 2006) and constructing the clinical scenarios associated with standard actor patients requires numerous person hours (Broquet, 2002; Rawlings et al., 2012). Logistical concerns such as scheduling and actor fatigue may impact standardization as well as the number of simulations that can be executed within a given time period (Triola et al., 2006).

Many of the shortcomings of live patient simulations can be addressed through the use of technology enhanced simulations or "virtual patients" (Triola et al., 2006; Kenney et al, 2008). Virtual patients are a specific type of standardized patient which can simulate authentic clinical encounters using interactive avatar-based technology. Virtual patients have an advantage over live standard patients as they can be used unlimited times during the course of the day and multiple students can interact with the same virtual patient simultaneously (Triola et al., 2006). Simulations using virtual patients also allow for repeated practice opportunities in succession to allow learners to receive feedback, integrate that feedback and repeat the simulation multiple times (Jansen, 2015). More importantly, encounters using virtual patients were found to have equivalent outcomes to those using traditional standard actor patients, and were rated by trainees as equally effective. (Cook, Erwin, & Triola, 2010). Virtual patient simulations have been used to train medical students in the assessment and diagnosis of Post-Traumatic Stress Disorder (PTSD) (Kenny et al., 2008). Virtual patient simulations have also been used successfully with primary care physicians to increase diagnostic accuracy related to both PTSD and major depressive

disorder (Satter et al., 2012). However at present there remains no research exploring the use of virtual patient simulations with Masters of Social Work (MSW) students.

Study Aims

The overarching goal of this study was to assess the effectiveness of standardized virtual patient simulation training with a sample of MSW students. The principal aim of this study was to evaluate the impact of virtual client simulation training on MSW students' diagnostic accuracy, self-efficacy and development of clinical interviewing skills. This study utilized an Objective Structured Clinical Examination (OSCE) as a standardized outcome measure to assess skill and competency development. A secondary aim was to evaluate whether OSCE based simulations using virtual patients are comparable to OSCE based simulations using standard actor patients for the assessment of MSW students' brief clinical interviewing skills. The guiding research questions for this project were as follows:

1. Are virtual patient simulations a feasible and usable training tool for MSW students in relation to brief assessment of mental health disorders?

2. Will virtual patient simulation training result in increased diagnostic accuracy, OSCE performance and self-efficacy?

3. Can virtual patients be used in place of standard actor patients during simulations using OSCEs to evaluate brief mental health assessment skills?

4. Is there a relationship between perceived social work self-efficacy, diagnostic accuracy and OSCE performance?

Based on the proposed research questions, the following project goals are proposed:

1. Evaluate the feasibility of using virtual patient simulation software as a clinical training tool for assessment and diagnosis of mental health disorders.
   (H_1: Virtual patient simulations will be a feasible assessment and diagnostic training tool as measured by Usability Feedback Form)

2. Evaluate the usability of using virtual patient simulation software as a clinical training tool for assessment and diagnosis of mental health disorders.

   (H_2: Virtual patient simulations will be a usable assessment and diagnostic training tool as measured by Usability Feedback Form)

3. Assess the impact of virtual patient simulations as a clinical training tool for brief assessment and diagnosis of common mental health disorders.

   (H_3: Virtual patient training simulations will be associated with an increase in self-efficacy, diagnostic accuracy and OSCE scores)

4. Evaluate the use of virtual patient simulations compared to standard actor patient simulations using OSCEs to evaluate clinical interviewing skills.

   (H_4: The amount of change in pre/posttest OSCE scores using virtual patients will be higher than the changes in pre/post OSCE scores using standard actor patients)

5. Explore the relationship between perceived social work self-efficacy, diagnostic accuracy and OSCE performance.

   (H_5: Diagnostic accuracy and OSCE performance will not be directly associated with self-efficacy)

Significance and Innovation

This proposal has high public health significance and cost-savings potential. As previously mentioned, costs related to mental health issues are currently estimated at 2.5 trillion dollars worldwide. However these costs may be significantly reduced when appropriate assessment, diagnosis and treatment are implemented by front line providers (Grady & Drisko, 2014; Insel, 2008). Through a series of interactive simulations with virtual patients, novice clinicians can receive multiple practice opportunities and immediate feedback on assessment and diagnostic skills with *no risk of harm to the client* (Cook et al., 2010).

Improved training of Masters level providers is essential to addressing our nation's growing mental health needs (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009; World Health Organizaiton, 2013). This is especially important in the era of on-line education where live clinical practice opportunities may be limited, and observable interactions with standard clients

may be unavailable due to logistics and/or resources necessary to use actors as standardized

clients. This proposal is also significant because it will be conducted at a university where there is

strong potential for high levels of historically underrepresented student participation. High levels

of historically underrepresented student participation may lead to increased generalizability of

results in relation to the effectiveness of virtual patient simulations and the validity of OSCEs for

evaluation of social work skills with a diverse student population. This project's innovation is

grounded in the way in which virtual patient simulations are used in this study. This is the first

investigation using virtual patients as a tool to for teaching differential diagnostic assessment of

mental health disorders. This is also the first investigation exploring whether virtual patients can

be used in place of standard actor patients for OSCE based assessments of clinical interviewing

skills.

Conceptual Framework and Relevant Literature

Adult Learning Theory – Andragogy

The proposition that the adult learning process, commonly referred to as andragogy, is fundamentally different than the learning process of children and adolescents, referred to as pedagogy, was first popularized by Knowles (1970, 1992). Knowles identified six ways in which adult learners are believed to be different than child or adolescent learners. He asserted these differences must be taken into consideration when tailoring a training or educational program for adult learners to capitalize on their strengths and to keep them actively engaged in the learning process. These considerations related to adult learning include:

1. Adult learners are internally motivated and self-directed and will resist learning when they feel as if they do not have some level of autonomy in the learning process.

2. Adult learners bring life to learning experiences which can serve as foundational knowledge that can be built upon via reflexive learning opportunities.

3. Adult learners are goal oriented and often respond well to problem based learning.

4. Adult learners want to know that what they are learning will be relevant to their professional development and welcome immediate application of knowledge.

5. Adult learners are practical and providing a clear rationale for assignments promotes active participation and maximizes the benefits of experiential learning opportunities.

6. Adult learners have an independent self-concept and wish to be treated like colleagues who have something to contribute to the learning process, rather than being relegated to the role of those who passively accept knowledge.

Knowles's theory asserts that any adult learning intervention should actively engage adult learners through the development of content that is both learner centered and self-directed

(Merriam, 2001). Forrest and Peterson (2006) contend that utilizing an andragogical approach is essential to preparing students for their future work environments, as adult learners have performance centered orientations towards learning. Similarly, Bedi (2004) advocated for the andragogical approach to be utilized when training physicians. With a learner-centered approach as the cornerstone of training, new clinicians gain familiarity with an effective model to later use with clients across clinical contexts. Employing an andragogical approach to training future social work practitioners may be particularly important in relation to acquisition of skills related to the helping professions. Tasks such as client consultation, psycho-education, psychosocial assessment or engaging in motivational interviewing, could be enhanced through training using client (learner) centered interactions.

Although some have criticized the process of andragogy to being limited by its grounding in Western ideology of rationality, empiricism and linear patterns of thinking, as outlined by Sandlin (2005), newer conceptualizations of andragogy are infused with a more global perspective concerning ways of knowing (Chan, 2010; Henschke, 2011). This approach still incorporates the basic principles of internal motivation and individualized learning but situates it within the sociopolitical context in which learning occurs. Thus, modern andragogy is firmly grounded in shared decision making, and is consistent with the values and goals of the social work profession (NASW, 2008). These points were critical to the current study as many of the participants were over 30 years of age and/or from historically under-represented groups.

Adult Learning Theory - Experiential Learning

"Tell me and I will forget. Show me and I may remember. Involve me and I will understand." This quote, attributable to the philosopher Confucius, circa 450, highlights the basic premise of experiential learning. Experiential learning, also termed practice-based learning, is

positioned on the belief that individuals learn best as a result of experience (Kolb, 1984; Kolb & Kolb, 2005). It involves not only the cognitive but also the emotional and physical aspects of knowledge acquisition. Experiential learning is conceptualized as a cyclical process involving thinking, planning, and decision making along with action, reflection and evaluation. One of the basic tenets of experiential learning is that experience, including mistakes, provides essential opportunities for self-reflection in education which will then develop the skills necessary for self-reflective professional practice. Experiential learning or "learning by doing" is one of the most important components of clinical social work education (Goldstein, 2001) and has been explicitly outlined in the current (CSWE, 2015) Educational Policy and Accreditation Standards (EPAS) of the Council on Social Work Education, which requires students to demonstrate competence through observable engagement in " practice tasks or activities that approximate social work practice as closely as possible" (p. 14).

Kolb (1984) operationalized four distinct actions of the learner which occur during experiential learning as: 1.) The inclination of the learner to partake in a novel experience, 2.) The metacognitive ability of the learner to reflect on the experience from more than a single perspective, 3.) The ability to analyze the experience such that new ideas are formulated as a result of the experience, and 4.) The ability to develop and utilize problem-solving strategies constructed on the new ideas in an applied setting.

Adult Learning - Technology

Technological advances in the past 20 years have led to significant changes in ways that students locate, consume and integrate new information into their daily lives (Eisenberg, 2010). The ever evolving field of technology has had substantial impact on the process of higher education with the current generation of college students (Facer & Sandford, 2010). Today's

students are much more amenable to the use of technology in everyday life including the use of

technology in the classroom (Smith & Caruso, 2010). The advent and widespread availability of

portable devices with mobile internet connectivity allows students access to millions of pieces of

information in a split second, to interact in real time with other students worldwide, and to find

answers to questions almost immediately (Scherer, 2011).

Accordingly, many professional social work programs have been increasingly integrating

technology into current course instruction (Jones, 2014; Menon & Coe, 2000) either as an adjunct

to traditional classroom and field based approaches (Ayala, 2009) or as a substitute for face to

face interactions though online or distance education (Cummings, Foels, & Chaffin, 2012; Jones,

2014; Vernon, Vakalahi, Pierce, Pittman-Munke, & Adkins, 2009). Learning platforms such as

Blackboard, *Moodle* and *Web Ct* (Lee & Bertera, 2007; Vernon et al., 2009; Walsh & Baynton,

2012) anti-plagiarism tools such as *Turn It In* (Dreuth Zeman, Steen, & Metz Zeman, 2011;

Postle, 2009), and classroom response systems such as *Poll Everywhere* (Shon & Smith, 2011)

have become familiar to many social work students and educators. Through the use of

technology, students' distance learning experiences have been significantly enhanced moving far

beyond watching videotaped lectures toward fully interactive virtual classrooms (Vernon et al.,

2009; Van Dusen, 2014). Additionally the 2015 EPAS outline appropriate use of technology to

enhance client outcomes as part of the competency evaluation process.

Self-Efficacy

Self-efficacy is an essential component to clinical social work practice. It is defined by

Bandura (1991) as "people's beliefs about their capabilities to exercise control over their own

level of functioning and other events in their lives" (p. 257). According to Larson and Daniels

(1998), novice clinicians with high self-efficacy have been shown to experience lower anxiety in

relation to clinical interactions. However, Urbani and colleagues (2002) found that novice counselor trainees consistently over-estimated their current skill level, but also found that training increased the accuracy of students' self-accuracy appraisal.   This finding is further supported by the work of Eva and Regehr (2005) who maintain students are often not able to accurately assess their own levels of clinical skills; thus, additional training on how to appraise skills level as well as reliable and valid external sources are often necessary.

A meta-analysis conducted by Judge, Jackson, Shaw, Scott & Rich (2007) found that for low complexity tasks, self-efficacy was predictive of job related performance, but not for tasks that are of medium and high complexity. Larson and colleagues (1999) as well as Rawlings et al. (2012) explored the impact of students' perceptions of self-efficacy in relation to clinical skills he or she demonstrates. They found students who had self-efficacy that was slightly higher than his or her actual level was optimal for experiential learning. Levels of self-efficacy that were significantly higher or lower than the students' *actual* skill level were found to negatively impact the acquisition of new practice skills. The relationship between self-efficacy and performance, especially in relation to live or technology enhanced simulations, is currently unclear (Holden, Meenaghan, Anastas & Metrey, 2002). Leigh (2008) further found that teaching modalities other than traditional lecture have been shown to increase the self-efficacy and/or confidence of nursing students. Jeffries, Woolf & Linde (2003) in a study comparing technology based to traditional instruction found that there were no differences in students' perceived self-efficacy based on the type of training they received. Similar studies comparing technology-enhanced teaching methods with traditional methods such as lecture also found no significant difference in students' self-efficacy (Alinier, Hunt, Gordon, & Harwood, 2006; Jansen, 2015; McConville & Lane, 2006).

Stewart, Perry & Hamm (2013) assert that a safe learning environment reduces the perceived risk of failure for students and raises the probability that self-efficacy for the given task will increase. Thus, simulations using virtual patients have the potential to create this "safe" learning environment in which students can build self-efficacy without worrying about potential risks to the client. Additional exploration concerning the relationship between student skill level, training modalities and self-efficacy is needed at this time.

Intervention Development

Bell (2004) advocates for design-based research in education, stating that any educational intervention should be guided by a focus on promoting, sustaining, and understanding innovation in the world. This approach to research seems particularly applicable when evaluating novel or technology enhanced educational interventions. Although there are numerous frameworks available concerning the conceptualization, design and testing of educational interventions for human services professionals, many of them lack the adequate methodological rigor required to truly establish efficacy of a given educational intervention (Feuer, Towne & Shavelson, 2002; Price et al., 2005; Thomas & Rothman, 2013). This is primarily because many of these frameworks progress directly from theory to intervention and implementation without adequate pilot testing and initial evaluation, or without repeatedly testing efficacy through multiple randomized control trials. Application of appropriate, rigorous research design to social work research is essential to advancing social work education and the social work practice field (Rubin & Babbie, 2015).   It is expected that investigations using this approach will help to expand our knowledge base concerning appropriate training methods for social work students.

Thus, for this project, the framework set forth by Rounsaville, Carroll & Onken (2001) which proposes the use of a stage model for behavioral therapies research was utilized. This

framework is considered the "gold standard" in intervention development, and has been used to develop a number of technology enhanced interventions (Carroll et al., 2008; Carroll et al., 2009; Marsch, Carroll & Kuluk, 2014; McLay et al., 2012; Polzien, Jakicic, Tate & Otto, 2007). This model emphasizes the importance of preliminary testing of any intervention for acceptability and feasibility prior to conducting efficacy evaluation. It also provides specific examples of tasks and activities that should be executed at each stage of intervention development, as well as guidelines concerning the sequence in which they should be executed, in order to ensure validity of results once a full scale randomized control study is conducted. Application of this approach to the development of an educational intervention guided the development of the training simulations used in this project, which were also grounded in Knowles' (1992) adult learning theory, Kolb's (1984) stages of experiential learning and Bandura's (1991) theory on self-efficacy.

The Use of Simulations in Social Work Education

Field Education and Clinical Simulations

An area of social work education which still relies heavily on "traditional" methods of instruction is that of clinical skills training, including training in brief assessment, clinical interviewing and diagnosis of mental health issues. Although not explicitly stated, traditional clinical skills training has been largely based on Dreyfus & Dreyfus's (1980) multistage model of skill acquisition where the learner moves through a succession of stages from novice to expert (Dreyfus, 1997). This method initially relies heavily on observational learning (Schunk, 1989), later moving toward more active strategies utilizing direct participation (Haidet, Morgan, O'Malley, Moran, & Richards, 2004). Social work instruction based on this model is comprised of a number of core components including student role-plays, (Doelker & Bedics, 1987; Miller, 2004; Moss, 2000), live or video-based observation of one's peers, (Bolger, 2014; Collins, Cook-Cottone, Robinson, & Sullivan, 2005; Werrbach, 1993) and demonstrations of "experts" executing clinical skills (Balslev, de Grave, Muijtjens, & Scherpbier, 2010; Bernard & Goodyear, 2008; Bernard, Goodyear, & Bernard, 1992; De Corte, 1990). These learning opportunities are supplemented by practice with live clients in one's field placement (Bogo, 2006; Gonsalvez et al., 2013; Lager & Robbins, 2004; Wayne, Bogo & Raskin, 2010) bridging theoretical and observational learning with actual skills practice. In fact, Goldstein (2001) along with Simpson, Williams and Segal (2007) assert that learning experiences in field are fundamental to the ultimate integration of theory and classroom knowledge that translates into competent clinical work.

This merging of observational and experiential education is thought to bring about gains in clinical skills acquisition, namely in relation to procedural skills, by affording students' opportunities for practice in a semi-controlled environment. This approach has been used

extensively in medical education over the past 30 years most frequently in relation to procedural skill acquisition or to assist with students gaining specialized knowledge to address complex clinical problems (Good, 2003). This approach has also been widely used in the field of social work education.

The most basic and most often used form of simulation-based education is peer to peer role plays. Role plays are commonly used to practice foundational skills such as active, reflective listening, establishing rapport, engaging client participation in decision making or practicing referral and service linkage. Regrettably, peer to peer role plays often have drawbacks in relation to their impact on the social work classroom and the transfer of skills to interactions with live clients (Badger & MacNeil, 1998; 2002; Rogers & Welch, 2009). Possible unintended consequences associated with live student role plays may include inappropriate self-disclosure and emotional vulnerability (Badger & MacNeil, 1998; Levitov, Fall, & Jennings, 1999; Miller, 2004; Sommers-Flanagan & Means, 1987), anxiety concerning "acting" like a real client (Levitov et al., 1999; Petracchi, 1999), inadvertent assistance to other students, and lack of standardization (Badger & MacNeil, 1998, 2002; Rogers & Welch, 2009). To address these concerns, educators may opt to have students videotape peer role plays so that they may be screened by the instructor prior to sharing them with the class. Although reviewing videos of student role plays offers the opportunity for students to reflect on their own performances as well as those of others, they often lack standardization (Rogers & Welch, 2009) and do not have the "feel" of actual clinical encounters with "real" clients (Badger & MacNeil, 1998; Miller, 2004; Petracchi & Collins, 2006).

Shulman (2005) describes signature pedagogies as "types of teaching that organize the fundamental ways in which future practitioners are educated for their new professions" (p. 52).

They are comprised of basic, complex and implicit behaviors, structures and skills which guide professional development. Field education has historically been described as the "signature pedagogy" of social work instruction (Wayne et al., 2010). The importance of scaffolded learning (Vygotsky, 1991) and the integration of behaviors, structures and skills is reflected in the latest Council on Social Work Education's Education Polices and Accreditation Standards (EPAS, 2015). The EPAS offers guidelines for integrating both explicit and implicit knowledge in social work education based on the history and traditions of social work instruction, as well as the integration of new and emerging knowledge. Field based education affords students opportunities to practice clinical skills through a supervised apprenticeship under experienced practitioners based on Kolb's (1984) experiential learning model. Engagement in field based education eliminates many of the drawbacks associated with classroom practice.

Sadly, field based training opportunities are also not without limitations (Raskin, Wayne, & Bogo, 2008; Wayne et al., 2010). One concern associated with field based education is the often limited opportunities to practice with a diversity of real clients during field placements (Cooper-Bolinskey & Napier, 2014; Miller, 2004; Reisch & Jarman-Rohde, 2000). This is especially true in non-urban or homogenous areas where many of the clients come from similar backgrounds as the clinicians, or where there are limited numbers of field placements to which students are assigned (Badger & MacNeil, 2002; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004).

In addition, Masters of Social Work (MSW) programs are unique in that MSW students are expected to work with live clients from the very beginning of the program, rather than during one's second year or beyond as in many other human services training programs. (American Psychological Association, 2013; CACREP, 2009; CAMFT, 2013). Although this may be less

problematic for those entering MSW programs with a Bachelor of Social Work (BSW) degree, students who attained bachelor's degrees outside of the social and behavioral sciences often have limited or no experience working with live clients.   This is a critical concern in the current era of interdisciplinary education where many MSW programs have begun to focus on translational research as a part of clinical practice (Bronstein, Mizrahi, Korazim-Kőrösy, & McPhee, 2010; Piedra, 2013). Thus many schools of social of social work are actively recruiting undergraduates from other disciplines into MSW and PhD programs, namely those from the STEM disciplines along with non-clinical areas of the social sciences such as political science, economics and anthropology. Given the vast differences in MSW students' professional experience and training, there is significant variability among incoming students in relation to baseline clinical skills. These differences, along with variations in the skill levels of field instructors, and field placement setting characteristics may impact the quality of the educational experience one receives in the field (Raskin et al., 2008).

Furthermore, there are ethical implications associated with inexperienced clinicians gaining experience through interactions with live clients in field, (Dolgoff, Loewenberg, & Harrington, 2011) particularly if the field instruction site offers inadequate supervision (Munson, 2012) or if the clients are members of vulnerable populations such as children or the elderly (Curl, Tompkins, Rosen, & ZlotniK, 2010) trauma survivors (Quiros, 2010) sexual or gender diverse clients (Johnson, 2013), or those who come from historically underrepresented racial or ethnic groups. (James, Smith, & Laird, 2011).   A lack of cultural competence combined with limited clinical acumen can be a recipe for disaster with these clients, and has the potential to do more harm than good (Boyle & Springer, 2001; Reisch & Jarman-Rohde, 2000).

Thus a dilemma exists, students need practice with clients to acquire competency in relation to clinical skills, but they need clinical skills to do ethical and competent work with clients (Badger & MacNeil, 2002).   As the United States continues to develop as a multicultural multiethnic population, practice opportunities with clients from a diversity of backgrounds are increasingly important for tomorrow's social work professionals (Boyle & Springer, 2001; Hatcher et al., 2013; Hays, 2009). With many in the field of social work education advocating for a shift towards competency-based education (Badger & MacNeil, 2002; Berger, 2013; Bogo, Regehr, Kathz, Logie & Mylopoulos, 2011; Mooradian, 2008) and an increased focus on educational approaches that prepare social work students to engage in evidence based practice (Bellamy, Bledsoe, & Traube, 2006; Hall, 2008; Piedra, 2013; Rubin, 2011; Thyer, 2007), there is a continuing need for evidence based teaching and assessment strategies to facilitate students' clinical proficiency (Abrams & Moio, 2009), as well as a need for valid, reliable and standardized ways of evaluating student competence. (Hatcher et al., 2013; Raskin et al., 2008).

Standard Patient Simulations

One solution proposed to address this concern is the use of standard (actor) patient simulations for assessing basic clinical skills (Carter et al., 2011). Simulation "refers to the artificial representation of real world processes to achieve educational goals via experiential learning" (Flanagan et al., 2004, p. 57). Standard patient simulations are a complex form of simulation which have been used extensively in the medical fields, (Broquet, 2002; Cleland et al., 2009; Good, 2003; Hodges, 2003; McGaghie et al., 2011; Stevens et al., 2006) but are a relatively underutilized component of social work education (Badger & MacNeil, 2002; Miller, 2004; Rawlings, 2012). Standard patients are actors who are trained by a team of clinicians/educators to present as a client with an issue or concern that is commonly seen in the

course of social work practice. Standard actor patients can mirror the vast diversity in age,

ethnicity, socioeconomic class and sexual orientation seen in clients encountered by real life

social workers, giving students the opportunity to practice with "clients" from a diversity of

backgrounds (Rogers & Welch, 2009). Standard patient simulations are usually designed to assist

with learning foundational social work skills (Badger & MacNeil, 1998, 2002; Carter et al.,

2011). These types of simulations can be used to provide clinical training on basic interviewing

and assessment (Miller et al., 2004; Rawlings, 2012; Rogers & Welch, 2009) or can be used to

practice interventions for specific behavioral health issues (Baez, 2005; Engel & Wonderlich,

2010; Gorrindo & Groves, 2009; Kenny et al., 2008; Triola et al., 2006). These interactions are a

vast improvement over student role plays because they are standardized for each student which in

turn assists with the assessment process.

Prior studies have found that simulations using actors as standard patients have superior

outcomes to training approaches without standard patients because in addition to being

standardized, they are also self-directed and engage active learning strategies (Kenny, Rizzo,

Parsons, Gratch & Swartout, 2007; Mooradian, 2008; Masters, Beacham & Clement (2015).

These simulations allow trainees to practice their skills while posing no potential for harm to the

client. Additionally, interactions with standard patients can more closely simulate interactions

with live clients, since students do not have any prior familiarity with the actors as they have with

one another (Badger & MacNeil, 1998; Miller, 2004; Rawlings, 2012) Furthermore, mistakes can

be made and remediated without threat of harm to an actual person in need of services. A recent

meta-analysis supports the use of simulation-based education for clinical skill acquisition and

supports the assertion that simulation-based education is more effective than traditional clinical

education in relation to skill acquisition (McGaghie et al., 2011).

Feedback has long been recognized as an important component of effective simulation based education (McGaghie, Issenberg, Petrusa, & Scalese, 2010).   Another recent meta-analysis indicates that terminal feedback (feedback given at the end of the simulation) contributes to skill acquisition and retention for novice learners (Hatala, Cook, Zendejas, Hamstra, & Brydges, 2013) while results of a recent survey conducted by the Association of American Medical colleges concluded that both terminal and concurrent feedback (given in real time as the simulation is progressing) contribute to skill retention in more advanced learners (Passiment, Sacks & Huang, 2011).

Multiple Council on Social Work Education (CSWE) Annual Program Meetings have featured presentations focusing on how various BSW and MSW programs have been using simulations to enhance clinical skills education (Rawlings et al., 2012; Rawlings & Bogo, 2013; Tolman, 2013). These simulations have been designed for skills specific to working with Child Protective Services, community based organizations focusing on historically underserved populations, and campus counseling centers. One private university reported using standard clients to create a simulation where a social worker interacted with four families in an emergency medical setting (Rawlings & Bogo, 2013). Another large public university reported conducting clients simulations for first year students using upper-class MSW students as the standard actors, allowing these students to earn elective credit for participation as standard clients (Tolman, 2013). Thus it appears that innovations in simulation-based education are taking a foothold in many social work programs.

Standard Patients and OSCEs as Assessment Tools

Standard patients have also begun to play a key role in the assessment of clinical skills in social work (Carter et al., 2011; Lu et al., 2011; Rawlings, 2012) and other direct practice disciplines. (Aeder et al., 2007; Lane, 1988; Selim, Ramadan, El-Gueneidy, & Gaafer, 2012; Simmons et al., 2011). Paper and pencil tests and written case evaluations are giving way to innovative assessment methods requiring students to demonstrate the application of skill sets in simulated clinical scenarios (Cook et al., 2011; McGaghie et al., 2011; Mooradian, 2008). One of the most well-known of these assessment methods is the Objective Structured Clinical Examination or OSCE. The OSCE method is gaining popularity because it can be used not only to assess student knowledge, but also application of that knowledge in direct practice situations (Hodges, 2003; Masters, Beacham & Clement, 2015).

OSCEs apply Bandura's (1989) Social Cognitive Theory focusing on the utility of interactive learning opportunities to increasing clinical self-efficacy via practice. The use of OSCEs as a standardized assessment tool has been gaining popularity in BSW and MSW programs in the U. S. and Canada (Bogo et al., 2011b; Lu et al., 2011; Rawlings et al., 2012; Rawlings, 2012). They provide social work educators objective measures of clinical skill acquisition that may be more accurate than those given by classroom instructors or field supervisors (Kilpatrick, Turner, & Holland, 1994; Lager & Robbins, 2004; Vinton & Wilke, 2011). Traditional methods of evaluation are often lacking objectivity due to halo effects (Bushnell et al., 2011) and other personal bias (Bogo, Regehr, Power, & Regehr, 2007; Gonsalvez et al., 2013) as well as organizational factors such as inadequate time to thoroughly assess clinical skills, and the lack of objective and consistent guidelines for evaluating performance in the field (Bogo, et al. 2011b; Bogo et al., 2007). OSCE assessments are conducted by two or

more experienced clinicians with no prior experience with the students, significantly reducing the potential for bias in the assessment process. Using rubrics specific to the skill set being evaluated, raters evaluate live or videotaped clinical interactions with standard clients.

The benefits and utility of OSCEs have been highlighted not only in the professional medical (Bearman & Dawson, 2013; Good, 2003), psychology (Lane, 1988; Riva, 2005) and social work literature (Bogo et al., 2011b; Lu et al., 2011; Rawlings, 2012) but also at the Annual Program Meetings of the Council on Social Work education (Rawlings et al., 2012; Rawlings & Bogo, 2013). The development and application of OSCEs as an alternative assessment tool for clinical skill acquisition has been showcased as part of the APM Faculty Training Institutes for the past five years and is the only institute that has been offered multiple years in succession. Recently social work specific OSCEs (Bogo et al., 2011, Bogo et al. 2012; Lu et al., 2011) have been developed and validated for use with BSW and MSW students. Although evoking initial anxiety in students, OSCEs have also been reported by students as a fair and valuable way to assess competency in relation to skill acquisition (Blanch-Hartigan, 2011; Nulty, Mitchell, Jeffrey, Henderson & Groves, 2011).

Virtual Patients for Simulation Based Learning

Virtual reality and other technology enhanced interventions in the allied health professions have been established as evidence-based approaches for a variety of psychological disorders (Cook & Triola, 2009; Gregg & Tarrier, 2007; Riva, 2005; Rothbaum, 2006). Technology enhanced interventions have been utilized in the treatment of obsessive compulsive disorder (Cipresso et al., 2013; McIngvale, Bakos-Block, Hart & Bordnick, 2012) anxiety (Klinger et al., 2004; Parrish, Oxhandler, Duron, Swank & Bordnick, 2015) trauma (Kenny et al., 2008; Rothbaum, 2006) eating disorders (Ferrer-García & Gutiérrez-Maldonado, 2011), and substance

abuse (Bordnick et al., 2004; Bordnick et al., 2008; Bordnick & Washburn, 2014). As of late, applications of technology in the allied health professions have shifted from a focus on treatment, to a focus on education and training , mirroring what has long been done in medical education with the use of virtual patients (Cook et al., 2011; Fabrizio, Rosaria, Martina, & Annalisa, 2012; Gorrindo & Groves, 2009; Kenny et al., 2007; Parsons, 2015; Stevens et al., 2006).   Virtual patients are a specific type of standard patient which can simulate authentic clinical encounters using interactive avatar-based technology (Riva, 2009).

Current technology yields virtual patients who are astonishingly lifelike. They move and speak in ways that are comparable to actual humans. Some respond to body language, tone of voice and facial expressions, making the interaction with the virtual patient approximate the spontaneity of a true clinical encounter in ways that student role plays cannot (Bateman, Allen, Kidd, Parsons, & Davies, 2012). Many virtual patients also contain a voice recognition component, which is essential to authentic simulation of clinical scenarios (Kenny et al., 2007; Parsons et al., 2008; Parsons, 2015). Researchers worldwide are exploring the utility of virtual reality technology and other technology enhanced training methods for clinical training due to their long-term cost effectiveness and ease of dissemination (Botezatu et al., 2010; Harden & Hart, 2002; Khanna & Kendall, 2015; Riva, 2009). Emerging research into the exact mechanisms that make technology enhanced training tools effective have found that factors such as interactivity, ease of navigation, ability to accurately depict clinical scenarios, and the availability of timely and appropriate feedback all impact usability and rate of clinical skill acquisition (Buckwalter, 2012; Cook et al., 2010, Posel et al., 2014).

Virtual patients have been widely used as a training tool in medical and nursing education (Cook et al., 2010; Cook & Triola, 2009; Fabrizio et al., 2012; Gorrindo & Groves, 2009;

Kenney et al., 2007).   Specifically, they have been used to assist with procedural training in cultural competence, clinical decision making, and interviewing and assessment (Abendroth, Harendza, & Riemer, 2013; Bateman et al., 2012; Cook & Triola, 2009; Freiderichs, Bolman, Oenema, Gayaux & Lechner, 2014; Kenny, Parsons, Gratch, Leuski & Rizzo, 2007). Studies concerning the efficacy of virtual patient simulations have consistently demonstrated improved clinical decision making skills in novice physicians when virtual patients are used (Cook et al., 2011). Virtual patients also have effectively been used to teach undergraduate psychology students to correctly identify symptoms of schizophrenia (Gorrindo & Groves, 2009) and have been used with novice therapists to assist with the diagnosis of conduct disorder (Kenny et al., 2007) and drug and alcohol abuse (Fleming et al., 2009). More recent investigations support the use of virtual patient simulations to aid in the identification of post-traumatic stress disorder (PTSD), major depressive disorder (MDD), and other commonly occurring mental health issues with both psychiatric residents and primary care physicians (Albright, Adam, Goldman, & Serri, 2013; Satter et al., 2012).

Virtual patient simulations have the potential for numerous applications in social work education.   They may be used as an andragogic training intervention to build competency in areas key to social work practice including rapport building, conducting a psychosocial assessment, and practicing the steps of the evidence based practice process (Kenny et al. 2007; Pantziaras, Fors & Eckblad, 2015). A recent study of social work students' perceptions of the use of a technology enhanced virtual world, *Second Life,* found that students' rated these technology enhanced experiences within the virtual realm as useful for the development of core social work skills (Reinsmith-Jones, Kibbe, Crayton & Campbell, 2015). Virtual patients could also be used as an adjunct to classroom instruction in clinical diagnosis, (Gorrindo & Groves, 2009; Parsons et

al., 2008) giving students the opportunity to interact with psychotic clients (Sorkin, Weinshall, Modai, & Peled, 2006) or clients who engage in self-injurious behavior (Perepletchikova et al., 2011) in a safe and non-threatening environment. The use of virtual patient simulations, like the use of simulations employing standard actor patients, would allow students to practice skill sets and receive feedback without fear of the interaction getting out of control, and without the possibility of harm to the client (Mooradian, 2008; Rafferty & Waldman, 2006).

The use of virtual patient simulations may encourage students to try new approaches with clients. Students could be free to make mistakes, receive feedback and practice the target skill sets repeatedly, leading to higher levels of self-efficacy and skill acquisition (Maschi, Wells, Slater, MacMillan, & Ristow, 2012; Rawlings, 2012; Van Dinther, Dochy, & Segers, 2011). The focus of interactions could be on the moment to moment interaction process rather than on the student trying to do or say the "right" thing (Posel, Mcgee & Fleiszer, 2014). Students would have the opportunity to learn from their errors without endangering or further traumatizing an actual client (Lee & Bertera, 2007; Leigh, 2008; Reinsmith-Jones et al.. 2015; Sburlati, Schniering, Lyneham & Rapee, 2011). Additionally, simulations featuring virtual patients provide students with opportunities to interact with a wide range of clients with concerns ranging from those that may typically be seen in clinical practice to those which interns may never see during field placement (Jansen, 2015). These simulations have an added advantage over live field practice in that they could be videotaped and reviewed for training purposes by other students and supervisors without the need for client consent (Parsons et al., 2008).

Use of virtual patients for simulations has a number of advantages over the use of standard actor patients. The training of standard patients is very time consuming and can be quite costly (Rawlings, et al., 2012; Triola et al., 2006). Constructing the clinical scenarios associated with

standard actor patients requires numerous person hours (Badger & MacNeil, 2002; Broquet, 2002), and the per-semester cost of using standard actors for simulations and OSCES is between $1000 to $5000 depending on the size of the cohort and the cost of actors and expert raters (Rawlings, et al., 2012; Triola et al., 2006). Thus, the use of standard actors for clinical simulations although reliable and valid, is often time and cost prohibitive in the current environment of limited educational resources.

There are also multiple concerns about logistics and scheduling when using standard actor patients. Fatigue impacting standardization may also come into play when actors are expected to engage in multiple simulations in a day. Virtual patients, on the other hand, can be used unlimited times during the course of the day and multiple students can interact with the same virtual patient simultaneously, neither of which are possible when using standard actors (Triola et al., 2006). More importantly, training encounters using virtual patients were found to have equivalent outcomes to those using traditional standard actor patients, and were rated by trainees as equally effective (Cook et al., 2010; Cook et al., 2012; Cook & Triola, 2009; Triola et al., 2006; Pantziaras et al., 2015).

In summary, it appears that the use of virtual patient simulations in social work education may be a flexible, objective, and ultimately cost-effective way for students to practice key clinical interview and assessment skills, and serve as a way for instructors to evaluate competency through direct observation of those skills.

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Components of the Dissertation as Articles

This dissertation consists of three articles that explored the potential uses of virtual patient technology in social work education, and evaluated the feasibility and utility of virtual patient simulation training to increase diagnostic specificity, clinical interviewing skills and self-efficacy during brief assessment for common mental health disorders.

Article One*: Simulations, technology and the evolution of clinical social work education: Role plays, standard patients and virtual clients* – submitted to the Journal of Teaching in Social Work. This article outlines the evolution of clinical social work education and the importance of experiential learning for future social work professionals. It further explores the potential uses of virtual patient technology to supplement and improve upon current experiential learning opportunities for social work students.

Article Two*: Virtual patient simulation to enhance brief diagnostic assessment skills: A pilot study* – Submitted to the Journal of Technology in Human Services. This article discusses the results of a pilot study conducted to evaluate the feasibility and usability of laptop based virtual patient software in relation to the development of brief clinical assessment skills in with a sample of MSW students. This article represents the work of Stages 1a and 1b of intervention development.

Article Three*: A randomized control trail of virtual patient simulations for brief assessment of common mental health disorders* – Submitted to the Journal of Social Work Education. This article compares changes in pre-post diagnostic accuracy in a sample of Masters level Psychology and Social Work students with and without virtual patient training. It also explores the use of virtual patients in place of standard actor patients for OSCE based assessment of clinical skills, and examines the relationship between students' ratings of self-efficacy,

diagnostic accuracy and brief assessment skills.   This article represents the work of Stage 2 of intervention development and testing.

CHAPTER TWO: ARTICLE ONE

Washburn, M. (in review). Simulations, technology and the evolution of clinical social work

education: Role plays, standard patients and virtual clients. *Social Work Education*

Submitted for review: May 9th, 2015

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Running Head: VIRTUAL PATIENT SIMULATIONS FOR CLINCIAL SOCIAL WORK

Simulations, Technology and the Evolution of Clinical Social Work Education: Role Plays,

Standard Patients and Virtual Clients

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Abstract

With a shift in accreditation standards toward competency based education, training methods requiring students to execute direct practice skills are becoming an increasingly important component of clinical social work education. The explosion of distance education in social work has highlighted the need for students to acquire baseline clinical skills and have adequate practice opportunities with a diversity of clients. As educators, we must explore innovative ways in which we prepare students for practice with vulnerable populations and assess student competencies. This article discusses advances in social work education and how innovative technologies may be integrated into the training and assessment of future practitioners.

Keywords: standard patients, OSCEs, virtual patient simulations, clinical social work education

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Technological advances in the past 20 years have led to significant changes in the ways

that social work students locate, consume and integrate new information into their daily lives.

The advent and widespread availability of portable devices with mobile internet connectivity

allows students access to millions of pieces of information in a split second, with the ability to

locate answers to questions almost immediately while interacting in real time with other students

around the globe (Scherer, 2011). The ever evolving field of technology has had substantial

impact on the process of higher education with the current generation of college students (Facer &

Sandford, 2010). Today's students are much more amenable to the use of technology in everyday

life including the use of technology in the classroom.

Accordingly, many professional social work programs have been increasingly integrating

technology into current course instruction either as an adjunct to traditional classroom and field

based approaches (Ayala, 2009) or as a substitute for face to face interactions though online or

distance education (Cummings, Foels, & Chaffin, 2012; Vernon, Vakalahi, Pierce, Pittman-

Munke, & Adkins, 2009). Learning platforms such as *Blackboard*, *Moodle* and *Web Ct,* anti-

plagiarism tools such as *Turn It In* and classroom response systems such as *Poll Everywhere* have

become familiar tools to many social work instructors (Postle, 2009; Smith, Shon, & Santiago,

2011). These tools, along with the use of *Wiki's* and the further refinement of real time

conferencing have resulted in a virtual explosion of technology enhanced educational options for

today's social work educators. Through the integration of these technologies, students' learning

experiences have been significantly enhanced, moving far beyond watching videotaped lectures

toward fully interactive virtual classrooms. Technology has not only improved social work education, it has also made it more accessible to thousands of students, namely those in rural areas with limited opportunities to engage with traditional college settings, or those who must maintain full time employment while completing a degree. Technology enhanced education has played a key role in addressing the shortage of qualified social workers practicing with our most vulnerable populations (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).

However, not all social workers have embraced technology enhanced education, especially when it comes to the area of direct clinical practice.   As such, a key area of social work education that still relies heavily on more "traditional" methods of instruction is that of clinical skills training. Although not explicitly stated, traditional clinical skills training has been largely based on Dreyfus & Dreyfus's (1980) multistage model of skill acquisition where the learner moves through a succession of stages from novice to expert.   This method initially relies heavily on observational learning, later moving toward more active strategies utilizing direct participation.

Social work instruction based on this model is comprised of a number of classroom components including in-class student role-plays, peer to peer live or video-based observation and demonstrations of "experts" executing clinical skills (Bernard & Goodyear, 2008; Bolger, 2013; Collins, Cook-Cottone, Robinson, & Sullivan, 2005; Doelker & Bedics, 1987). These learning opportunities are supplemented by practice with genuine clients in one's field placement (Bogo, 2006; Gonsalvez et al., 2013; Wayne, Bogo, & Raskin, 2010) bridging theoretical and observational learning with actual skills practice. In fact, Goldstein (2001) and Simpson, Williams and Segal (2007) assert that these learning experiences in field are fundamental to the ultimate integration of theory and classroom knowledge that translates into contextualized clinical work with clients. Unfortunately, each of these learning approaches has inherent drawbacks in

relation to their impact on the social work classroom and transfer of learned skills to live clinical

situations with actual clients (Badger & MacNeil, 2002; Levitov, Fall, & Jennings, 1999; Miller,

2004; Petracchi & Collins, 2006; Rogers & Welch, 2009). Possible unintended consequences

associated with live student role plays may include inappropriate self-disclosure and emotional

vulnerability, anxiety concerning "acting" like a real client, inadvertent assistance to other

students, and especially lack of standardization.

Although reviewing videos of student role plays offers unique opportunities for student

reflection on their own performance as well as that of others, they often lack the "feel" of actual

clinical encounters with "real" clients. (Miller, 2004; Petracchi & Collins, 2006). Additionally it

was asserted by Larson and colleagues (1999) and supported by Rawlings, Bogo, Katz and

Johnson (2012), that the impact of role plays as a training intervention is moderated by students'

perceptions of self-efficacy in relation to skills the student demonstrated in those role plays. They

assert that having self-efficacy that is slightly higher than one's actual level is optimal for

experiential learning , whereas having levels of self-efficacy that are significantly higher or lower

than one's current skill level has been found to have a negative impact on new skill acquisition.

Field Education

Field placement, known as the signature pedagogy of social work, (Boitel & Fromm,

2014; Wayne et al., 2010) allows students opportunities to practice clinical skills through a

supervised apprenticeship under experienced practitioners based on Kolb's (1984) experiential

learning model. Engagement in field based education eliminates many of the drawbacks

associated with classroom practice.   However field based training opportunities are not without

limitations (Raskin, Wayne, & Bogo, 2008; Wayne et al., 2010). A key concern associated with

field based education is often limited opportunities to practice with a diversity of real clients

during field placements. This is especially true in non-urban or homogenous areas where many of the clients come from similar backgrounds as the clinicians, or where there are limited numbers of field placements to which students are assigned (Badger & MacNeil, 2002). Masters of social work programs are unique in the fact that our students are expected to work with live clients from the very beginning of the program, rather than during one's second year or beyond as in many psychology or counseling programs. Although this is not as problematic for those entering MSW programs with a BSW degree, students who attained bachelor's degrees outside of the social and behavioral sciences often have limited or no experience from live practice with real clients.

This issue is critical in the current era of interdisciplinary education where many MSW programs have begun to focus on translational research as a part of clinical practice (Bronstein, Mizrahi, Korazim-Kőrösy, & McPhee, 2010). Thus many MSW programs are actively recruiting undergraduates from other disciplines into their programs. Given the vast differences in MSW students' professional experiences and training backgrounds, there is significant variability among incoming students in relation to baseline clinical skills (Katz, Tufford, Bogo, & Regehr, 2014). These differences, along with variations in the skill levels of field instructors, and field placement setting, may impact the quality of the educational experience one receives in the field (Cooper-Bolinskey & Napier, 2014; Raskin et al., 2008). As stated by Cooper-Bolinsky & Napier (2014), "Field experiences have a great deal of variance in terms of services provided, location and clientele; thus, there will likewise be tremendous variance in the opportunities afforded to students to demonstrate competence in practice behaviors" (p. 6).

Furthermore, there are ethical implications associated with inexperienced clinicians gaining field experience through live interactions with clients, particularly if the field instruction site offers inadequate supervision or if the clients are members of vulnerable populations such as

children or elderly, trauma survivors, those with non-binary gender identities, clients identifying

as lesbian, gay or bisexual or those who come from historically under-represented racial or ethnic

groups. (Curl, Tompkins, Rosen, & ZlotniK, 2010; Dolgoff, Loewenberg, & Harrington, 2011;

Munson, 2012).   Practice with live clients can generate significant anxiety for trainees,

particularly if they do not think they are adequately prepared (Rawlings, 2012).   A lack of

cultural competence combined with limited clinical acumen can be a recipe for disaster with these

clients and may actually do more harm than good (Boyle & Springer, 2001; Jansen, 2015; Reisch

& Jarman-Rohde, 2000).

Thus a dilemma exists: students need practice with clients to acquire competency in

relation to clinical skills, but they need clinical skills to do ethical and competent work with

clients (Badger & MacNeil, 2002).   With many in the field of social work education advocating

for a shift towards competency based education (CSWE, 2015) and an increased focus on

educational approaches that prepare social work students to engage in evidence-based practice

(Rubin, 2011; Thyer, 2007), there is a continuing need for quantifiable teaching and assessment

strategies to facilitate students' clinical proficiency. As the United States continues to develop as

a multicultural multiethnic population, practice opportunities with clients from a diversity of

backgrounds is also increasingly important for tomorrow's social work professionals (Boyle &

Springer, 2001; Hatcher et al., 2013; Hays, 2009).

Standardized Patient Simulations

One solution proposed to address this dilemma is the use of standard (actor) patient

simulations for teaching and assessing basic clinical skills (Carter, Bornais, & Bilodeau, 2011).

Standard actor simulations have been used extensively in medical education (Cleland, Abe, &

Rethans, 2009; McGaghie, Issenberg, Cohen, Barsuk, & Wayne, 2011; Stevens et al., 2006) but

are a relatively new component of social work training (Badger & MacNeil, 2002; Miller, 2004; Rawlings, 2012). Standard patients are actors who are trained by a team of clinicians to present as clients with psychosocial issues commonly seen in practice situations. Standard actor patients can mirror the vast diversity in age, ethnicity, socioeconomic class and sexual orientation and gender identity and expression encountered by real life social workers. These simulations give students the opportunity to practice with "patients" from a variety of backgrounds.

Standardized patient simulations can be used to provide training on basic clinical interviewing (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Rawlings, 2012) or can be used to practice specific interventions for behavioral health issues (Baez, 2005; Triola et al., 2006). Interactions with actor patients are a vast improvement over student role plays because they are standardized and consistent across administrations, helping with the assessment process. Additionally interactions with standard patients more closely simulate interactions with live patients since students do not have any prior familiarity with them as they may have with one another (Badger & MacNeil, 1998, 2002; Miller, 2004). Most importantly, missteps by novice clinicians can be made and remediated without threat of clinical harm..

Standard patients have also begun to play a key role in the assessment of clinical skill acquisition within social work (Lu et al., 2011; Rawlings, 2012) and other direct practice disciplines (Lane, 1988; Selim, Ramadan, El-Gueneidy, & Gaafer, 2012). Traditional paper and pencil assessments and written case evaluations are giving way to non-traditional assessment methods requiring students to demonstrate the application of skill sets in simulated clinical scenarios (McGaghie et al., 2011; Mooradian, 2008). Traditional methods of evaluation may often be lacking objectivity due to halo effects (Bushnell et al., 2011) and other personal bias (Gonsalvez et al., 2013). Organizational factors such as inadequate time to thoroughly assess

clinical skills while in field placement and the lack of objective and consistent guidelines for evaluating performance in the field also plague competency assessments (Bogo, Regehr, Katz, Logie, & Mylopoulos, 2011; Regehr, Bogo, Regehr, & Power, 2007).

With the recent revisions to the EPAS standards (CSWE, 2015) assessment methods demonstrating proficiency in skills application are taking a more central role in student assessment. One of the most well-known of these assessment methods using standard patients is the Objective Structured Clinical Examination or OSCE. The OSCE method is gaining popularity not only because it can be used to assess student knowledge, but also application of that knowledge in practice situations (Rawlings et al., 2012). OSCEs apply Bandura's (1989) Social Cognitive Theory focusing on the utility of interactive learning opportunities to increase clinical self-efficacy via practice. Using rubrics specific to the skill set being evaluated, independent raters evaluate transcripts of simulated sessions or videotapes of clinical interactions with standard patients. A key advantage of OSCE based assessments is that they are conducted by two or more "raters", allowing for triangulation of assessment data. They provide social work educators objective measures of clinical skill acquisition that may be more accurate of those given by classroom instructors or field supervisors (Kilpatrick, Turner, & Holland, 1994; Vinton & Wilke, 2011).

The use of OSCEs as a clinical assessment tool has been gaining popularity in BSW and MSW programs in both the United States and Canada(Lu et al., 2011; Rawlings et al., 2012; Rawlings, 2012). The benefits and utility of OSCEs have been highlighted not only in the professional medical (Bearman & Dawson, 2013; Good, 2003), psychology (Parsons, 2015; Riva, 2005), and social work literature (Badger & MacNeil, 2002; Lu et al., 2011; Miller, 2004), but

also at the Annual Program Meetings of the Council on Social Work education (Rawlings et al., 2012).

Unfortunately the formulation of a good OSCE with standard actor patients is often labor intensive and expensive (Badger & MacNeil, 2002; Rawlings et al., 2012). Constructing the clinical scenarios associated with standard actor patients requires numerous person hours (Broquet, 2002), and the per-semester cost of using an OSCE as a clinical evaluation tool is between $1000 to $5000 depending on size of the cohort and the cost of actors and expert raters (Rawlings et al., 2012; Triola et al., 2006). Thus, the use of this tool although reliable and valid, is often time and cost prohibitive in the current environment of limited educational resources. Thus, now the time is to look at innovative yet affordable ways to integrate the use of standard patients and OSCEs into social work education. This can be done though the integration of technology to develop standardized, cost effective, comprehensive clinical training and evaluation tools to be shared among social work programs nationwide. The inclusion of simulation based virtual patient technology into social work education can help us to meet this goal.

Virtual Patient Simulations

The use of virtual reality and other technology enhanced interventions have been established as an evidence-based treatment for a number of psychological disorders, namely those related to anxiety, trauma, eating disorders and substance abuse (Bordnick & Washburn, 2014; Cook & Triola, 2009; Gorrindo & Groves, 2009; McIngvale, Bakos-Block, Hart & Bordnick; Parrish, Oxhandler, Duron, Swank & Bordnick, 2015; Riva, 2005).   As of late, applications of technology in the human services fields have shifted from a focus on treatment, to a focus on education and training through the use of virtual patient simulations, mirroring what has long been done in medical education (Botezatu, Hult, Mesfin & Fors, 2010; Stevens et al., 2006).

Specifically, virtual patient simulations have been used to assist with procedural training, cultural competence, clinical decision making, and interviewing and assessment skill (Bateman et al., 2012; Cook & Triola, 2009).

Virtual patient simulations are a specific type of technology enhanced simulation which can reproduce authentic clinical encounters using interactive avatar-based technology. Current technology yields virtual patients who are astonishingly lifelike. They move and speak in ways that are comparable to actual humans. Many virtual patients also contain a voice recognition component, which is essential to authentic simulation of clinical scenarios. Virtual patient simulations have an advantage over traditional standard patient simulations in that they can be used unlimited times during the course of the day, and multiple students can interact with the same virtual patient simultaneously (Triola et al., 2006). More importantly, recent meta-analyses evaluating encounters using virtual patients found virtual patient simulations to have equivalent outcomes to those using traditional standard actor patients, and were rated by trainees as equally effective. (Cornsorti, Mancuso, Mocioni & Piccolo, 2012; Cook, Erwin, & Triola, 2010).

Investigation into the ever expanding applications of virtual patient technology is not only emerging in the United States. Researchers worldwide are exploring the utility of virtual patient simulations for clinical skills training due to their cost effectiveness and ease of dissemination (Botezatu et al., 2010; Harden & Hart, 2002). Emerging research into the exact mechanisms that make virtual patient simulations an effective training tool have found that factors such as interactivity, ease of navigation, ability to accurately depict clinical scenarios, well developed back stories and the availability of timely an appropriate feedback are all associated with increased usability and rate of clinical skill acquisition (Bateman et al., 2012; Cook et al., 2010).

Virtual patient simulations have the potential for numerous applications in social work education. They may be used as a training intervention to build competency in areas key to social work practice including rapport building, conducting a psychosocial assessment and for practicing the steps of the evidence-based practice process. Virtual patient simulations could serve as a pre-practicum training tool (Katz et al., 2014) or as the basis for "Field 1" so that novel practitioners may obtain basic competencies prior to engaging with live clients. Virtual patient simulations could further be employed for use in a skills practice lab for students engaging in fully online degree programs, where actual practice opportunities are often scarce outside of one's field placement. They could be used as an adjunct to classroom instruction in clinical diagnosis, giving students the opportunity to interact with psychotic clients or clients who engage in self-injury behaviors in a safe and non-threatening environment (Cook & Triola, 2009; Kenny, Parsons, Gratch, Leuski, & Rizzo, 2007; Parsons et al., 2008) .

The use of virtual patient simulations, could allow students to practice skill sets and receive feedback without the possibility of the interaction getting out of control, and without the possibility of harm to the client (Mooradian, 2008). Virtual patients could also offer novice practitioners the opportunity to address a number of common therapy interfering behaviors commonly encountered with live clients such as such as transference, acting out during session, and testing of the social worker's boundaries. Virtual patient simulations would provide the opportunity for novice social workers to try out a variety of techniques to appropriately address these clinical issues. It is also theorized that students having repeated practice opportunities using virtual patient simulations may be more apt to try new approaches or techniques (Pantziaras, Fors, & Ekblad, 2015). They would be free to make mistakes, and have the opportunity to learn from them without endangering or further traumatizing an actual client. Virtual patients could also be

used to help teach skills associated with family or home-based interventions (Levine & Adams, 2013). A lack of practice opportunities during field placement often leaves novice social workers ill prepared to address the therapeutic needs of families post-graduation. Virtual patient simulations may also be used to supplement field practice to build cultural competency (Lee & Bertera, 2007) though increasing the frequency and diversity of practice experiences. These interactions would have the added advantage that they could be reviewed for training purposes by other students and supervisors without the need for client consent (Parsons et al., 2008).

Virtual patients are currently being used in some social work classrooms to teach motivational interviewing, a technique which has widespread applicability to a number of populations and clinical issues (USC Social Work, 2015). In the future, virtual patients could serve as a substitute for standard patient actors in OSCEs. Many virtual patient simulations generate text logs of the interactions to assist raters with the assessment process. As technology continues to evolve, interactions with virtual patients could be computer scored, further reducing rater bias (Vinton & Wilke, 2011) and eliminating the need for an independent team of experienced clinicians as raters, saving both time and money.

Although the initial investment to create virtual patient scenarios is costly (Cook & Triola, 2009) as technology continues to evolve, the investment of time and resources needed to formulate the virtual patient scenarios will continue to decrease. Since newer virtual patient technology is laptop based rather than requiring traditional VR headsets and arm sensors, the need for a stand-alone VR lab is eliminated, substantially reducing cost. The onetime startup fee to purchase laptops on which to run virtual patient software is approximately $2,000 and is far less than the recurring cost of training standard patients and paying trained raters to evaluate videos of students' performance. Cost could also be contained through implementation of a collaborative

approach, sharing of virtual patients among different departments in the same university (such as medicine, counseling, psychology and social work) or by sharing the technology with other universities in the US and abroad.   Additionally, there has been an explosion of open access platforms that have potential utility in social work education. Tools such as *Second Life* are now being explored for teaching basic social work skills (Reinsmith-Jones, Kibbe, Crayton, & Campbell, 2015) and practice simulations such as *SimCoach* are being implemented to provide healthcare information and support to military populations, as well as to assist social work students in the identification of depression and PTSD (Rizzo et al., 2011).

Summary

It is not recommended that virtual patient simulations replace live field based practice, nor should other training interventions be completely abandoned in favor of using virtual patients. Often faculty view technological advancements as a departure from traditional instruction that decreases their worth as knowledge brokers. However virtual patient simulations are not meant to replace faculty instruction in the classroom, or practice with live patients in the field. Virtual patient simulations should be used to augment traditional faculty instruction, just as Power Point presentations, videos, and online exercises have served as adjuncts to enhance learning. Additionally, virtual patient simulations should not be the only tool used to evaluate social work competencies, especially in light of the latest proposed revision of the EPAS standards focusing on holistic assessment methods (CSWE, 2015).

However, the routine integration of virtual patient simulation into clinical social work instruction provides a unique opportunity for social work education programs to stand out and be on the cutting edge in the social services and mental health fields. By ensuring our graduates are well trained professionals who consistently engage in competent practice, social work as a

profession will be able to continue to advocate for parity in professional prestige and reimbursement with other mental health and social services providers. The integration of virtual patient technology into social work education has true potential to supplement and improve upon traditional forms of social work training and to produce better outcomes for our real clients.

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CHAPTER THREE: ARTICLE TWO

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Running Head: VIRTUAL PATIENT SIMULATION FOR BRIEF ASSESSMENT

Virtual Patient Simulation to Enhance Brief Diagnostic Assessment Skills: A Pilot Study

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VIRTUAL PATIENT SIMULATION PILOT

Abstract

Despite successful completion of advanced graduate training in assessment and diagnosis, many clinicians lack adequately developed brief assessment skills. This, along with deficiencies in the application of these skills in real world settings often results in misdiagnosis of common mental health issues. Skill deficits may result from systemic factors associated with current clinical training programs including the widespread use of passive/observational learning, limited experiential learning opportunities, inadequate practice with live clients in field placements, and unstandardized assessment measures. This study presents preliminary feasibility and acceptability data on the use of virtual patient simulations for development and evaluation of brief assessment skills.

Keywords: virtual patients, simulations, virtual worlds, technology training

Virtual Patient Simulation to Enhance Brief Diagnostic Assessment Skills:

A Pilot Study

Social Work is currently one of the fastest growing professions in the US with over 10,000 Masters level social workers graduating from CSWE accredited programs each year. The majority of these students are later employed in settings in which they engage in direct clinical practice, and provide over 60% of American mental health services, including conducting diagnostic screening and assessment (Kelly & Clark, 2008).

Misdiagnosis and non- diagnosis of mental illness remains as a constant barrier to effective intervention in primary care and community mental health settings (Norman & Eva, 2009). Costs associated with mental illness are higher than those for cardiovascular disease, chronic respiratory disease, cancer, or diabetes. The approximate costs associated with mental illness exceed *500 billion dollars* annually for the United States alone (Jason & Ferrari, 2010) and are estimated at *2.5 trillion dollars* worldwide (Insel, 2008). Nearly two thirds of the costs associated with mental illness are indirect costs such as lost productivity, which may be significantly minimized through accurate initial diagnosis and appropriate treatment (Singh & Rajput, 2006). Misdiagnosis and non-diagnosis often result in delayed or ineffective treatment and may further worsen client outcomes. High levels of co-morbidity among mental illnesses, limited diagnostic specificity in relation to symptom presentation (APA, 2013), insufficient training resulting from lack of extensive practice opportunities with live clients (Auger, 2004) along with highly unstandardized assessment measures (Broquet, 2002; Rawlings & Bogo, 2013; Rawlings, Bogo, Katz & Johnson, 2012;) all currently contribute to the problem of misdiagnosis in community based and private practice settings.

Improved training of Masters level providers is essential to addressing our nation's growing mental health needs (Thomas, 2009). This is especially important in the era on-line education where live clinical practice opportunities may be limited and observable interactions with live clients may be unavailable due to logistics and/or resources (Cummings, 2015). Unfortunately extensive practice with live clients is often unavailable to Masters level mental health trainees due to logistical concerns. One solution proposed to address this dilemma is the use of standard (actor) patients for assessing basic clinical skills (Carter, Bornais & Bilodeau, 2011). Standard actor "patients" are trained by a team of licensed clinicians to present with an issue or concern that is commonly seen in the course of clinical practice, and are designed to assist with learning key clinical assessment skills (Cooper & Briggs, 2014). The use of standard patient simulations is considered the "gold standard" for simulations in various direct practice professions such as nursing, medicine and psychology (Cook et al., 2011; Mooradian, 2008). Although they have been used extensively in the medical fields, (Broquet, 2002; McGaghie, Issenberg, Cohen, Barsuk & Wayne, 2011; Stevens et al., 2006) standard patients remain a relatively underutilized component of social services education (Badger & McNeil, 2002; Baez; 2005; Masters, Beacham & Clement, 2015; Miller, 2004; Parsons, 2015; Rawlings & Bogo, 2013).

Prior studies comparing clinical training methods have found that using human actors as standard patients have superior outcomes to approaches without standard patients, such as traditional paper and pencil case based trainings, because they are self-directed and engage active learning strategies (Mooradian, 2008). Incorporating standard patients into one's training program allows novice clinicians to practice their skills while posing no potential harm to an

actual person seeking help. Additionally interactions with standard patients more closely simulate interactions with live patients since students do not have any prior familiarity with them as they may have with one another as in the case of peer to peer role plays (Badger & McNeil, 1998, 2002; Miller, 2004).

Various health professions have begun to use technology to address key logistical issues associated with the use of standard actor patients. A novel solution has been developed through the use of virtual patients to address the shortcomings associated with other types of simulation based learning methods. Virtual patients are a specific type of standard patient which reproduce authentic clinical encounters using interactive virtual human agents (Rizzo, Parsons & Buckwalter, 2012; Cook, Erwin & Triola, 2010). For years, avatar based virtual technologies have been limited by cartoon-like depictions of humans, with cyborg/robot type of movements and speech. However, current technology yields virtual patients who can present with fairly credible appearance and behaviors. These virtual human agents move and speak in ways that are comparable to actual humans. Some respond to body language, tone of voice and facial expressions, making the interaction with the virtual patient approximate the spontaneity of a true clinical encounter. Many virtual patients also contain a voice recognition component, which assists with authentic simulation of clinical scenarios (Kenny, Rizzo, Parsons, Gratch & Swartout, 2007; Parsons et al., 2008).

An international group of researchers are exploring the utility of virtual reality technology in clinical training due to the potential for long term cost effectiveness and ease of dissemination (Botezatu, Hult, Mesfin & Fors, 2010; Riva, 2009). Emerging research exploring the mechanisms that make VR an effective training tool have found that factors such as interactivity, ease of navigation, ability to accurately depict clinical scenarios, and the availability of timely and

appropriate feedback are all factors that lead to increased usability and clinical skill acquisition (Rizzo et al., 2012; Cook et al., 2010).

Use of virtual patients instead of standard actor patients has a number of advantages. The training of standard actor patients is very time consuming and can be quite costly to implement, especially if new "patients" need to be trained annually (Rawlings et al., 2012; Triola et al., 2006). Although standard actor patients can mirror the vast diversity in age, ethnicity, socioeconomic class and sexual orientation seen in clients encountered by real life clinicians, their use is somewhat limited by the demographic characteristics and availability of diverse actors . Fatigue impacting standardization may also come into play when actors are expected to engage in multiple simulations in a day. Furthermore, only one student can interact with each standard patient at the time, and as such the number of learners that can be accommodated at any given time becomes of concern (Triola et al., 2006). Thus, the use of standard actors for clinical training, although reliable and valid, is often time and cost prohibitive in the current environment of limited educational resources. Virtual patients, on the other hand, can be used unlimited times during the course of the day and multiple students can interact with the same virtual patient simultaneously, neither of which are not possible when using standard actor patients.   Although the initial cost for the equipment necessary for virtual patient simulation may exceed the cost associated with one cohort of students utilizing standard actor patients, over time these costs are reduced significantly as the recurring cost of using these types of simulations is next to nothing.

A recent meta-analysis supports the use of simulation based education for clinical skill acquisition, and supports the assertion that simulation based practice is more effective than traditional clinical education in relation to skill acquisition (McGaghie et al., 2011). In addition to practice, feedback has long been recognized as an important component in effective clinical

education (McGaghie, Issenberg, Petrusa & Scalese, 2010; Passimet, Sacks & Huang, 2011) especially in relation to effective simulations.   Hatala, Cook, Zendejas, Hamstra & Brydges (2013) indicate that terminal feedback contributes to skill acquisition and retention for novice learner while both terminal and concurrent feedback contribute to skill retention in more advanced learners. Thus both practice and feedback are key components to any effective training intervention and are necessary for effective use of simulations to support clinical training. Another key point to consider in relation to simulation based training is how well the training or skills transfer into real world clinical settings. Trainings using virtual patients were found to have equivalent outcomes to those using traditional standard actor patients, and were rated by trainees as equally effective (Boteztau et al., 2010; Cook et al., 2010). Thus, further investigation of the use of virtual patients as effective clinical training tools is warranted.

The principal aim of this study is to evaluate the acceptability and feasibility of the use of virtual patient simulations with a sample of Masters of Social Work students. This pilot study utilizes standardized virtual patient simulations as a training tool for brief clinical interviewing skills, and assessment of common mental health related disorders.   The second aim is to determine if virtual patient simulations increase students' diagnostic accuracy. An additional aim of this pilot is to determine if these virtual patient practice opportunities result in improved brief assessment skills. The final aim of this project is to evaluate the face and content validity of the *OSCE for Social Work Performance Practice Scale* (Bogo, Katz, Logie, Regehr & Regehr, 2012) within the context of use with virtual patient simulations used to evaluate students' performance.

Method

Participants

Recruitment was conducted via fliers posted in the College of Social Work regarding an empirical research study focusing on technology and education. Potential participants were informed that participation in this investigation was independent of any class credit or any class grade. A convenience sample of six Masters students, four females and two males were enrolled. The mean age of participants was 26.5 years old, (SD = 2.88 years). Four students were Caucasian/White non-Hispanic, one was African-American/Black non-Hispanic, and one was Caucasian/White Hispanic. All participants were in the final semester of their MSW program and all of them had completed both an undergraduate and graduate course in psychopathology and/or clinical assessment and diagnosis of mental health disorders.   Each participant was entered into a drawing for a $100 gift card drawn at random by the PI.

Design and Procedure

All participants completed the informed consent process and filled out a demographic questionnaire. Participants then completed an informational session conducted by the PI on how to communicate with virtual patients. This informational session included a short description of virtual patients, how to communicate with them via wireless mouse and wireless headset set up for voice recognition. Participants also viewed two videos showing examples of virtual patients, and then were then given the opportunity to practice communicating with a virtual patient until he/she felt proficient in the use of the VP software prior to his/her initial assessment.

The virtual patients in this study were developed by the University of Southern California Institute for Creative Technologies (PI: Rizzo) and used with their permission. This program was originally created as a tool to help train clinicians in the assessment of returning military service

personnel, and can be run on a standard desktop or personal laptop computer. The program has 6 virtual patients of various ages, and ethnicities which can be selected to vary the clinical experience. Each virtual patient reported a specific set of background events and symptoms related to common mental health disorders such as anxiety, depression, post-traumatic stress and/or substance abuse. The virtual patients were projected on to a screen to make them life size and more realistic. Each participant completed a brief (30 minute) videotaped clinical assessment interview with the same virtual patient. Participants then completed three 30-minute practice sessions with different virtual patients, while receiving concurrent and terminal feedback from the PI concerning performance. Finally, participants completed a second brief videotaped clinical assessment interview with a novel virtual patient.

Measures

*Diagnostic Reporting Form (**DRF**).* The DRF is based on DSM-V (APA, 2013) criteria. Users complete the following assessment items: 1) obtain specific client symptom history and relevant biopsychosocial assessment information; 2) provide a DSM diagnosis(es) when appropriate; and 3) provide a brief justification/summary of diagnosis and any additional diagnoses that were considered but were ultimately ruled out. The DRF represents the standard for assessing learning on clinical diagnostic tasks and similar ratings/scoring methods have been used in research studies on clinician learning. (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004). Students' DRF assessments were scored on a scale of 0 (low diagnostic accuracy) to 50 (high diagnostic accuracy) for each clinical encounter by an independent rater with over 10 years direct mental health practice and clinical supervision experience.

*Usability Feedback Form (**UFF**).* A standardized education evaluation form was used to assess student preferences and perceptions of usability concerning virtual patient simulations at post

assessment. The form is a modified version of the System Usability Scale (Brook, 1996) and was used to explore student experiences with the VP method. Students rate their experiences on a scale of 1 (low usability) to 5 (high usability) for ten questions related to overall value of method, effectiveness of method, preparation for actual interviews, and if he/she would recommend this type of training to other students. Items 2, 4, 6, 8, & 10 were reverse scored to give an overall usability rating. Participants were also asked four additional questions rated on a scale of 1 (strongly disagree) to 10 (strongly agree) concerning the simulations' ease of use, how confusing they were, if the simulations impacted their clinical skills, and if the simulations helped prepare them to work with live clients. Finally students answered a series of open ended questions to offer suggestions on how investigators could improve the virtual patient simulation training in the future.

*Objective Structured Clinical Examination (**OSCE**).* The Objective Structured Clinical Examination (OSCE) is a standardized measure of basic clinical assessment skills. *The OSCE for Social Work: Practice Performance Rating Scale* by Bogo et al., (2012) was used for this study. This instrument has been validated on previous samples of social work students in Canada and the United States. Two trained raters who were Masters level clinicians with at least five years of direct clinical practice experience evaluated the videotaped clinical assessment interviews on a 50 point scale, with higher scores indicating higher levels of proficiency. Each video was evaluated by both independent raters. The mean of the scores given by each rater were used as the final OSCE score. Inter-rater reliability for OSCE scores was calculated using a weighted Kappa value (Hallgren, 2012).

Data Analysis

Data were cleaned and checked for violation of assumption of normality of dependent measures. To determine if training simulations improved students' diagnostic accuracy, paired t-tests were conducted to compare pre-training and post-training DRF scores. To determine the impact of training simulations on students' overall clinical interviewing skills, paired t-tests were conducted to compare pre-training and post-training OSCE scores. The t-test is robust in relation to assumptions of normality, even when sample sizes are small (de Winter, 2013). Effect sizes were then calculated using Cohen's (1992) *d* suggested by Morris and DeShon (2002) to correct for dependence between means,

$$d = M_{\text{pre,post}} \, / \, SD_{\text{pre,post}}$$

then adjusted for small sample size using the calculation for Hedge's *g* (Turner & Bernard, 2006).

$$d_{\text{adj}} = d \, [1 - \{3/(4n - 9)\}].$$

Finally, overall usability was determined by calculating the overall scale score for the UFF. Additional information concerning the acceptability and usability of virtual patient simulations was obtained from student responses open ended responses following the UFF.

Results

One student withdrew from the study after completion of the initial assessment interview due to time constraints, and this participant's data was excluded from the final analysis. All other participants completed both the pre-training and post-training interviews as well as all three training simulations. These participants also completed all baseline and post training outcome measures. No data was missing for these participants. Data were cleaned and checked for violation of assumption of normality of dependent measures.

Results of paired sample t-test indicated that there was a significant increase in diagnostic accuracy (DRF scores) following virtual patient practice sessions, (t=-6.53, df=4, p<.001). Effect size for this increase was larger than typical based (g_{Hedges}=2.65) based on Cohen's (1992) criteria. There was also significant improvement with regard to OSCE scores, (t=-7.98, df = 4, p<.001), with a similarly large effect size (g_{Hedges}=2.65).Internal consistency reliability for the OSCE was calculated via Cronbach's alpha based on standardized items as recommended by Leech, Barrett and Morgan (2011). Average alpha for the ten items of the OSCE was α =.67 which was in the "acceptable" range as defined by Kline (2000). Inter-rater reliability for OSCE scores was found to be κ = .69 (p < .001), 95% CI [0.60, .78], indicating substantial agreement beyond what would be expected by chance (Hallgren, 2012).

Table 1

Paired Samples t-test for Pre and Post OSCE and DRF Scores

N = 5	M-Pre SD	M-Post SD	t	df	g_{Hedges}
DRF	33.00 (5.70)	41.00 (5.48)	-6.53**	4	2.14
OSCE	30.60 (2.61)	38.00 (2.24)	-7.98**	4	2.65

Note. ** = p < .001.

As show in Table 2, students rated the usability of the virtual patients in the "moderate" range, M = 29.4, SD = .89. or a per item mean of 2.94 on a 5 point scale. Scores also indicate high scores for overall ease of use, M = 4.40, SD = .89. However, participants responses to reverse scored items also indicated there was high inconsistency within the virtual patient simulations M = 1.40, SD = .55, and the need for technical assistance were also high, M. 1.40, SD = .55. The overall

internal consistency reliability for the 10 point usability scale was calculated via Cronbach's alpha

and was calculated at α = .81which was in the "good" range (Kline, 2000).

Table 2. Usability Scores (UFF)

Question	M	SD
Use this training method frequently	3.60	.55
Training method unnecessarily complex[*]	3.00	.71
Easy to use	4.40	.89
Needed the support of a technical person*	1.40	.55
Functions were well integrated	3.20	.45
Too much inconsistency*	1.40	.55
Most people would learn to use this quickly	3.20	.45
Awkward to use*	2.80	.84
Confident using this training method	3.60	.55
Needed to learn a lot of things before I could use*	2.80	.45
Overall usability	*29.40*	*.89*

* = indicates reverse score of item

As shown in Table 3, scores on the additional usability questions ranked on a ten point scale

indicate that students found the simulations helped one to work with actual clients $M = 7.00$, SD

$= .71$ but also that the simulations were confusing at times $M = 8.00$, $SD = .71$.

Table 3. Additional Usability Questions

Question	M	SD
I found this training method easy to use	6.80	1.09
I found this training method confusing[*]	8.00	.71
This training method had a positive impact on my clinical skills	6.40	.89
This training method prepared me to work with actual clients	7.00	.71

* = indicates reverse score of item

Student Feedback on Virtual Patients

Student feedback on open ended questions was reviewed by OSCE raters. Key words and phrases were identified and responses that were reported by 4 or more of the participants are summarized below. When asked specifically about how the usability of the virtual patients could be improved, all participants indicated that they had difficulties with the accuracy of the voice recognition component of the software, and that the usability of the virtual patients would be significantly improved if the "hit rate" of the voice recognition was improved. Students indicated that there was too much inconsistency in relation to the way the virtual patient voice recognition worked both between virtual patients and within each virtual patient scenario, and that the difficulties with the voice recognition mechanism made this tool confusing at times.

Students also commented that in their field placements they usually had some guidelines for assessment that were accessible to them when conducting a clinical interview, and had a copy of the DSM available as well. They stated that the realism of the simulated clinical encounters

would be enhanced if these tools were readily available to them like they would in a real clinical practice setting.

Finally participants indicated a preference for a smaller incentive amount that would be given to every participant rather than being entered into a drawing for an incentive of a larger amount, and to provide incentives for each phase of the project, given participants had to commit to completing fives total sessions. They suggested that giving incentives to every participant would assist with recruitment and retention in future studies investigating the use of virtual patient simulations with social work students.

Discussion

Overall these pilot results indicate that repeated practice thought virtual patient simulations is associated with an increase in diagnostic accuracy as well as an increase in overall clinical assessment skills as measured by the OSCE. Masters level social work students reported that virtual patient training assisted them in the preparation to work with clients in real life practice settings and that overall they found this method of simulation based training easy to use. Participants also reported they found this to be a useful tool to assist students in practicing clinical assessment skills.

Although the *OSCE for Social Work Practice Performance Rating Scale* has been found to be a reliable and valid tool for outcome assessment with live client simulations, it may not be the most appropriate tool to evaluate outcomes of students using virtual patient simulations, as Cronbach's alpha was only in the "acceptable", rather than "good" range. Students in this pilot consistently had very low scores on specific OSCE items. Feedback from the OSCE raters helped to determine that these low scores were due to the programming of the virtual patients, rather than on the student's quality of interaction with them. Some of the virtual patients did not have

developed responses to the questions about social and environmental factors that may be impacting his/her symptom presentation, or to empathic statements concerning client strengths and coping abilities, affecting both face and content validity as well as the internal consistency reliability of the measure for use with virtual patients. Additionally, certain key dimensions of brief assessment interviews in community practice such as assessing for physical health concerns, substance abuse (Babor et al., 2007; Madras et al., 2009;) and suicide risk (Bryan & Rudd, 2006; Fowler, 2014) were not captured by the *OSCE for Social Work Practice Performance Rating Scale.* These aspects of clinical interviewing and assessment are necessary for a comprehensive assessment. Thus, additional items on which these assessment domains may be evaluated during a clinical interview should be included in future OSCE measures for clinical interviewing and brief mental health assessment.

Revisions to the virtual patient software could be made in a fashion that allows the virtual clients to more thoroughly recount developed back stories and to have a stronger ability to recognize and respond to various empathic statement from the user. However this would require significant time and funding support to further develop the existing virtual patient character platforms. Thus it is recommended that in future studies an adapted scoring rubric integrating applicable items from the Social Work OSCE with items specific to each individual virtual patient be used as one of the dependent measures of student learning.

The voice recognition software was also reported to be problematic by the majority of the users. Again, significant time and funding support would be required to restructure the existing virtual patient voice recognition software. However a high accuracy text input option is available for use with these virtual patients. Thus in subsequent studies it is recommended to consider using text input, to increase "hit rate" and decrease participant frustration.

Moving forward, a basic one page clinical interview guide could be provided to participants to assist in making the clinical encounter with the virtual patients seem more like an initial intake interview in a community mental health setting. Similarly, a copy of the DSM5 should be provided to participants following the clinical interviews to guide them in the diagnostic process and to more accurately simulate clinical encounters in community practice.

Finally participants indicated a preference for a smaller incentive amount that would be given to every participant rather than being entered into a drawing for an incentive of a larger amount. Thus it is recommended that follow up studies offer smaller incentives for all participants, rather offering a larger incentive to be determined by lottery.

Although results of this pilot investigation are promising in relation to the use of virtual patient simulations as a training tool in brief assessment, the sample size is a limitation. As this is a pilot feasibility study with limited funding, the initial sample size of 6 was quite small. Therefore, the generalizability of this study is limited. In addition, given the lack of a control group, it is possible that threats to internal validity such as history, maturation, or testing effects may have impacted these results. Further investigation on the use of virtual patients with a larger sample size and a no-training control group may assist in addressing these concerns. Experimenter expectancies may have also potentially biased this study, as the PI was also the person providing the training. However all outcome measures were scored/evaluated by independent raters to help control for this possibility. Similarly, these results were found on a sample of MSW students who had prior familiarity with the DSM diagnostic system and who self- selected to participate in this pilot study. It is unclear at this time if the impact on virtual patient training will generalize to students with no prior DSM knowledge or students from other direct practice disciplines. Thus further research is warranted to determine if the increase in DRF

and OSCE scores are due to training alone or due to the characteristics of these particular students.

It appears that with some refinement, practice simulations with virtual clients may be an acceptable and feasible way for student's to improve their skills in brief assessment of common mental health disorders. Virtual patients have the potential to allow students' multiple practice opportunities with a variety of client populations *with no potential of harm to the client*. This in itself makes this tool a valuable adjunct to traditional classroom and field education in the assessment and diagnosis of common mental health concerns. Initial startup cost of using virtual patient simulations could be shared among departments at the same University, such as between the departments of nursing, social work and psychology, or though establishing agreements among universities to share basic virtual patient platforms that can later be customized to meet the needs of a particular program.

Virtual patient simulations may be used prior to students' engagement in their first field placement to assist with the development of basic skills necessary for competent work with live clients. They could also be useful in cases where there are very homogenous clients in one's field placement, or in instances where students only gets to interact with a limited number of clients while in field. Virtual patient simulations could also be used to teach more advanced and/or population specific clinical practice skills to those students already attaining basic proficiency. Because these virtual patients automatically record a text log for each interaction, students could practice with the VPs at his/her leisure and both students and instructors could use the text logs to objectively evaluate these interactions. Virtual patient simulations have the potential to be utilized in multiple ways in human services education, given the expected advances in the underlying

enabling technologies willingness of instructors to explore novel ways of teaching our students

clinical assessment skills. The time is now to explore these possibilities.

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CHAPTER FOUR -ARTICLE THREE

Washburn, M., Bordnick, P. S. & Parrish, D. E. (in review) A randomized control trail of virtual

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Running Head: VIRTUAL PATIENTS FOR BRIEF ASSESSMENT

A Randomized Control Trial of Virtual Patient Simulations for Brief Assessment of Common

Mental Health Disorders

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Abstract

The 2015 Council on Social Work Education Educational Policy and Accreditation Standards now require demonstration of key clinical skills in either real or simulated practice situations. This randomized control study of 22 Masters level social work and psychology students evaluated the use of virtual patient simulations for building brief clinical interview skills, increasing self-efficacy and enhancing diagnostic accuracy for common mental health disorders. This study also explored the use of virtual patients for conducting OSCE based assessments. Results indicate that virtual patient simulation increases student self-efficacy and support the use of virtual patient OSCE based assessment measures. Future directions and next steps for the integration of virtual patient simulation in social services education are explored.

Key words: virtual patients, standardized clients, simulation based learning, OSCE, self-efficacy

A Randomized Control Trial of Virtual Patients for Brief Assessment of Common

Mental Health Disorders

The newly updated Council on Social Work Education Educational Policy and

Accreditation Standards (EPAS) (2015) emphasize the need for social workers to demonstrate

skills sets related to human behavior and the social environment via real or simulated practice

situations. Building on the framework implemented in 2008, the 2015 standards have an

increased focus on measurable educational outcomes as a fundamental component of competency

based social work education. Competence is defined as holistic and multidimensional, involving

"both performance and the knowledge, values, critical thinking, affective reactions and the

exercise of judgment that inform performance" (p. 14). Assessment is considered key to

competency-based education and is "best done while students are engaged in practice tasks or

activities that approximate social work practice as closely as possible" (p. 14). As such, there is a

need for the development and evaluation of instructional methods that focus directly on students'

demonstration of specific skills sets to expand our current evidence base on effective educational

interventions. Currently there is a dearth of literature focusing on teaching brief mental health

assessment skills.

It is estimated that approximately one in four adults in the US suffer from a diagnosable

mental disorder at any given time (American Psychiatric Association, 2013). However, many

individuals with mental health concerns do not directly seek routine outpatient mental health

services, but rather initially seek help through primary care and/or emergency health care settings.

(Olfson, Kroenke, Wang & Blanco, 2014). As aspects of the Affordable Care Act, continue to be

implemented in the near future, more and more social workers will be working in integrated care

settings. (Horevitz & Manoleas, 2013; Lundgren & Krull, 2014). With these changes comes an increased focus on training behavioral health professionals, particularly social workers, to provide brief behavioral health assessments. (Albright, Adman, Goldman & Serri, 2013; O'Donnell, Williams & Kilborne, 2013; Pollard et al., 2014).

Over 60% of direct mental health services are provided by social work professionals (Kelley & Clark, 2009). However didactic classroom training alone on the recognition and evaluation of mental health disorders may not lead to proficiency in this area due to a number of systemic factors such as high levels of co-morbidity among mental illnesses, limited diagnostic specificity in relation to symptom presentation (APA, 2013) and incomplete training resulting from lack of experiential learning opportunities (Auger, 2004) . The misdiagnosis of common mental health issues still persists as a barrier to effective treatment and improved client outcomes (Auger, 2004). In addition, classroom training alone may not build the requisite self-efficacy needed for social work students to do competent clinical work (Holden, Meenaghan, Anastas & Metery, 2002; Pinquart, Juang & Silbereisen, 2003).

Field education, referred to as the *Signature Pedagogy* of social work, continues to be an essential component to the development of direct practice skills (CSWE, 2015; Wayne, Bogo & Raskin, 2010). Field education provides students with additional hands on practice opportunities to refine key clinical skill sets. However there are often meager practice opportunities related to assessment of mental health issues in many field placement cites such as schools (Kelly et al., 2010; Ko et al., 2008), child welfare systems (Healy, Meagher & Cullin, 2007; Ko, et al., 2008), the adult and child juvenile justice systems (Ko et al., 2008; O'Hagan, 2007); and routine health care settings (Blount & Miller, 2009), even though mental health issues most certainly impact the outcomes of client services provided in these settings.

Additionally, there continues to be ethical concerns about having unseasoned clinicians'

work with clients from vulnerable populations (Healy et al, 2007; Skovholt & Ronnestad, 2003;

Theriault, Gazzola & Richardson, 2009). Students often enter field setting with little or no

clinical training other than a few courses comprised of lectures and a brief introduction to basic

clinical skills (Wayne et al., 2010). Students are expected to learn as they go, and acquire these

skill sets while working with clients. This concern becomes more acute after graduation if newly

minted social work professionals have not engaged in adequate simulation based skills training,

which may result in further harm to vulnerable clients (Auger, 2004; Primm et al., 2010;

Rutherford, McIntrye, Daley & Ross, 2012; Yan & Chan, 2010). Thus, now is the time to explore

ways in which students in MSW programs can use realistic simulations to enhance students'

mental health assessment and clinical practice skills without the potential of harm to an actual

client.

Simulations in Social Work Education: Adult Learning Theory and Experiential Learning

Experiential learning has long been a cornerstone of clinical social work education (Bogo,

2015). From the beginning of one's MSW program, students engage in experiential learning

through the use of instructor/student or peer to peer role plays. Prior investigations in this area

have found that simulation based education is an effective tool to help build students'

competency. Simulations allow for students to practice key skill sets repeatedly, as well as

required them to demonstrate the application of these skills during the assessment process

(Badger & McNeil, 1998, 2002; Cooper & Briggs, 2014; Petracci & Collins, 2006).

Lee and Fortune (2013a, b) assert that educational activities which use both participation

and conceptual linkage had the greatest impact on student learning outcomes. Thus, some social

work (Bogo, Rawlins, Katz & Logie, 2014; Rawlins, 2012;) and psychology (Masters, Beacham

& Clement, 2015; Parsons, 2015) programs have taken experiential learning a step further, implementing standard patient simulations into their curriculum to assess competency. Live practice with simulated clients, usually actors, gives students the opportunity to demonstrate competence, and to assist in their preparation for work in the field. These simulation-based practice opportunities require students to demonstrate key skill sets and integrate essential components of adult learning such as being reflexive and self-directed in the context of professional development (Knowles, 1992).

Unfortunately simulations using live actor "patients" can often be costly and time consuming as well as requiring a great deal of logistical coordination. Actor training is labor intensive and may have to be done repeatedly from one semester to the next. Furthermore, using actors as standard patients is also expensive, as the often must be reimbursed for their time during training for and implementation of the simulations. Factors such as fatigue which impact standardization may also come into play when actors are expected to engage in multiple simulations in a day. Furthermore, actor based simulations can only be done one at a time as standardization is further impacted when multiple actors portraying the same client are conducted (Triola et al., 2006). Coordinating the schedules of actors, instructors and students creates logistical challenges, especially when there is a large number of students who need to engage in the simulations. However, the incorporation of technology based simulations, such as interactions with virtual humans, may be a way to minimize the drawbacks of live patient simulations (Triola et al., 2006).

Technology Enhanced Simulations

Virtual patient simulations represent a specific type of technology enhanced simulation which is believed to offer many of the benefits of live actor simulations, but without the afore

mentioned logistical drawbacks commonly associated them (Carter, Bornais, & Bilodeau, 2011; Khanna & Kendall, 2015; Triola et al., 2006;). These simulations utilize virtual human agents to reproduce an interactive clinical encounter.

Virtual human agents were initially cartoonish in appearance, making them inadequate for realistic clinical simulations. However virtual patients are now based on cutting edge technology with enhanced graphics that can accurately depict interactions with real clients. Virtual patients may be customized in terms of age, gender, race, ethnicity and presenting issue to allow for interactions with a diversity of clients that one may encounter as a social work practitioner. An example of a virtual human used in the University of Houston's Graduate College of Social Work's Virtual Reality lab is depicted in Figure 1. These virtual humans can be accessed from any personal laptop computer, and can be used multiple times per day by numerous users. This reduces the time it takes for a large cohort of students to engage in simulation based learning, and eliminates the need to coordinate schedules of students, actors and faculty for live simulations.

Figure 1: Virtual Human

Researchers worldwide are exploring the utility of technology enhanced simulations for clinical training due to its long term cost effectiveness and ease of dissemination (Cook, Erwin & Triola, 2010; Harden & Hart, 2002; Heitz, 2013). Emerging research into the exact mechanisms that make virtual patient simulations an effective training tool have found that factors such as

interactivity, ease of navigation, ability to accurately depict clinical scenarios, and the availability
of timely an appropriate feedback all lead to increased usability and clinical skill acquisition
(Bateman, Allen, Kid, Parsons & Davies, 2012; Huwendiek et al., 2013; Talbot, Sagae, John &
Rizzo, 2012). Virtual patient simulations prove to be more affordable than actor based
simulations as they can be used year after year, and can be shared by several departments within a
University or even shared between multiple Universities. As more users adopt technology, the
cost decreases. The clinical simulation hardware setup similar to that used in the current study
cost approximately $2,000, making it affordable for most clinical training programs.

Prior investigations on simulations using virtual patients with a group of psychiatric
residents and primary care physicians found that providers engaging in these types of simulations
demonstrated increased diagnostic accuracy for post-traumatic stress disorder (PTSD) and major
depressive disorder (MDD) as well as increased brief assessment skills, and that those who
participated in the simulation were highly satisfied with this training approach (Albright et al.,
2013; Satter et al., 2012). Additionally it was found that simulations using virtual patients are an
effective way to assist physicians and psychologists in the identification of specific mental health
disorders, history taking and the development of clinical reasoning skills (Flemming et al., 2009;
Kenny, Rizzo, Parsons, Gratch & Swartout., 2007; Pantziaras, Fors, & Ekblad, 2015; Parsons et
al., 2008; Posel, Mcgee,& Fleize, 2014; Satter et al., 2012). Other studies have explored the use
of virtual human technology for teaching basic practice skills (Reinsmith-Jones, Kibbe, Crayton
& Campbell, 2015) and motivational interviewing (Baer et al., 2012; Czart, 2014; Friedrichs,
Bolman, Oenema, Gayaux & Lechner, 2014) and determined that these types of training
simulations were highly rated by students and held promise as an effective educational
intervention.

Overall, training encounters using virtual patients were found to have equivalent outcomes to those using traditional standard actor patients, and were rated by trainees as equally effective (Cook & Triola, 2009; Triola et.al, 2006). These findings were confirmed in a recent meta-analysis on the use of virtual patient simulations in health professions' education (Cook et al., 2010) . The authors concluded that simulations conducted with virtual patients have comparable outcomes to those conducted with standard actor patients and that simulation based education was superior to no training interventions (Kenney et al., 2007; Parsons et al., 2008).

There is currently only one study related to mental health assessment and clinical interviewing utilizing virtual patient simulations with social worker students. Washburn, Bordnick & Rizzo (in review) conducted a pilot study with a convenience sample of 6 MSW students to evaluate the feasibility and acceptability of virtual patient simulations for increasing diagnostic accuracy and brief interviewing skills. Results indicated that there was an increase in students' diagnostic accuracy and clinical interviewing skills following virtual patient practice simulations. Student feedback concerning the usability and acceptability of the virtual patient simulations was positive. For a complete overview of pilot results please see Washburn et al. (in review).

Self-Efficacy and Student Competence

Self-efficacy is grounded in social cognitive theory and is defined by Bandura as "people's beliefs about their capabilities to exercise control over their own level of functioning and other events in their lives" (1991, p. 257). Self-efficacy differs from efficacy (competence) in that it refers to one's belief that he/she can affect an outcome versus his or her actual ability to affect said outcome. The relationship between self-efficacy and competence is a complicated one. Overall, studies show that student self-efficacy increases as a result of practice, however self-

efficacy is not always predictive of one's level of competency. Regardless, a certain level of self-efficacy is necessary for students to engage in competent clinical work.

Larson and colleagues (1999) as well as Rawlings, Bogo, Katz and Johnson (2012) explored the impact of students' perceptions of self-efficacy in relation to clinical skills he or she demonstrates. They found students with self-efficacy slightly higher than his or her actual skill level was optimal for experiential or simulation based learning. Conversely, students with levels of self-efficacy that were significantly higher or lower than their corresponding skill level have been found to negatively impact the acquisition of new practice skills. A meta-analysis conducted by Judge, Jackson, Shaw, Scott & Rich (2007) found that for low complexity tasks, self-efficacy was predictive of job related performance, but not for tasks that are of medium and high complexity. In addition, Levitov, Fall & Jennings (1999) and Rawlings (2012) that practice with live clients generates anxiety particularly if students do not believe they are adequately prepared. This anxiety may have a negative impact on students' competence. On the other hand, novice clinicians with high self-efficacy have been shown to experience lower levels of anxiety in relation to clinical interactions (Larson & Daniels, 1998).

Overall self-efficacy has not been found to be significantly impacted by the type of instructional method employed. This point is key in the age of online and technology enhanced education where traditional lecture based classes are becoming less and less common. Leigh (2008) found that teaching modalities other than traditional lecture have been shown to increase the self-efficacy of nursing students. Jeffries, Woolf & Linde (2003), in a study comparing technology based instruction to traditional instruction, found that there were no differences in students' perceived self-efficacy based on the type of instruction they received. Similar studies comparing technology enhanced teaching methods with traditional methods such as lecture also

found no significant difference in students' self-efficacy (Alinier, Hunt, Gordon, & Harwood, 2006; McConville & Lane, 2006). Additionally, Campbell et al. (2015) noted that students who received training for clinical interviewing skills via a virtual world platform had greater increases in self-efficacy than those receiving this training via live peer to peer role play format.

Given the potential promise of virtual patient simulations in social work education, the aims of this project were to determine if virtual patient simulation training is an effective instructional method for the development of students' diagnostic accuracy and basic practice skills and to evaluate the use of virtual patient practice simulations to build self-efficacy around brief mental health assessment. Three simulation-based training approaches were compared to determine if engagement in these simulations is associated with an increase in diagnostic accuracy, self-efficacy and overall clinical skills. The relationship between self-efficacy, diagnostic accuracy and clinical interviewing skills after completion of training will also be explored. Associations between demographic variables and dependent measures will be examined to determine if larger changes in outcome measures are associated with certain demographic characteristics. Finally, between groups differences on the three outcome measures will be evaluated to determine if simulations using virtual patients have equivalent outcomes to those using standard actor patients.

Method

Participants

Approval for this project was received from the authors' university Committee for the Protection of Human Subjects (CPHS). Student participants were recruited from the university's graduate Social Work and Clinical Psychology programs. Basic study information was posted on flyers in the respective departments, and students were also emailed via departmental list serve

concerning an opportunity to participate in original research. Potential participants were asked to

contact the principal investigator via email to set up a time for enrollment and completion of

consent documentation. Any currently enrolled graduate student in either of these disciplines

who had completed a class in clinical assessment of mental health disorders was eligible to

participate. Enrollees had to commit to attending five meetings at the college of social work as a

condition of participation.

Of the thirty-tow students who expressed an interest in the study, PI, six declined to enroll

due to the time commitment required for participation. Twenty six students completed the

consent process, but four dropped out prior to randomization and initiation of protocol due to time

constraints, resulting in a convenience sample of 22 students that were randomly assigned to one

of three practice conditions via a computer assisted randomization program. As shown in Table

1, this sample had a mean age of approximately 29 year old, was ethnically diverse,

predominately female and most participants had completed two years of graduate training.

Design and Simulation Conditions

A randomized 2X3 mixed factorial design with repeated measures was employed as seen

in Figure 2.

Figure 2 Study Design

Interviews	Training	Simulation Condition
Virtual Patient (7)	3 Practice Simulations	**Virtual Patient & Virtual Patient Practice (VPP)**
Virtual Patient (8)	No Practice Simulations	**Virtual Patient & No Practice (VPN)**
Standard Actor Patient (7)	3 Practice Simulations	**Standard Actor Patient & Virtual Patient Practice (SAP)**

(N =22) → R
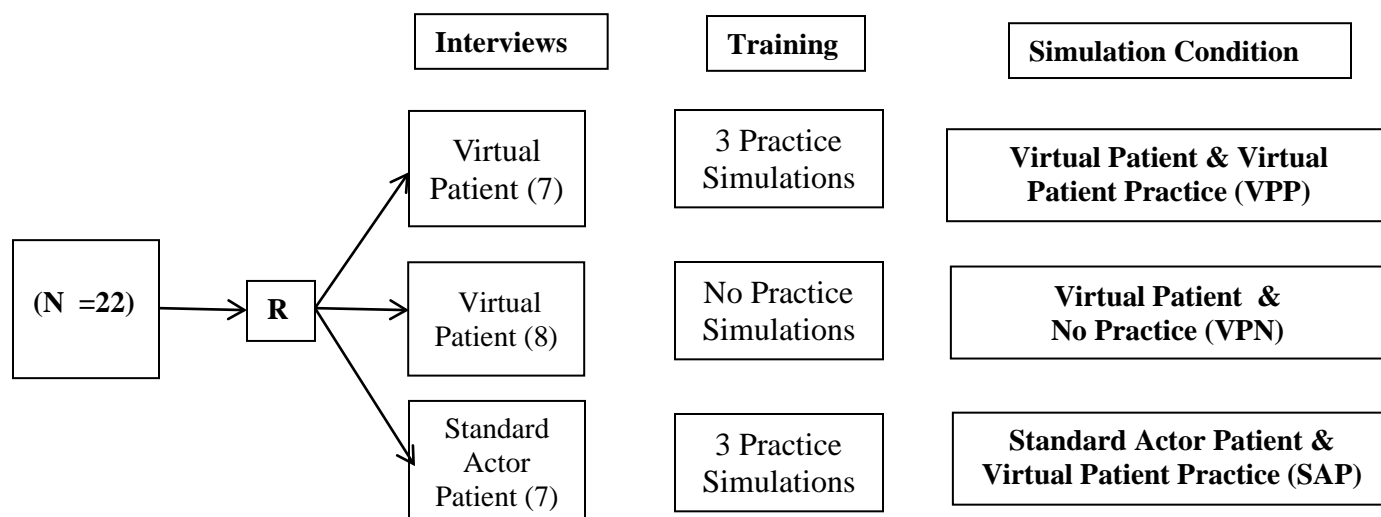
Procedure

Once enrolled in the study, students were randomized to a practice condition and asked to fill out a demographic questionnaire (DI). Students then completed an initial informational session on virtual patient simulations which included a short description of virtual patients, the best ways to interact with them, and three videos showing examples of interactions virtual patients. All participants were then complete a brief (30 minute) videotaped clinical assessment interview with either a live standardized actor patient or a computer based virtual patient.

Students were informed that they could take notes during the clinical interview and were given a one page guideline for to clinical interviewing to make the interview more closely approximate a real clinical encounter in a community setting. Similar guidelines are commonly used in clinical practice to assess for mental health disorders (First, Williams, Karg & Spitzer, 2015; Kessler & Ustun, 2004). Students then completed a diagnostic rating form (DRF) where they would render DSM diagnosis for the client they just interviewed. A copy of the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2013) was available to reference while completing the DRF. Students were informed that potential diagnoses were limited to the following categories: Anxiety Disorders, Substance Use Disorders, Trauma and Stress Related Disorders, Depressive Disorders and Bipolar Disorders, and were told that more than one diagnosis may be applicable. Finally, students completed a measure of self-efficacy related to the tasks of clinical interviewing and diagnostic assessment (SWSSE).

Following the initial assessment, students either received a three sessions of virtual patient training simulations or received no training. Students then completed a second brief videotaped clinical assessment interview with a novel standardized actor patient or virtual patient and a post

test that included the DRF and SWSSE and an anonymous online usability survey (UFF) with open ended questions concerning their experience with the virtual patient simulations. All participants were given incentives in the form of a gift card for completion of each phase of the project. They received the first incentive ($10) after completion of the initial clinical interview, the second incentive ($20) after completion of training and the third incentive ($20) after completion of the final assessment interview. Those participants randomized to the no training (VPN) condition received both incentive #2 and #3 after completion of the final assessment interview.

Virtual Patients. The virtual patients in this study were developed by the University of Southern California Institute for Creative Technologies and used with their permission. This program was created as a tool to help train clinicians in the assessment of returning military service personnel, and can be run on a standard desktop or personal laptop computer. The virtual patients were projected on to a large screen so that they would appear life size. Three different high quality virtual patients were used in the clinical interview portion of this study. The order and character used for the virtual patient interviews was randomized for each participant to control for any difference among virtual patients. Novel virtual patients were used for both the initial and final clinical interviews. Communication with the virtual patients was done via text interfacing. Participants would speak to the virtual patient and the PI would type this response into the VP laptop which would prompt a verbal response from the virtual patient.

Standard Actor Patients. Standard Actor Patients were live actors who had been trained to present symptomology related to specific mental health diagnoses. Actor patients were graduate students in the University's drama department who had been trained by the PI and a project consultant to portray clients who were similar to the virtual patients and had similar

mental health concerns. Actors were given information on the symptomology of various mental health disorders as well as background information on the character that they would be playing. Training took place at the PI's university over the course of two months where the actors would receive feedback from the consultant and the PI concerning the accuracy and consistency of their portrayal of the clients to assure reliability of presentation across participants. The guidelines for training standard actors can be found in Bogo et al., (2014). As with the virtual patients, three different standard actor patients were used for clinical interviews and different actor patients were used for both the initial and final clinical interviews.

Virtual Patient Simulation Practice. Participants assigned to the Standard Actor Patient group (SAP), and the Virtual Patient with Practice group (VPP) engaged in three 30- 40 minute practice sessions with concurrent and terminal feedback from the PI concerning the quality of participant's interactions with the virtual patients as and potential DSM diagnoses for each virtual patient. . Participants in the VPN condition received no additional simulation training after the initial assessment interview. Prior to each practice session, participants were again given information on how to interact with the virtual patients and the same clinical interviewing guidelines used for the pre and post-practice assessment interviews. Participants had the opportunity to interact with a total of four different virtual patients (one during the first session, one in the second session and two in the final session) though out the course of the training protocol. The order of presentation and patients used for the practice simulations were randomized to control for differences in the quality of virtual patients used for this study.

Assessment & Measures

*Demographic Information (**DI**):* Participants were asked to complete a standard demographic questionnaire. Demographic information collected will include age, gender, race/ethnicity, type of graduate program (psychology or social work), years in program, number of prior years of employment in human services related fields, current average number of hours of paid outside the home work per week, and self-rated level of familiarity with common mental health disorders.

*Diagnostic Reporting Form (**DRF**).* The DRF is a multidimensional assessment measure based on the DSM-V criteria. For each assessment interview, participants were asked to: 1) provide clinical diagnoses for each client along with symptomology and presenting concerns they used to justify the diagnoses: 2) obtain relevant biopsychosocial and environmental assessment information and 3) discuss diagnoses that were considered, but ruled out or provisional diagnoses needing further assessment. Similar ratings/scoring methods have been used in research studies on clinician learning (Broquet, 2002; Levitov, Fall & Jennings, 1999). Evaluation of DRFs was conducted by a and independent rater who was a licensed Doctoral level clinician with over ten years of clinical practice experience related to assessment and DSM diagnosis of mental health disorders. The accuracy of the student's DRF assessment was scored on a scale of 0 (low)-50 (high) based on participants response to DRF questions.

*Social Work Skills Self Efficacy (**SWSSE**).* The social work skills self-efficacy measure is a self-report measure through which social work students rate their own levels of proficiency in relation to a variety of tasks performed during the clinical interview. The current version was constructed based on Bandura's (1989) guidelines for measuring self-efficacy and is adapted from the original 52 item multidimensional instrument for social work proposed by Holden, Meenagan, Anastas & Metrey (2002). Respondents were asked to indicate her/his level of confidence in her/his current ability to perform each task in a manner that an experienced supervisor would evaluate as

excellent, ranging from 0 = I am not at all confident I can execute this skill, 5 = I am moderately confident I can execute this skill, and 10 = I am very competent that I can execute this skill. Scores on each question are summed to determine the total SWSSE score with a minimum total score of 0 and a maximum total score of 100.

OSCE based VP Rubric. The *OSCE for Social Work: Practice Performance Rating Scale* by Bogo et al. (2012) is a standardized measure of basic clinical assessment skills and has been used with previous samples of social work students in Canada and the United States. Based on the results of the pilot study (Washburn et al., in review) a modified OSCE rubric was used for this study. This rubric incorporated questions 2, 4, 5 & 6 of the *OSCE for Social Work: Practice Performance Rating Scale*, and also included a checklist of virtual patient specific items that students were expected to cover during the course of the interview such as an evaluation of impact of trauma, brief substance use assessment, a health/injury assessment and brief suicide risk assessment. The adapted OSCE resulted in a 55 point rubric with 8 items evaluated on a 1 (low) to 5 (high) scale, along with 15 additional yes/no items concerning participants inquiry about symptomology specific to the client.

OSCEs were evaluated in the following manner. Following completion of all data collection, each clinical assessment interview was transcribed by a research associate who was not involved in other phases of this project. To ensure that raters were blinded to participants' simulation condition (virtual patient or standard actor patient), transcripts of all clinical interviews, rather than the original videos, were given to two independent raters for review. Both raters were licensed Masters level clinicians with a minimum of five years of practice experience related to assessment and diagnosis of mental health disorders based on DSM criteria. The raters had been trained by the first author in OSCE based evaluation methods suggested by Bogo et al.

(2014). Raters were blind to the participants' simulation condition and were not told if each transcript was an initial or final interview. Both raters evaluated each clinical assessment interview. The mean of the scores given by each rater was used as the final OSCE based rubric score.

Planned Analyses

To determine if virtual patient simulation training has an impact on students' diagnostic accuracy self-efficacy and brief clinical interviewing skill, comparisons of pre and post training DRF, SWSSE and OSCE scores were executed. Then pre-post change scores for the DRF, SWSSE and OSCE were calculated by subtracting pretest scores from posttest scores. Between groups comparisons were conducted for the mean change scores on the DRF, SWSSE and OSCE. Correlations between changes in diagnostic accuracy, self-efficacy and clinical interviewing skills were calculated to determine the strength of association among these variables. Finally, the standard patient with training group was compared to the virtual patient with training group to determine if type of patient (virtual or actor) was associated with differential post-training outcomes on the OSCE measure, diagnostic accuracy and self-efficacy.

<div align="center">Results</div>

Data were cleaned and examined for assumptions of normality. DRF, OSCE and SWSSE measures at baseline were found to have negatively skewed distributions. However assumptions of homogeneity of variance were met for all pre and post intervention measures. Although transformation of the data was considered, after consultation with a statistician, it was determined that interpretation of the meaning of these data would be problematic if transformed. Despite the fact that the t-test is robust in relation to assumptions of normality, even when sample sizes are very small (de Winter, 2013), non-parametric analyses were conducted when indicated to ensure

validity of results. To determine if there were any significant differences between groups on demographic characteristics at baseline, initial testing was done using the Kruskal-Wallace test for continuous/ordinal variables and Fisher's Exact test for nominal variables. Results of shown in Table 1 indicate that there were no significant baseline differences in demographic characteristics among the three simulation conditions.

Table 1. Participant Demographic Information by Condition

Characteristic	Total M (SD) N = 22	VPP M (SD) n = 7	VPN M (SD) n = 8	SAP M (SD) n = 7	Kruskal-Wallis Test χ^2	df	p
Age	28.95 (6.71)	26.25 (2.93)	31.13 (9.95)	29.14 (4.33)	1.49	2	.49
Program Year	2.18 (0.91)	2.14 (1.35)	2.13 (0.83)	2.29 (0.49)	0.46	2	.78
Prior Employment	1.91 (2.02)	1.15 (1.46)	1.75 (1.75)	2.86 (2.61)	1.87	2.	.41
Current Work	17.41 (14.65)	15.43 (11.23)	18.12 (18.61)	18.57 (14.64)	0.33	2.	86

Characteristic	Total n (%)	VPP n (%)	VPN n (%)	SAP n (%)	Kruskal-Wallis Test χ^2	df	p
Prior Familiarity with DSM							
Moderate	13 (59.1)	5 (71.4)	4 (50.0)	4 (57.1)	.69	2	.86
Very	9 (40.9)	2 (28.6)	4 (50.0)	3 (42.9)			
Undergraduate Class							
No	5 (22.7)	0 (00.0)	3 (37.5)	5 (28.6)	3.04	2	.30
Yes	17(77.3)	7 (100)	4 (62.5)	2 (71.4)			

	Total	VPP	VPN	SAP	Fisher's Exact Test	p
Characteristic	*n* (%)	*n* (%)	*n* (%)	*n* (%)		
Graduate Program						
Social Work	15 (68.2)	4 (57.1)	6 (75.0)	5 (71.4)	.73	.86
Psychology	7 (31.8)	3 (42.9)	2 (25.0)	2 (28.6)		
Gender						
Male	4 (18.2)	2 (28.6)	1 (12.5)	1 (14.3)	.91	.81
Female	18 (81.8)	5 (71.4)	7 (87.5)	6 (85.7)		
Ethnicity						
African American	5 (22.7)	1 (14.3)	1 (12.5)	3 (42.9)	5.49	.90
Caucasian Non-Hispanic	11 (50.0)	3 (42.9)	5 (62.5)	3 (42.9)		
Asian/Pacific Islander	2 (09.1)	1 (14.3)	1 (12.5)	0 (0.00)		
Hispanic Latino (Any)	2 (13.6)	1 (14.3)	1 (12.5)	1 (14.3)		
Native American	1 (04.5)	1 (14.3)	0 (0.00)	0 (0.00)		

VPP – virtual patient with practice; VPN – virtual patient with no practice; SAP – standard actor with practice; Program year – number of years in one's graduate program; Prior employment – years of paid employment in the human services fields; Work – number of hours per week of paid employment in any field outside the home; Undergraduate class – participant had taken an undergraduate class in psychopathology, abnormal psychology or related subject; Familiarity – self reported prior familiarity with mental health issues

Diagnostic Accuracy

To evaluate if diagnostic accuracy increased as a result of training, Wilcoxon signed rank tests for two related samples was performed for the overall data, and for each simulation group. No baseline difference in DRF scores were found among the three groups based on the Kruskal-Wallace text, χ^2 (2, $N = 22$) = 5.59, $p = .06$. Results shown in Table 2 suggest that there was no significant improvement in diagnostic accuracy from baseline to post test for both the overall

sample and any of the individual simulation groups. Though not significant, a moderate effect

size was found overall and for the Virtual Patient with Practice (VPP) group, $r = .30$.

Table 2. Pre/Post DRF Scores

DRF	Pre M (SD)	Post M (SD)	Wilcoxon z	p	ES r
Total $N = 22$	40.41 (4.49)	42.36 (5.36)	-1.39	.17	.30
SAP $n = 7$	43.57 (3.78)	45.00 (5.77)	-.50	.77	.11
VPP $n = 7$	38.42 (2.57)	41.85(6.26)	-1.38	.25	.30
VPN $n= 8$	39.38 (5.24)	40.50 (3.59)	-.26	.86	.06

To evaluate if there were any differences in diagnostic accuracy among the three groups, the

Kruskal-Wallis test was performed. Results indicate that there were no significant differences

among groups on change in diagnostic accuracy, χ^2 (2, $N = 22$) = .42, p = .82, $r = 14$

Clinical Interviewing Skills

The internal consistency reliability of the 9 item modified OSCE rubric was $\alpha = .78$ which

is in the "acceptable" range as defined by Kline (2000). As recommended by Hallgren (2012),

inter-rater reliability for OSCE scores was calculated via intra-class correlation for ordinal

variables which incorporates magnitude of disagreement to compute inter-rater reliability

estimates for two coders. Inter-rater reliability was considered excellent at both pre-test

ICC= .92, p < .001, 95% CI [.80, .97] post-test ICC= .94, p < .001, 95% CI [.85, .97]

The Kruskal-Wallis test indicated there was no difference in baseline OSCE scores among

the three groups, χ^2 (2, $N = 22$) = 2.33, p = .32. To evaluate if there was an increase overall brief

assessment skills, Wilcoxon signed rank tests for two related samples was performed. Results

shown in Table 3 suggest that overall assessment skills did not significantly improve from

baseline for the overall sample or for any of the individual simulation groups. Though not

significant, a small to moderate effect size was found for the Standard Actor Patient group, $r =$

.25.

Table 3 Pre/Post OSCE Scores

OSCE	Pre *M* (*SD*)	Post *M* (*SD*)	Wilcoxon z	*p*	ES r
Total N = 22	33.05 (6.06)	33.77 (4.71)	-.62	.55	.18
SAP n = 7	31.43 (3.79)	21.57 (3.95)	-1.19	.28	.25
VPT n = 7	35.71 (3.82)	34.57 (4.26)	.17	.87	.04
VP n= 8	32.13 (8.64)	34.13 (5.96)	-.42	.74	.09

Between group differences for OSCE change scores were then evaluated using the Kruskal-Wallis

test. There were no significant differences among treatment conditions for change in change in

OSCE scores χ^2 (2, N = 22) = .48, p = 80, r =.15.

Self-Efficacy

Cronbach's alpha for the ten items of the SWSSE used in this study was considered to be

in the "good range" at α = .85 (Kline, 2000). Overall self-efficacy increased an average of 10

points from baseline, and the effect size was large, r = .99, as shown in Table 4. When each

group was examined independently using the Wilcoxon test, interviewing self-efficacy

significantly increased with simulation practice for both the virtual patient with practice (VPP)

and standard actor patient with practice (SAP) groups. Based on effect size, the largest increase

in self-efficacy was found in the group using virtual patients with additional practice simulations, r=1.25. No significant difference was found between baseline and post training self-efficacy scores for students in the no training condition and effect sizes were much smaller, $r = .27$.

Table 4 Pre/Post Self Efficacy Scores

SWSSE	Pre M (SD)	Post M (SD)	Wilcoxon z	p	ES r
Total $N = 22$	67.14 (10.34)	77.57 (8.91)	-4.68	.00[*]	.99
SAP $n = 7$	65.71 (16.17)	79.07 (7.69)	-2.20	.03[*]	.47
VPT $n = 7$	66.68 (6.44)	80.29 (5.73)	-5.87	.01[*]	1.25
VPN $n= 8$	68.62 (7.37)	73.88 (11.57)	-1.28	.24	.27

* indicates that p < .05

No significant differences were found among groups for self efficacy at baseline, χ^2 (2, $N = 22$) =.11 ., $p = 95$. There was no significant difference between groups for change in self-efficacy scores, χ^2 (2, $N = 22$) = 2.28., $p = .32$ however a moderate effect size was found for this difference $r = .32$.

Relationship Among Dependent Measures

Correlations among dependent variables were calculated via Spearman's rho to determine how strongly the changes in outcome measures (DRF scores, self-efficacy scores and OSCE scores) were associated with one another. Self-efficacy scores were not significantly correlated with changes in diagnostic accuracy r_s (20) = -.056, $p = .80$, or changes in overall clinical interviewing skills, r_s (20) = -.041, $p = .86$.

Virtual Patients vs. Standard Patients

Finally, the two groups receiving virtual patient simulation training were compared to determine if there was any difference in change in scores on the DRF, OSCE and the SWSSE when interviews using virtual patients were compared to interviews using standard actor patients. Results of Mann-Whitney U test indicate that there was no significant difference on change in DRF scores ($U = 20$, $p = 60$, $r = .13$), self-efficacy scores ($U = 22.5$, $p = .80$, $r = .05$) or OSCE scores ($U = 20.5$, $p = .64$, $r = .11$) for virtual patients with training as compared to standard actor patients with training, and all effect sizes were small.

Discussion

Overall, these results indicate that simulation based training with virtual patients is associated with significant increases in students' self-efficacy around conducting a brief mental health assessment interview. No change was found in overall diagnostic accuracy after training with this sample. Similarly, in this sample, no significant improvement in clinical interviewing skills was found. However given magnitude of some of the effect sizes found, due to small sample size there may have not been enough statistical power to detect significant changes in these skill areas. Effect sizes found in this study suggest that the training simulations may have impacted diagnostic accuracy in the VPP group and interviewing skills in the SAP group. Conclusions around the impact of virtual patient simulations would be strengthened in future investigations if a larger sample size was used. Similarly, it is currently unclear if three brief simulation training sessions were enough to produce meaningful changes in diagnostic accuracy and interviewing skills. Additional studies that vary the length and frequency of these simulations may shed additional light on the optimal "dose" of training necessary to clinically significant skill improvement in these areas.

Future projects may be enhanced by using virtual patients as part of normal classroom instruction on basic clinical skills or identification of mental health issues. Increasing the number of students from which data could be drawn would allow for greater generalizability of results to social work students as a whole, as the current study utilized graduate student volunteers, and a number of students who indicated interest in the study ultimately did not participate due to the out of class time commitment. Ideally, future simulations using a randomized control design would also include the provision of per session feedback from someone who was blinded to the interview condition of the participants. Although this appears to not have significantly impacted the results of the current study, it warrants consideration for future projects.

The finding that self-efficacy was not associated with increased diagnostic accuracy or increased skill in clinical interviewing was consistent with the prior social work literature investigating the relationship between student competence and student self-efficacy. Although self-efficacy is an important part of competence, self-efficacy does not appear to predict competence nor does competency increase proportionally with increases in self-efficacy. However, the overall results concerning significant increases in students' self-efficacy following virtual patient practice simulations are encouraging. Students who received the virtual patient simulations had on average a 13 point gain in self-efficacy indicating that their self-efficacy increased from the moderate to high range, whereas the self-efficacy for students who did not complete the training simulations stayed in the moderate range. Additionally the trends in the data indicate that there may be a significant difference among groups receiving training and those that did not with a larger sample size, and the magnitude of this effect was in the moderate range. Given that self-efficacy is an important component of competent clinical work, these results are

promising in terms of the positive impacts that virtual patient simulations may have in relation to improving students' confidence.

In the interest of time and potential for increasing the burden for participants, the current study did not utilize a student self-reflection piece as used in other OSCE based social work evaluations. Rather the self-efficacy measure of self-rated performance was used as a proxy measure of self-reflection. Future investigations may be strengthened by including a more in depth self-reflection component after each practice simulation to reinforce the student learning process and the use of self during simulated clinical encounters as recommended by Bogo (2011).

Strengths and Limitations

The use of text input, rather than voice input is a potential limitation of this study. Even though text input led to higher levels of input accuracy than the current voice input software could provide, it is possible that this method of communication may have negatively impacted students' performance on key outcome measures and somewhat limited the authenticity of the clinical encounters. It is highly recommended that future investigations utilizing virtual patients include a highly accurate voice recognition component, and that further refinement of the virtual patients themselves continue in terms of emotional response and acknowledgement of empathic statements. The adapted OSCE measure was unable to capture certain practice behaviors such as non-verbal communication, empathic responding and rapport building due to the programming of the virtual patients. Although the use of session transcripts, rather than videos of the sessions, were essential to blind OSCE raters to the participants interview conditions, raters were unable to evaluate these more subtle components of practice competence using the adapted measure.

It appears that the measures used in this study (UFF, DRF, SWSSE and OSCE) demonstrated adequate internal consistency reliability as well as face and content validity. Never

the less, all of the measures although based on valid and reliable measures, were adapted in some way to fit the exact needs of this study and have not yet been validated with a large sample. Further investigation into modifications of these measures may be warranted. However these results lend support to the potential for modification of these measures, particularly the *OSCE for Social Work Performance Rating Scale*, to suit the specific evaluation needs of a particular class or program.

Although investigations into the use of virtual patients in social work education is in its nascent stages, and the small sample size may makes it difficult to draw meaningful conclusions about the use of virtual patient simulations to enhance diagnostic accuracy and brief interviewing skills, these data extend our current understanding about the general feasibility and potential uses of virtual patients within social work education. This project was innovative in a number of ways that bear mentioning. It was the first study known to the authors to utilize virtual patients using a randomized control design to train social work students to discriminate among diagnoses rather than using them to train students to recognize a *particular* diagnosis. Second this was the first investigation that evaluated the use of virtual patients for OSCE based assessment. Results support the potential for using virtual patients with appropriately adapted OSCEs as a way of decreasing the time and cost burden associated with live patient simulations, while ensuring true standardization in presentation over multiple simulations. Finally this investigation used highly standardized assessment instruments and a team of independent trained raters which limited the potential for social desirability bias or experimenter expectancies from impacting these results. It is recommended that any subsequent investigations evaluating diagnostic accuracy or clinical skills, when feasible, utilize independent raters in addition to classroom professors or field instructors to provide objective evaluation of students' competence in key practice domains.

Future directions

Results suggest that there is no significant difference between virtual patients and standard actor patient outcomes on OSCE based assessments, lending support to the assertion that the use of virtual patients may be a more highly standardized and long term cost effective means of assessing student competencies in social work and other direct practice disciplines. Since this technology is laptop based, students can repeatedly engage in these simulations, something that cannot be done when actor patients with finite availability are used for practice simulations and/or OSCE based assessments. The use of virtual patient simulations for OSCES allows for multiple students to engage in these evaluations simultaneously, something else that is difficult to do with standard actor patients without potentially having a negative impact on standardization of client presentation across actors. Similarly there is potential for using of virtual patients for group simulations in addition to individual simulations. Groups of students could engage in simulations together and use collaborative decision making to try out new approaches, offer feedback concerning what could have been done or said, and then repeat the simulations based on this feedback. This option that is not currently available with live standard actor simulations or with live encounters with patients in need of services.

These types of simulation-based learning activities have great potential for use in hybrid or fully online programs to provide additional opportunities for students to practice with simulated clients. Future virtual client simulations could be enhanced through the use of three-dimensional (3-D) technology to increase the realism of the clinical encounter. Additionally, creation of simulations within open source platforms such as *Second Life* would provide a more affordable alternative for programs that may have limited access to the necessary simulation software, or those with limited financial resources. These simulations potentially could include

exercises for students to recognize specific clinical issues such as intimate partner violence or child abuse and neglect, in addition to training them in the recognition of common mental health disorders. Since the age, gender, race and ethnicity of virtual patients is customizable, virtual patient simulations could further be used to build competence with specific client populations such as recent immigrants, refugees and asylum seekers, older adults needing long term care, lesbian, gay or bisexual clients engaged in the coming out process and transgender/gender diverse clients needing support around issues of gender identity and expression in the workplace or at school.

There is potential for CSWE to partner with other accreditation bodies such as American Psychological Association or the American Medical Association to begin a virtual patient repository which could be shared among programs, thus decreasing cost and increasing access to a greater diversity of virtual patients. Most importantly all of this could be done without the potential of harm to actual clients in need of help, namely those who are most vulnerable. Overall there is great potential for the use of virtual patient simulations in many areas of social work education. The time is now to continue to integrate technology into our educational system to enhance learning outcomes and ultimately improve client care while positioning our profession at the forefront of innovation in clinical education.

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CHAPTER FIVE: DISCUSSION

The scope of the three articles included in this dissertation focus on potential uses of virtual patient simulations in social work education and tests a novel educational intervention using virtual patient simulations. This work also evaluates the feasibility and usability of virtual patients in place of actor patients with OSCE based assessments.

As the revision of the Educational Policy and Accreditation Standards (CSWE, 2015) results in a shift in toward observable demonstrations of competence through successful execution of key skill sets, there remains a need for further investigation into novel and established educational interventions to promote both student competence (efficacy) and their belief that they can successfully execute the essential job functions of a professional social worker (self-efficacy). This shift toward competency based education necessitates social work educators to have a variety of valid, reliable and cost/time effective evaluation tools for assessing student competence, such as the Objective Structured Clinical Examination or OSCE.

With the implementation of the Affordable Care Act and expansion of health coverage to millions of previously uninsured Americans, there will continue to be a need for social workers in a variety of public health, social services, and primary care settings who are proficient in brief assessment and diagnosis of common mental health issues (SAMHSA, 2014). Most recent estimates place the number of Americans who are personally impacted by mental health and substance abuse issues during the course of their lifetimes as approximately 1 in 4 (American Psychiatric Association, 2013), which translates based on the latest US Censure Bureau data into approximately 80 million Americans with mental health concerns (2015). The importance of this issue cannot be understated and the impact that social workers can have through facilitating early

diagnosis and treatment can be tremendous if they are adequately prepared to assess for common mental health issues across practice settings.

The first article, *Simulations, technology and the evolution of clinical social work education: Role plays, standard patients and virtual clients,* details various uses of simulation based learning in social work education. This article presents a comprehensive review of the literature and an overview of how clinical social work education has evolved, and continues to evolve, based on advances in learning theory and technology.

Through application of Bandura's (1989) social cognitive theory and Knowles' (1992) theory of andragogy, experiential learning has remained a key component of clinical social work education in the classroom through the use of peer to peer role plays and through instructors and other experts demonstrating key practice skills. This article highlights some potential limitations of traditional experiential learning approaches including lack of authenticity and "feel" of a true clinical encounter (Badger & MacNeil, 1998, 2002; Miller, 2004; Petracchi & Collins, 2006), the use of passive rather than active learning strategies (Bernard & Goodyear, 2008; Bolger, 2014) the potential for inappropriate self-disclosure (Badger & MacNeil, 1998; Levitov, Fall, & Jennings, 1999; Miller, 2004) and lack of standardization (Badger & MacNeil, 1998, 2002; Rogers & Welch, 2009). In addition the ethics around novice and often undertrained social work students interacting with our most vulnerable populations in the field is discussed, highlighting a dilemma seen in many of the direct services professions (Jansen, 2015). Students need realistic meaningful practice to develop clinical skills, but need skills to provide competent and ethical services to the patients seen in the field.

This article goes on to offer a potential solution to this dilemma that has become increasingly more common in social work educational programs: the use of standard "actor"

patients as a part of pre-practicum training or as an adjunct to traditional classroom instruction in various areas of clinical practice (Badger & MacNeil, 1998, 2002; Miller, 2004; Rawlings, Bogo, Katz & Johnson, 2012; Rawlings 2012; Rogers & Welch, 2009). Although standard actors have clear advantages over peer to peer role plays in terms of authenticity, while employing active learning, they are not without drawbacks. Simulations using standard actor patients require a great deal of preparation and training to be executed effectively (Broquet, 2002; Rawlings et al., 2012; Triola et al., 2006). Similarly, only a limited number of simulations can be executed at one time and integrating the scheduling of students, actors and observers/evaluators can be a logistical nightmare. There is also a financial burden associated with the training and use of actors as patients for simulations, presenting a barrier to use for large programs as well as the many MSW and BSW programs struggling with limited financial resources (Cook, Erwin & Triola, 2010; Triola et al., 2006).

To address logistical and cost issues associated with live actor simulations, other direct practice disciplines such as nursing and medicine have begun to integrate technology into training simulations through the use of virtual patients. Virtual patients operate using avatar based technology and can be used to simulate clinical encounters with patients that one may see in routine practice settings. Virtual patient based simulations have many advantages over standard actor simulations, as multiple learners may engage in these simulations simultaneously, and simulations can be scheduled for any time students have access to a laptop with the appropriate software (Cook & Triola, 2009; Parsons et al., 2008). Over time, the cost effectiveness of this type of simulation exceeds that of simulations using live actor patients. Furthermore, simulations using virtual patients allow students diverse practice experiences with clients from vulnerable populations but pose no potential of harm to actual clients (Jensen, 2015; Mooradian, 2008).

Simulations with virtual clients can easily be used as a learning tool with other students as there is no need for client consent to have these simulations recorded or watched live, making their utility extend beyond the student directly engaging in the simulations to the other students one's cohort. This author advocates for further investigation into applications of virtual patient simulations in social work, stating that in addition to having the potential to enhance students direct practice skills, virtual patient simulations could position social work programs at the forefront of research related to effective educational interventions and the application of technology for training in the human services fields.

In light of the updated (2015) EPAS standards, the need for standardized assessment measures is also a key component of this article. The social work educational community has increasingly been advocating for the use of social work specific OSCEs as outcomes measures in a variety of direct practice classes and/or field placements (Lu et al., 2011; Mooradian, 2008; Rawlings et al., 2012). However OSCEs using live standard actors have many of the same drawbacks of simulated practice sessions using actors, namely cost and logistics related to time and scheduling. Although the *OSCE for Social Work Performance Rating Scale* has been found to be reliable and valid outcome assessment measures for foundational practice skills (Bogo et al., 2012; Rawlings et al. 2012; Rawlings 2012), there remains questions as to if this measure can be used in its current form to assess advanced practice based skills sets, or if it must be adapted to capture other dimensions of practice specific skills.

Based on prior research, it was also unclear if OSCE based assessments using virtual patient simulations have similar outcomes to those using live standard patients with a sample of students outside medicine or nursing. Although current evidence suggests that the outcomes for virtual patient simulations with social work students would be similar to those found for

assessment using standard actor patients (Cook et al., 2010) more research is needed in this area to address the current gap in the literature related to the use of virtual patients for OSCES with a variety of tomorrow's human services professionals. This article provides directions for future research utilizing virtual patient simulations in social work education and sets the groundwork for the development of a training intervention leading into the pilot study discussed in paper 2.

The first aim of this dissertation was to evaluate the feasibility and acceptability of virtual patient simulations as training tool to enhance students' ability to recognize key symptoms associated with common mental health disorders while further developing their brief assessment skills. Article 2, *Virtual patient simulation to enhance brief diagnostic assessment skills: A pilot study,* begins evaluating the feasibility and usability of virtual patient based training simulations. This project represents the work done in Stages Ia and Ib of intervention development as described by Rounsaville, Carroll & Onken, (2001) including articulating a clear theoretical rationale (Stage Ia), evaluating acceptability and feasibility, and finally, pilot testing (Stage Ib). Paper two begins to gather preliminary evidence necessary to address the following research questions:

1.   Are virtual patient simulations a feasible and usable training tool for MSW students in relation to brief assessment of mental health disorders?

2.   Will virtual patient simulation training result in increased diagnostic accuracy and OSCE performance?

In order to address these questions, a single arm pilot study with repeated measures was conducted with a convenience sample of 6 MSW students. Participants completed a standardized training on the use of virtual patients, then a baseline clinical interview with a virtual patient. Participants then engaged in three sessions of training simulations where they received concurrent

and terminal feedback. This training was then followed by a final clinical interview with a novel virtual patient. Results indicate that both diagnostic accuracy and clinical interviewing skills for this sample improved significantly following training, and effect sizes were larger than typical.

Upon examination of individual items on the *OSCE for Social Work Performance Rating Scale*, it was determined that OSCE scores on certain questions of the assessment rubric were consistently low. Feedback from the independent OSCE raters suggested that these low scores were not simply due to deficiencies in student performance. Rather, the low scores on specific dimensions of this measure were due to limitations of the virtual patient software in terms of response to empathic or relationship building statements, and the level of development of virtual patients' backstories apart from current symptom presentation. It was recommended that for future investigations that the current OSCE based rubric be modified to exclude questions measuring those skill domains, and include additional questions that were specific to each virtual patient and his/her presenting problem. It was also recommended that additional questions relevant to mental health evaluation assessing physical health, substance use, and suicide risk also be added to the modified OSCE measure.

Participants rated the overall usability of the virtual patient simulations to be in the moderate range, with high ratings for of ease of use. Furthermore students reported that they thought that most other students would like to use this training method frequently, and that using this method helped to prepare them to work with clients in real clinical settings. However participants also stated that there was too much inconsistency in the program which made it confusing to use. Based on the responses of the open ended questions, students overall were dissatisfied with accuracy or "hit rate" of the voice recognition component of the software and stated that their experiences as users would be enhanced if accuracy of this tool was improved.

After consultation with a programming professional who worked on the original virtual patient build, it was determined that improvements to the current voice recognition would take substantial time and funding which would be beyond the scope of this dissertation. It was recommended that text input be used in any subsequent testing to address this concern. Finally students indicated that the realism of the simulations would be enhanced if they had brief list of key domains of client assessment to guide their clinical interviews. Thus, this phase of the project also included the development of a standardized one page interview guide highlighting the key domains that should be assessed during the course of a brief diagnostic interview. These domains were consistent with the domains covered on the adapted OSCE based rubric.

Overall results of the study supported the feasibility, acceptability and usability of virtual patient simulations for training in brief clinical mental health assessment. Results further support that virtual patient simulation training was associated with higher levels of diagnostic accuracy and increased performance on OSCE based outcome assessment measures. These results, along with recommendations of participants and OSCE raters informed the next phase of project development, which included a randomized control design with a larger sample size to gather additional data to address the remaining dissertation research questions.

The Article three, *A randomized control trial of virtual patient simulations for brief assessment of common mental health disorders*, built upon the result and feedback obtained in the pilot study. In addition to gathering further information concerning usability and acceptability of virtual patient simulations, this phase of the project represented the transition to Stage II of intervention development as outlined by Rounsaville et al. (2001) which includes formal randomized testing to evaluate the efficacy of the training intervention. This project attempted to answer the remainder of this dissertation's research questions including:

1. Will virtual patient simulation training result in increased social work skills self efficacy?

2. Can virtual patients be used in place of standard actor patients during OSCEs used to evaluate brief mental health assessment skills?

3. Is there a relationship between perceived social work self-efficacy, diagnostic accuracy and OSCE performance?

This investigation utilized a 2X3 mixed factorial design with repeated measures. Study protocol was the same as the initial pilot study but was expanded to include interviews using standard actor patients as a comparison group, as well as another virtual patient interview group who did not receive additional practice simulations. Graduate students in both social work and psychology were recruited to participate in this study to help increase sample size and potentially increase the generalizability of results across direct services professions. Participants were randomly assigned to one of the three following conditions: virtual patient interviews with no practice, virtual patient interviews with practice simulations or standard patient interviews with practice simulations. A number of additional open ended questions were included in the post training evaluation to gain additional student feedback concerning usability and acceptability.

Due to violations of normality of data, in addition to a small sample size, non-parametric analyses were used to ensure validity of results. Results of this study showed no significant change in pre/post DRF scores or in pre/post OSCE scores, and indicate that for this sample, virtual patient training had little impact on diagnostic accuracy or overall clinical interviewing skills for this sample. However these findings may have resulted from insufficient power due to limited sample size.

Students performed equally well on interviews conducted with virtual patients and interviews conducted using standard actor patients both at baseline and post training, lending

support to the hypothesis that virtual patients have the potential to be used in place of standard actor patients for OSCE based assessments of clinical skills.

Changes in self-reported self-efficacy were evaluated pre and post training and a comparison of changes in self-efficacy among groups was also calculated. Overall, this sample showed a large increase in self-efficacy from baseline to post training. Additionally when changes in self-efficacy were analyzed by group, there were significant increases in self-efficacy for both the standard patient with training and virtual patient with training conditions, and effect sizes were large. However no significant increase in self-efficacy was found for the group who did not participate in the training simulations. These results support the hypothesis that training leads to greater levels of self-efficacy around the task of brief clinical assessment. No significant relationship was found between self-efficacy, diagnostic accuracy and OSCE performance, supporting prior studies which concluded that performance and self-efficacy were not directly proportional, and self-efficacy was not predictive of competence (Judge, Jackson, Shaw, Scott & Rich, 2007; Rawlings, 2012; Rawlings et al. 2012;; Urbani et al., 2002).

Supplemental Usability Evaluation

Due to page limitations for journal submission, student feedback from the multi-group study evaluating the overall usability of the virtual patient simulations was not presented in paper three. The author plans to disseminate these data in an upcoming publication which will include a content analysis of open ended questions. None the less, there are some results from the standardized usability scale that bear mentioning as part of this work, as they add additional information concerning the usability ad acceptability of virtual patient simulations with future social service professionals. As with the pilot study, the Usability Feedback Form (UFF) exhibited excellent internal consistency reliability, $\alpha = .90$. This sample, like the sample in the

pilot study, also rated the overall usability of the virtual patients to be in the "moderate" range with a mean usability score of $M = 31.31$, $SD = 8.08$.

Based on the results of the Kruskal-Wallis test, no significant differences were found among the three training groups in relation to the overall usability score, $\chi^2 (2, N = 21) = .23$, $p = .90$. When groups were collapsed to test if there were differences in usability based on whether one completed additional virtual patient training simulations, results of the Mann-Whitney U test show that those who received training did not have usability scores that were significantly different than those who did receive training, $Z = -.45$, $p = .66$, $r = .01$. It was also found via Spearman's Rho that usability scores were not significantly correlated to OSCE scores $r (20) = -.25$, $p = .59$ or DRF scores, $r (20) = .02$, p = .97 or self-efficacy scores $r (20) = .27$, $p = .22$, indicating that usability ratings did not increase with diagnostic accuracy nor were they higher for those who exhibited higher overall levels of clinical skills. These findings demonstrate that usability ratings were independent of task performance or self-efficacy.

Unexpected differences were found between the social work students' and psychology students' standardized evaluations of the virtual patient simulations. Social work students reported a significantly more positive overall evaluation of the virtual patient simulations than the psychology students, $Z = -1.88$, $p = .03$, and effect sizes were moderate, $r = .40$. Differences on individual questions concerning usability are listed below in Table 1.

Table 1. Comparisons of Social Work and Psychology Students Usability Scores

	M (*SD*)	Mann-Whitney	*p*	ES
	Overall Usability			
Social Work	33.53 (7.95)	Z = -1.88	.030	.40
Psychology	26.57 (6.50)			
	Complexity	Mann-Whitney	*p*	ES
Social Work	3.47 (1.19)	Z = -1.96	.031	.42
Psychology	2.43 (2.00)			
	Integration	Mann-Whitney	*p*	ES
Social Work	3.67 (.82)	Z = -2.31	.016	.49
Psychology	2.71 (.76)			
	Others would use	Mann-Whitney	*p*	ES
Social Work	3.80 (.68)	Z = -2.23	.015	.48
Psychology	2.86 (.90)			

The practical significance of this is that social work students rated usability in the moderate range, whereas psychology students rated it in the low to moderate range. When the specific aspects of usability were considered, psychology students rated the acceptability of these simulations significantly less favorability in relation to complexity, integration and if they thought other student would like to learn using that method. Social work students per question ratings of these aspects of usability were on average a full point higher than psychology students and indicate that social workers rated these components of usability in the moderate to high range, whereas psychology students rated them to be in the low to moderate range.

These findings may be attributed to difference is training in psychology and social work programs, as psychology programs, in general, devote a larger portion of their training curriculum to development of direct practice skills, particularly those related to mental health assessment. The author of this dissertation was trained in both psychology and social work and is familiar with the accreditation standards and curriculum requirements of both disciplines. Field placements in psychology focus more acutely on direct mental health practice with clients,

potentially allowing those students more practice opportunities to practice brief mental health assessment skills than social work students are usually afforded. Thus, the differences in perceived usability could be indicative of these types of training simulations filling a gap in social work students' training that the psychology students may get filled elsewhere. These results could also potentially indicate that social work students are more open to novel methods of instruction, specifically technology enhanced instruction, than psychology students. Additional inquiry concerning these discipline specific difference related to the use of virtual patient simulations are indicated, especially in light of the assumed applicability of virtual patient simulations across direct practice disciplines.

Strengths and Limitations

This investigation was the first study to date which pilot tested virtual patient simulation training with a sample of social work students followed by randomized testing which included a no training condition and a larger sample. Prior studies have investigated the use of virtual patient simulations with nurses, physicians, pharmacists, occupational therapist and psychologists but not social workers.   This is significant in light of the fact that social work professionals are increasingly the front line providers of mental health and support services across a variety of practice settings (Brekke, Ell & Palinkas, 2007). As the number of CSWE accredited programs increases and the need for social work professionals remains high, research focusing on effective training interventions with present and future social work professionals should remain at the forefront of the social work educational research agenda.

The application of the Rounsaville et al. (2001) behavioral therapy research protocol to educational research was an innovative way to design and test an educational intervention. The importance of theory, piloting, revision and randomized control testing for any intervention,

especially educational interventions which shape the practice of tomorrow's professionals, is

imperative prior to implementation within an educational system to ensure its efficacy,

acceptability and cost effectiveness.

Another strength of this investigation is that it implemented a training intervention which

was firmly grounded in the literature on experiential learning and adult learning theory. These

simulations were self-directed, allowed students to integrate prior knowledge and life experience

into the simulation, were goal directed and problem based, and were immediately applicable to

their professional development as suggested by Knowles (1992). In addition these simulations

utilized a novel learning experience where students could develop and utilize problem solving

strategies in an applied setting as recommended by Kolb (1980). These simulations required

students to apply Bandura's (1989) social cognitive theory by engaging in simulations and then

reflect on the context on these interactions to evaluate their own self-efficacy.

As with any investigation this project has some limitations that should be addressed to

inform future research in this area. As mentioned in article three, virtual patient simulations

would be improved through the incorporation of voice recognition software exhibiting a high

degree of accuracy. This would enhance the realism of the situation and control for any impacts

to student performance that may have resulted from having someone else in the simulated

sessions to type in their responses.

There were also some inconsistencies in the results of the pilot study and the results of the

full scale randomized study, namely preliminary efficacy of the virtual patient simulation for

increasing diagnostic accuracy and clinical interviewing skills was supported in the pilot study,

but not in the randomized study. Although it is difficult to determine the exact cause of these

inconsistencies, it appears that changes in the outcome evaluation methods may have had some

bearing on these results. Following the pilot study, the OSCE measure was adapted to eliminate skill domains that could not be captured through the use of simulations with virtual, rather than live, clients. This change could account for higher baseline OSCE scores in the randomized study when compared to the pilot study. Although the modified OSCE retained adequate internal consistency validity, content and face validity, it is unclear how the modifications may have impacted construct validity or its reliability. Similarly, students in the pilot study conducted the clinical interviews without benefit of a clinical interview guide. This factor also may have contributed to the higher overall baseline scores in the randomized study, as students may have been "primed" (Bower, 2012) to select certain diagnoses in a way that had not occurred in the pilot study.

The homogeneity of diagnoses exhibited by the virtual patients themselves may have contributed to limited increases in diagnostic accuracy in the larger scale study. As any seasoned mental health clinician knows, there is significant overlap in symptomology among trauma related, depressive and anxiety disorders. It is also possible that having the interview guide which limited potential diagnoses to these categories may have limited students' critical evaluation of the clients' overall diagnostic picture, especially since all of the clients, both virtual and live, had some affiliation with the military. Although students were instructed in the pre-interview virtual patient training that the clients' issues may or may not be related to military service, their prior knowledge and expectations concerning mental health issues associated with military populations may have influenced their diagnostic accuracy and how they conceptualized these cases. These results underscore the importance of repeated small scale pilot testing prior to execution of a randomized control trial even if small modifications are made to the standardized research protocol or assessment instruments. Additional stage 1b testing to refine the training protocol and

establish additional efficacy of this training intervention prior to execution of another randomized study with a larger sample size may be indicated at this time.

Sample size was also a limitation of this project. The small size of the overall sample as well as each of the treatment conditions impacted the statistical power of this study. Although virtual patient training simulations may in fact had a positive impact on diagnostic accuracy and clinical interviewing skills, the probability of a Type II error occurring may have been high. Sample size also impacted the type and complexity of statistical analyses that could be conducted with these data, limiting the ability to predict which students may benefit most and the least from these types of training simulations.

Volunteer recruitment efforts were challenging for a project requiring up to five sessions of participation, even in light of the incentives that were offered to participants. Social Work and Psychology graduate students not only have to manage their time in terms of the demands of classroom based instruction, but also in relation to the amount of time they are required to be in their field/practicum placements. Since the majority of the Social Work students at the PI's university are employed during the course of their graduate studies, it is possible that many potential participants simply did not have time to consider participating in a study for which they would receive no academic credit and limited paid reimbursement.

Future studies into the use of virtual patient simulations as an adjunctive training tool should be conducted within the course of a semester long class in the target skill area. For example, based on the curriculum at the PI's university it would be recommended to integrate these virtual patients as part of the Clinical Applications of the DSM in Social Work class, or the class covering Assessment in Social Work Practice. This would allow for a larger sample size while including a wider diversity of students, limiting potential bias which may result from self-

selection, which may in turn lead to a greater generalizability of results. Having simulations integrated into classroom settings may also ensure that students thoughtfully engage in these simulations as they would with sessions with actual clients and not be tempted to treat them as "game" rather than an interaction with a "real" client.

It is also currently unclear if the length and intensity of the training intervention was enough to produce a noticeable change in students' skill levels. Future investigations varying the time and intensity of virtual patient simulation training may shed additional light on the optimum "dosage" of training necessary for technology enhanced simulations to reach optimal efficacy. Although trends in data suggest that more training simulations lead to greater gains in self-efficacy, the mechanisms through which virtual patient simulations impact theses skill areas is still unknown. Again, conducting these investigations repeatedly over time as part of a semester long class would assist in meeting this goal.

Integrative Summary and Conclusions

This dissertation begins to address existing gaps in the current social work literature concerning technology enhanced simulations and the use of virtual patients in social work education. Overall results support the feasibility and usability of virtual patient simulations with future social work professionals. These results also provide preliminary evidence for the use of virtual patients in place of standard actor patients for OSCE based assessment measures if the OSCE is adapted appropriately to accommodate the unique programming of the virtual patients. Engagement in virtual patient simulations was associated with an increase in students' self-efficacy concerning brief assessment and diagnostic skills. Although this line of inquiry is still in its nascent stages, results are promising concerning the multiple potential uses of virtual patient simulation in social work education, as well as the potential for the use of virtual patients to

enhance diagnostic accuracy and build student competence in brief assessment. As such, these three articles provide an important contribution to the social work literature through the publication of a comprehensive literature review, development and pilot testing virtual patient simulations as a theory based skill building tool for assessment and diagnosis of mental health issues, and conducting the first randomized control study of virtual patient simulations with social work students.

Implications for Social Work Research

Future research concerning the use of virtual patients in social work and other direct practice disciplines will be needed to establish the efficacy of virtual patient based simulations for building clinical practice skills. Based on the work started in this dissertation there remains a number of lines of inquiry which could increase our knowledge concerning the efficacious use of virtual patients in the field of social work. Further refinement of virtual patient training in mental health assessment is indicated, as there continues to be a need for social workers to efficiently identify mental health disorders across practice settings. This could be accomplished by additional Stage 1b pilot testing in this area. Upon completion of additional pilot testing, subsequent Stage 2 randomized control studies with larger sample sizes would help to increase our current knowledge about the exact mechanisms that contribute to the efficacy of virtual patient based training simulations. Increased research in this area will assist the profession in addressing psychosocial and structural factors impacting patient quality of life and allow for a more evidence informed social work response to current mental wellness and public health concerns.

Additional studies focusing on the relationship between social work students' self-efficacy and competence are also indicated, as the relationship between these factors is still currently

unclear. Although it has been established that training leads to increases in self-efficacy, there remains the need to determine the *essential components* of training that lead to increased self-efficacy, and investigate ways in which increases in self-efficacy can be used to build competence, not just confidence. It may also be helpful in future investigations to include a participant self-reflection component into the study protocol to gather information on the process students' use rate their own levels of self-efficacy as suggested by Bogo et al. (2011).

Reaching sample sizes with enough power to detect differences among groups can be challenging if samples are comprised entirely of volunteers participating in multisession research outside of any academic requirement. Larger sample sizes would accommodate more complex statistical analyses and allow for inquiry into the factors that moderate and mediate the efficacy of these training approaches. Conclusions would also be strengthened through the inclusion of data from multiple cohorts over time.

Finally it is recommended that future research include inquiry about the impact of simulations utilizing three dimensional or high immersion virtual patient based training simulations, as this technology becomes more affordable and readily accessible. Prior research suggests that increased realism has a positive impact on the quality and acceptability of simulations, thus additional studies focusing on the use of three-dimensional (3-D) or virtual reality (VR) enhanced virtual patient simulations would assist in the determination of the exact mechanisms impacting the efficacy of virtual patient simulation sessions.

Implications for Social Work Education & Policy

Valid and reliable measures of student competence are essential for both BSW and MSW programs to be in compliance with the latest edition of the EPAS standards. Additional testing in this area must occur to further establish the validity and reliability of using virtual patients in

place of live standardized patients for OSCE based outcome assessments. Although these preliminary results are encouraging, it is still currently unclear if virtual patients could be used in place of standardized live clients across practice situations or for multiple classes within one's existing social work curriculum. However having the option to use virtual patients in place of standard actor patients may allow for more widespread use of OSCE based assessment methods, and expand the number of programs that utilize OSCEs for assessment of competence. Although end of semester and/or end of program competency assessments are not explicitly required in the EPAS, having reliable and valid OSCE based assessment measures that aren't cost prohibitive will assist social work education programs with determining student competence and readiness for post graduate practice.

Additional inquiry into the modification and adaptation of the *OSCE for Social Work Practice Performance Rating Scale* for assessing a wider variety of practice domains, particularly advanced practice skills, is needed at this time (Katz, 2014). It is essential for tomorrow's social work professionals not only to possess strong baseline practice skills but to also be able to demonstrate more advanced clinical skill sets such as identifying mental health disorders. It is also essential for the social workers to able to implement interventions which have established efficacy such as motivational interviewing (MI), trauma focused cognitive behavioral therapy (TFCBT), interpersonal psychotherapy (IP) or dialectical behavior therapy (DBT). OSCE based measures could be adapted to evaluate these specific advanced practice skill sets.

In the future, state licensure boards and the Association of Social Work Boards may also wish to consider the use of simulations including virtual patient simulations as part of the national social work licensure examinations. Including these types of simulations in the process of licensure would allow for more objective evaluations of practice competence that cannot result

from computer based testing alone, particularly in the case of the Clinical Examination where the topics of assessment and diagnosis make up over 25% of the examination (Association of Social Work Boards, 2015).

Implications for Social Work Practice

There is great potential for the use of virtual patients as a continuing education tool for social work professionals. With continued dissemination of emerging technologies in both academia and the private sector, an increase in professional training interventions utilizing virtual patient technology is expected. Social work, like many other direct practice disciplines, is a continually evolving field. However some social work professionals may be reluctant to try new approaches with clients after completion of their formal graduate training due to the potential for harm to their clients, and the often limited availability of supervision on novel interventions for post licensure professionals. An increase in continuing educational interventions which provide structured feedback and allow clinicians to gain proficiency in new approaches or techniques prior to trying them out with actual clients will both strengthen the social work workforce and build clinician's self-efficacy around these new approaches. Virtual patient simulations may also be used to remediate skills deficits in clinicians who have already completed graduate training, further reducing the potential for client harm.

Virtual patient simulations have the potential to address current gaps in continuing education interventions. Since virtual patient based trainings are computer based and self-paced, and when used outside a group setting they are anonymous, clinicians may be more likely to engage in this type of continuing education as they could access these training tools at any time, from any computer. Clinicians could work on key skill sets in the privacy of their own homes or offices, which may be preferable to receiving additional training in a live group based setting with

other providers. These types of easily accessible trainings would also reduce the need for clinicians to take days off from work to complete additional training, something that anyone who has ever struggled with large caseloads knows to be challenging.

The importance of innovative approaches to help both students and seasoned professionals develop competence with no potential for harm to the client must not be understated. Social workers are often first line providers with our most vulnerable populations, thus adequate preparation for competent practice, both prior to field placement as well as post-graduation are essential to the future of the profession. Continued inquiry into this area is necessary to further establish the cost and time saving potential of virtual patient simulations as a training tool, and continued evaluation of the use of virtual patients for OSCE based assessment measures will help to position social workers at the forefront of innovation in social services education. Through utilizing innovative, evidence-based training approaches, and having a well-trained and highly competent workforce, social work professionals can further reinforce the credibility of our profession and highlight our unique contributions to patient care.

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August 14th, 2014
Ms. Michelle Washburn c/o Dr. Patrick Bordnick
Child & Family for Innovative Research

Dear Ms. Michelle Washburn,

The University of Houston's Institutional Review Board, Committee for the Protection of Human Subjects (1) reviewed your Request for Revision of the research proposal entitled "MSW Student Clinical Assessment Skills Training" on April 18, 2014, according to federal regulations and institutional policies and procedures.

At that time, your project was granted approval contingent upon your agreement to modify your protocol as stipulated by the Committee. The changes you have made adequately fulfill the requested contingencies, and your project is now **APPROVED.**

- Approval Date: August 13, 2014

- **Expiration Date: October 1, 2014**

As required by federal regulations governing research in human subjects, research procedures (including recruitment, informed consent, intervention, data collection or data analysis) may not be conducted after the expiration date.

To ensure that no lapse in approval or ongoing research occurs , please ensure that your protocol is resubmitted in RAMP for renewal by the **deadline for the September, 2014** CPHS meeting. Deadlines for submission are located on the CPHS website.

During the course of the research, the following must also be submitted to the CPHS:

- Any proposed changes to the approved protocol, prior to initiation; AND
- Any unanticipated events (including adverse events, injuries, or outcomes) involving possible risk to subjects or others, within 10 working days.

If you have any questions, please contact Samoya Copeland at (713) 743-9534.

Sincerely yours,
Dr. Daniel O'Connor, Chair
Committee for the Protection of Human Subjects (1)

PLEASE NOTE: All subjects must receive a copy of the informed consent document , if one is approved for use. All research data, including signed consent documents, must be retained according to the University of Houston Data Retention Policy (found on the CPHS

website) as well as requirements of the FDA and external sponsor(s), if applicable. Faculty sponsors are responsible for retaining data for student projects on the UH campus for the required period of record retention.

Protocol   Number: 14044-01
Full Review :   Expedited Review: X

316 E. Cullen Building   Houston, TX 77204-2015   (713) 743-9204
Fax: (713) 743-9577 COMMITTEES FOR THE PROTECTION OF HUMAN
SUBJECTS

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Division of Research Institutional Review Board Application
Generated at: 7/28/2014 10:03:33 AM

Institutional Review Board
14044-01 - (4318)
Title : MSW Student Clinical Assessment Skills Training

Approval details for the Application Id: 4318				
PI	**Decision**	**Approver Name**	**Date**	**Comment**
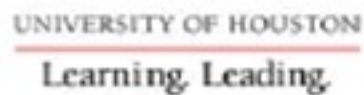
Signature
Approved Washburn, Michelle Ms.   02/03/2014

Faculty

Sponsor   Approved Bordnick, Patrick Dr. 02/03/2014
signature
DOR
Approved Admin, IRB   02/05/2014

Application Data for Application ID: 4318

Title	MSW Student Clinical Assessment Skills Training
Application Type	Revision
Review Type	Expedited
Expedite Code	7: Research on individual or group characteristics or
Exemption Code	Not Applicable
Research Reason	Doctoral Dissertation

Investigator Data for Application ID: 4318

PI Name	Is Pricipal	Is Co-Investigator?	Is External	Other Personnel	Is Student	Faculty Sponsor
Washburn, Michelle	Yes		No		Yes	Bordnick, Patrick Dr
Bordnick, Patrick Dr			No	Thesis Committe	No	Not Applicable

Revision application data for application Id: 4318

Question	Answer
1) Revision Description (check all that are appropriate)	Revision to currently approved protocol
2) Risk Involve:(Check One)	This revision does not increase risks to participants enrolled in this study. (For students, signature of faculty sponsor is required.)
3) Describe the proposed revision. If applicable, include a scientific justification for the revision (for example, changes in the study population).	This revision is proposed to increase sample size of project, as the protocol that was initially submitted was a pilot study with small sample size. The proposed revision is a continuation of that project. The anticipated sample size has increased to a total of a maximum of 60 participants from the same population. In addition, the design of the project has changed to a 3 group design utilizing computerized virtual patients for two of the three groups in place of standard actor patients. This change was implemented to help contain cost associated with the use of actors as standard clients for Objective Structured Clinical Examinations (OSCEs). Compensation for participants has been changed so that disbursement of incentives is done ($10) after completion of pre-assessment interview, ($20) after completion of training and ($20) after completion of post-training assessment interview to decrease potential attrition which may have resulted from distributing incentives only at the end of study participation. A prior request for revision was submitted in March 2014, however that request was withdrawn by the PI in April. Unfortunately the documentation still remains in RAMP because system administrators were unable to remove it. Please disregard prior request for

Project Review Summary Data for Application ID: 4318

Question	Answer

4) State the specific research hypotheses or questions to be addressed in this study	This investigation is a dissertation project which is an extension of the prior approved pilot study evaluating the following: 1. The feasibility of using 3D virtual patients as a clinical training tool for assessment and diagnosis of Post-Traumatic Stress Disorder (PTSD) and Generalized Anxiety Disorder (GAD) 2. Evaluating student preferences concerning this tool in relation to ease of use, immersion, length of training sessions and perceived utility as an adjunct to traditional classroom instruction on assessment and diagnosis. 3. If the use of 3D virtual patients will be an effective clinical training tool as measured by post training increases in OSCE and DRF scores. 4. Evaluate the feasibility of using standard virtual patients in place of standard actor patients for Objective Structured Clinical Examinations
5) What is the importance/significance of the knowledge that may result?	Misdiagnosis of mental illness remains as a constant barrier to effective intervention in primary care and routine mental health settings.(Norman & Eva, 2009) Costs associated with mental illness are higher than those for cardiovascular disease, chronic respiratory disease, cancer, or diabetes(Insel, 2008), and are currently estimated at 2.5 TRILLION dollars. (Insel, 2008) Nearly two thirds of the costs associated with mental illness are indirect costs such as lost productivity, which may be significantly minimized through accurate initial diagnosis and appropriate treatment.(Singh & Rajput, 2006) Accurate assessment and diagnosis is necessary for engaging in the process of Evidence-Based Practice (EBP), which has emerged as the preferred approach to the treatment of mental health disorders.(Drake et al., 2001; Mullen, 2006; Satterfield, 2009) Misdiagnosis, however, results in ineffective treatment, and may further worsen client outcomes. High levels of co- morbidity among mental illnesses (American Psychiatric Association, 2000) limited diagnostic specificity in relation to symptom presentation(American Psychiatric Association, 2011) and insufficient training resulting from lack of extensive practice opportunities with live clients(Auger, 2004) all contribute to the problem of misdiagnosis. This proposal has high public health significance and cost-savings potential. Currently Masters-level mental health clinicians provide the vast majority of direct mental health care services in the United States, including services for many of our vulnerable populations (Kelly & Clark, 2009). Improved training of Masters level providers is essential to addressing our nation's growing mental health needs (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009). This is especially important in the era on-line education where live clinical practice opportunities may be limited. This proposal is also significant because it will be conducted at a university
6) Type of Subject Population (check all that are appropriate)	Adults,UH Faculty, Staff, or Students
6.01) Expected maximum number of	60 total participants
6.02) Age of proposed subject(s) (check all that apply)	Adults (18yrs-64yrs)
6.03) Inclusion Criteria:	Any currently enrolled Masters of Social Work (MSW) student at the Graduate College of Social Work who agrees to participate in the research study and has completed a course in clinical assessment and diagnosis (SOCW 7325). 65 students will be recruited (with an over-recruiting of 5) and then randomly assigned to one of three assessment training conditions. Please see attached document graphically displaying group assignment (research design revised - "other").

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6.04) Exclusion Criteria:	Anyone who is not a currently enrolled MSW student at the Graduate College of Social Work, students who have not completed a Masters level course in clinical assessment and diagnosis, students who participated in the pilot study.
6.05) Justification:	This training intervention is specifically geared toward Masters students in Social Work, as the OSCE is emerging as the gold standard for assessment of social work related skills. Although the proposed training protocol may be applicable to graduate students in other disciplines, to control for potential disciplinary specific difference among students, the current investigation will be limited to students from the College of Social
6.06) Determination:	Interested students will be instructed to contact PI via email through flyers posted in the GCSW concerning participation. Participants will have to provide proof of enrollment for the Fall 2014 semester. Enrollment will be verified by the PI the GCSW Office of Student Affairs.
7) If this study proposes to include children, this inclusion must meet one of the following criterion for risk/benefits assessment according to the federal regulations (45 CFR 46, subpart D). Check the appropriate box:	
8) If the research involves any of the following, check all that are appropriate:	Interview, Survey/Questionnaire, Behavioral Observation
9) Location(s) of Research Activities:	UH campus
10) Informed Consent of Subjects: Your study protocol must clearly address one of the following areas:	Informed Consent. Signed informed consent is the default. A model consent is available on the CPHS website and should be used as a basis for developing your informed consent document. If applicable, the proposed consent must be included with the application. (http://www.research.uh.edu/PCC/CPHS/Informed.html) ATTACH COPY OF PROPOSED CONSENT DOCUMENT
11) Describe the research study design. (Describe the research methods to be employed and the variables to be studied. Include a description of the data collection techniques and/or the statistical methods to be employed.)	This study will employ a pre/post design to evaluate the efficacy of a novel clinical training intervention, and to evaluate the use of virtual patients as a cost saving substitute to standard actor patients for use in graded clinical assessment interviews, also called Objective Standard Clinical Examinations (OSCEs.) Please see attached measure in Appendix. Prior to training, all participants will complete a demographic form (DI). Differences in demographics and background variables for each group will be assessed and controlled for in subsequent data analysis as necessary. Participants will also be given a brief introduction to the use of virtual patient software. Participants will then be asked to complete a videotaped 30 minute pre-training clinical interview with either a standard virtual or standard actor patients reporting symptoms consistent with a the DSM diagnostic system. Participants will then render a diagnosis for the client based on information gathered using the Diagnostic Reporting Form. Participants will be provided a standard half page written case presentation identifying basic patient information prior to the interview. The pre-training interview will serve to establish a baseline and allow the PI to asses for any pre-training differences

13) Describe how potential subjects will be identified and recruited? (Attach a script or outline of all information that will be provided to potential subjects. Include a copy of all written solicitation, recruitment ad, and/or outline for oral presentation.)	country. A convenience sample of 60 Masters students will be recruited from the GCSW at the University of Houston. Over-recruiting by 5 students will be employed to compensate for possible attrition, since the students enrolled in this program tend to be older (mean age of 32 years old) and frequently engage in off-campus employment. Fliers concerning participation in an empirical research study will be posted on each floor of the Graduate College of Social Work and have received prior approval from the Dean. Potential participants will be informed that participation in this investigation is independent of any class credit or any class grade at the GCSW. Upon enrollment in the study, students will be provided with study information, study rationale, potential risks and benefits of participation and estimated time commitment to complete participation. All participants will provide consent in writing which will be signed and dated by the PI. Each Participant will be given up to a total of $50 in Walmart gift cards as incentives for participation. To attempt to control for potential cross-contamination among participants, participants will be advised to not discuss the project with any past or
14) Describe the process for obtaining informed consent and/or assent. How will investigators ensure that each subjects participation will be voluntary (i.e., free of direct or implied coercion)?	Prior to recruitment of research participants, the PI will have completed the required Human Subjects and Research Ethics training required by the University of Houston for all individuals initiating or assisting with research using animals or human subjects. In addition, the project will have received approval from the University of Houston Committee for the Protection of Human Subjects, CPHS. Informed consent will be obtained in writing by the PI prior to initiation of the study. The informed consent document is included in the appendix.
15) Briefly describe each measurement instrument to be used in this study (e.g., questionnaires, surveys, tests, interview questions, observational procedures, or other instruments) AND attach to the application a copy of each (appropriately labeled and collated). If any are omitted, please explain.	Please see attached An overview of virtual patients is included in the appendix, and examples of virtual patients utilized by this project and additional information concerning the development and use of virtual patients can be accessed at http://ict.usc.edu/prototypes/virtual-patient/ All study instruments used will be the same as those used in the pilot investigation.
16) Describe the setting and mode for administering any materials listed in question 15 (e.g., telephone, one-on-one, group). Include the duration, intervals of administration, and amount of time required for each survey/procedure. Also describe how you plan to maintain privacy and confidentiality during the administration.	When completing the videotaped standard actor and virtual patient interviews, as well as VR training sessions, all participants will use one of the newly renovated Virtual Reality Clinical Research Laboratory offices located on the first floor of the University of Houston Graduate College of Social Work. This room is equipped with a mobile video recording device with audio, an hand held mouse, an external microphone, a large screen television and a 3-D enabled laptop. This room will not be accessible to participants without assistance of the PI or faculty supervisor of the project, as a cougar card with appropriate access levels is necessary to
17) Approximately how much time will be required of each subject? Provide both a total time commitment as well as a time commitment for each visit/session.	Each of the two standard client interviews and associated paperwork will take approximately 60 minutes each. Each of the 6 training and feedback sessions will take approximately 30 minutes each making the total time required to complete the study 5 hours total.
18) Will Subjects experience any possible risks involved with participation in this project?	
18.01) Risk of Physical Discomfort or Harm	No:
	Yes: :Since this is a training intervention related to skills necessary to be a

18.02) Risk of Psychological Harm (including stress/discomfort)	successful social work practitioner, students may experience psychological discomfort in the form of performance anxiety prior to each evaluation and training session and may experience psychological discomfort when receiving feedback regarding performance on each measure. However feedback will be given by the PI who has extensive experience in teaching and clinical supervision, and will highlight not only areas in need of improvement but will also include feedback concerning student strengths related to performance of these tasks. In addition if participants have a history of psychological trauma or post-traumatic stress, interaction with virtual patients who may exhibit symptoms consistent with PTSD may lead to psychological discomfort. However this risk is outlined in the informed consent document which also contains referral information for the University of Houston Counseling and
18.03) Risk of Legal Actions (such as criminal prosecution or civil sanctions)	No:
18.04) Risk of Harm to Social Status (such as loss of friendship)	No:
18.05) Risk of Harm to Employment Status	No:
18.06) Other Risks	No:
19) Does the research involve any of these possible risks or harms to subjects? Check all that apply.	
20) What benefits, if any, can the subject expect from their participation?	Participants in this study may benefit from increasing his or her skills related to clinical assessment and diagnosis due to increased training and practice activities. Although not a direct benefits, students participating in the study will have assisted in increasing the current literature base on clinical assessment skill training.
21) What inducements or rewards (e.g., financial compensation, extra credit, and other incentives), if any, will be offered to potential subjects for their participation?	Based on feedback from the pilot study, each participant will be awarded up to $50 in Walmart gift cards for participation. It was determined that participants preferred guaranteed incentives in moderate denominations to being entered into a drawing for a larger incentive ($100). It was also determined that Walmart gift cards were the preferred incentive for this particular subject group as they can be used at multiple locations around Houston and the surrounding areas, and because Visa gift cards often have a fee associated with their use. Breaking up the disbursement of incentives into 3 parts tied to completion of separate phases of project participation is thought to decrease the probability of attrition throughout

UNIVERSITY of HOUSTON DIVISIONOF RESEARCH

September 19, 2014

Ms. Michelle Washburn c/o Dr. Patrick Bordnick
Child & Family for Innovative Research

Dear Ms. Michelle Washburn,
The University of Houston Committee for the Protection of Human Subjects (1) reviewed your research proposal entitled "MSW Student Clinical Assessment Skills Training" on September r 19, 2014, according to institutional guidelines.
The Committee has given your project approval to begin the day following the current protocol's expiration, or immediately if already expired.
Reapplication will be required:
1. Annually
2. Prior to any change in the approved protocol
3. Upon development of unexpected problems or unusual complications

Thus, if you will still be collecting data under this project on **September 18, 2015** you must reapply to this Committee for approval before this date if you wish to prevent an interruption of your data collection procedures. If you have any questions, please contact Samoya Copeland at (713) 743-9534.

Sincerely
yours,

Dr. Daniel O'Connor,
Chair
Committee for the Protection of Human
Subjects (1)

PLEASE NOTE: (1) All subjects must receive a copy of the informed consent document. If you are using a consent document that requires subject signatures, remember that signed copies must be retained for a minimum of 3 years, or 5 years for externally supported projects. Signed consents from student projects will be retained by the faculty sponsor. Faculty are responsible for retaining signed consents for their own projects; however, if the faculty leaves the university, access must be possible for UH in the event of an agency audit. (2) Research investigators will promptly report to the lAB any injuries or other unanticipated problems involving risks to subjects and others.

Protocol Number: 14044-01   Full Review:
Expedited Review:X

316 E. Cullen Building M Houston,TX 77204-2015(713) 743-9204
Fax:(713) 743-9577

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH

<u>**PROJECT TITLE**</u>: MSW Training in Assessment and Diagnosis

You are being invited to take part in a research project conducted by Micki Washburn, MA and is being conducted under the supervision of Patrick Bordnick, PhD, Associate Dean for Research from the Graduate College of Social Work at the University of Houston. This project is part of her dissertation for the Doctor of Philosophy in Social Work degree.

<u>**NON-PARTICIPATION STATEMENT**</u>

Taking part in the research project is voluntary and you may refuse to take part or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any research-related questions that make you uncomfortable. If you are a student, you decision to participate or not, or to withdraw your participation will have no effect on your standing at the University of Houston or the Graduate College of Social Work.

<u>**PURPOSE OF THE STUDY**</u>

The purpose of this study is to evaluate the efficacy of training interventions for clinical assessment and diagnosis of common mental health issues. This study will take approximately 6 months to complete, and your participation in this study will take approximately 5 hours total.

<u>**PROCEDURES**</u>

Any student enrolled in the Master's program at the UH GCSW or Department of Psychology who has completed a course in clinical assessment and diagnosis eligible to participate in this study. The total number of participants depends on how many students choose to participate. The total duration of this project will last approximately 6 months. You will complete 2 videotaped 30 minute clinical interviews with a simulated clients before and after training. In addition you will complete some forms to capture demographic information and evaluate the training. You will also be required to participate for 30-45 minutes for 3 weeks at the Graduate College of Social Work where you will receive training sessions related to clinical assessment and diagnosis. Your total anticipated time of participation in this project is approximately 4.5 hours over 5 weeks

<u>**CONFIDENTIALITY**</u>

You will be participating in confidential research. Every effort will be made to maintain the confidentiality of your participation in this project. Each subject's name will be paired with a code number by the principal investigator. This code number will appear on all written materials. The list pairing the subject's name to the assigned code number will be kept separate from all

research materials and will be available only to the principal investigator. Confidentiality will be maintained within legal limits.

RISKS/DISCOMFORTS

The anticipated risks or discomfort related to participating in this investigation is minimal and would not be in excess of risks or discomfort related to traditional classroom instruction in clinical assessment and diagnosis.

BENEFITS

Potential benefits from participating in this investigation include additional practice and training opportunities related to clinical diagnosis of mental health disorders. Additionally your participation may help investigators better understand ways in which social work students learn basic clinical assessment and practice skills.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

INCENTIVES/REMUNERATION

Participants who complete the study will be eligible to receive up to $50 in Walmart gift cards. Participants will be given a $10 gift card upon completion of the initial diagnostic interview, a $20 gift card upon completion of training and another $20 gift card after completion of the post training diagnostic interview.

PUBLICATION STATEMENT

The results of this study may be published in scientific journals, professional publications, or educational presentations; however, no individual subject will be identified.

AGREEMENT FOR THE USE OF AUDIO/VIDEO TAPES

If you consent to take part in this study, please indicate whether you agree to be video-taped during the study by checking the appropriate box below. If you agree, please also indicate whether the video tapes can be used for publication/presentations.

- ☐ I agree to be audio/video taped during the pre and post OSCEs.
    - ☐ I agree that the video tape(s) can be used in publication/presentations.
    - ☐ I do not agree that the video tape(s) can be used in publication/presentations.
- ☐ I do not agree to be audio/video taped during the pre and post OSCEs.

Participants who decline videotaping of pre and post OSCEs will be excluded from participating in the study as these videos are an integral part of the research protocol. However all participants may opt to decline use of the video tapes in publication/presentations and still participate in the study.

CIRCUMSTANCES FOR DISMISSAL FROM PROJECT

Your participation in this project may be terminated by the principal investigator

- if you do not keep study appointments;
- if you do not follow the instructions you are given;
- if the principal investigator determines that staying in the project is harmful to your health or is not in your best interest

SUBJECT RIGHTS

1. I understand that informed consent is required of all persons participating in this project.

2. I have been told that I may refuse to participate or to stop my participation in this project at any time before or during the project. I may also refuse to answer any question.

3. Any risks and/or discomforts have been explained to me, as have any potential benefits.

4. I understand the protections in place to safeguard any personally identifiable information related to my participation.

5. I understand that, if I have any questions, I may contact Micki Washburn at 713-743-8075 or at mewashbu@central.uh.edu.   I may also contact Patrick Bordnick, PhD faculty sponsor, at 713-743-2086

6. **Any questions regarding my rights as a research subject may be addressed to the University of Houston Committee for the Protection of Human Subjects (713-743-9204). All research projects that are carried out by Investigators at the University of Houston are governed be requirements of the University and the federal government**.

SIGNATURES

I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions to my satisfaction. I give my consent to participate in this study, and have been provided with a copy of this form for my records and in case I have questions as the research progresses.

Study Subject (print name): _____

Signature of Study Subject: _____

Date: _____

I have read this form to the subject and/or the subject has read this form. An explanation of the research was provided and questions from the subject were solicited and answered to the subject's satisfaction. In my judgment, the subject has demonstrated comprehension of the information.

Principal Investigator (print name and title): _____

Signature of Principal Investigator: _____

Date: _____

MSW STUDENTS

✓ **Are you a currently enrolled MSW student?**

✓ **Have you completed (SOCW 7395) Clinical Applications of DSM in Social Work Practice?**

✓ **Would you like to practice your clinical assessment skills and EARN MONEY doing it?**

Participants will receive up to *$50* in gift cards.

If you are interested in finding out more about this opportunity to participate in original research, please contact Micki Washburn, Principal Investigator, at mewashbu@central.uh.edu

This project is completed under the supervision of Patrick Bordnick, PhD, Associate Dean for Research at the University of Houston Graduate College of Social Work. This project "MSW Training in Assessment and Diagnosis" is approved by the University of Houston Committee for the Protection of Human Subjects (CPHS). Any questions concerning my rights as a research participant can be addressed to CPHS at 713-743-9204

Psychology Graduate Students

✓ **Have you completed a graduate level course in clinical assessment or the DSM diagnostic system?**
✓

✓ **Are you interested in participating in original research?**

✓ **Would you like to practice your clinical assessment skills and <u>earn money</u> doing it?**

If you answered ***"yes"*** to all three of these questions you may be eligible to participate in an original research project at the GCSW.

Qualified participants will receive up to $50 in gift cards for their time.

If you are interested in finding out more about this opportunity to participate in original research, please contact Micki Washburn, Principal Investigator, at <u>mewashbu@central.uh.edu</u>

This project is completed under the supervision of Patrick Bordnick, PhD, Associate Dean for Research at the University of Houston Graduate College of Social Work. This project "MSW Training in Assessment and Diagnosis" is approved by the University of Houston Committee for the Protection of Human Subjects (CPHS). Any questions concerning my rights as a research participant can be addressed to CPHS at 713-743-9204

Instructions to Participants Using Virtual Patients

You are about to begin your virtual patient training. Virtual patients are standardized clients who utilize interactive avatar technology to simulate what it would be like to interact with an actual client. They are programmed to have the same types of health, mental health and psychosocial concerns of clients that you may see in your field placements or future places of employment. This part of the training will help you use the virtual training simulation.
You will get the opportunity to interact with a number of virtual patients though out the course of your training. You will have the opportunity to ask them any questions that you would like to gather information about their presenting concerns, just like you would with a real client that you are seeing for the first time. Please remember that the virtual patient technology is not perfect. Sometimes the virtual patients may not understand the question that you asked, so you may have to rephrase it. Sometimes they may say something random that doesn't quite fit with what you asked. Try not to be frustrated, this is not your fault. Just try to rephrase the question. Short yes/no type questions seem to work best.

You will have up to 30 minutes to interact with each virtual client, at which time you will be expected to render a DSM diagnosis for the client.

How to communicate with the virtual client
The study RA will be in the room with you, but she will not be evaluating your performance. She is just here to help you to communicate with the virtual patient.   Your study RA will type in your questions for the virtual patient using a laptop and the virtual patient will answer them both verbally and in a text box in the lower right hand corner. The virtual patient will be projected into the wall so that he/she looks life sized.
Let's watch a video of someone interacting with a virtual patient to give you a better idea of what you will be doing.
Participants watch video retrieved from: https://www.youtube.com/watch?v=91zdrNL-HDU
Participants watch video retrieved from: https://www.youtube.com/watch?v=jy1NKDz47aQ
Participants watch video retried from: https://www.youtube.com/watch?v=JiHlTioZktc
Do you have any question at this time?

Brief Assessment Interview Guide

You are a social worker/counselor employed by the VA who works with military service people and their families. Clients accessing services from physicians at the VA must meet with you prior to their appointment for an assessment. Your will conduct a brief psychosocial and mental health assessment of a new client. Your job is to determine if the client has a DSM mental health diagnosis, social/relationship problems and/or physical health concerns. Not all of the clients that you assess will have physical complaints, social/relationship concerns or a mental health diagnosis. However the clients that you do see with mental health problems, their concerns will be limited to the following categories of DSM related disorders:

Depressive Disorders, Bipolar Disorders, Anxiety Disorders, Trauma & Stress Related Disorders, Substance Use Disorders

You will have 30 minutes to conduct this assessment, you can ask any question you want during that time and you may take notes. Since you only have 30 minutes to gather this information it may be useful to ask very specific questions about the client's past and current issues. The client may or may not be willing/able to answer your questions. Sometimes you may have to rephrase questions so that they will understand what you mean. Other times they may answer in a way that you do not understand due to possible traumatic brain injury.

Key areas/questions to explore with the client:
What has brought the client in to see you today?
What are the symptoms he/she is experiencing?
Length of symptoms
Prior treatment or mental health concerns
Medications, Alcohol and non-prescription drug use
Suicide and self-harm assessment
Assessment of anger & harm to others
Mood – high or low, irritability, anger
Psychosis – delusions or hallucinations
Anxiety – nervousness, panic, fear, avoidance and re-experiencing
Obsessions/Compulsions – repetitive thoughts, racing thoughts, rituals
Trauma symptoms – past and current traumatic events
Dissociation
Somatic Concerns
Eating
Sleeping
Current living situation
Legal concerns/past interactions with legal system
Past and current relationships – significant others/children
Observations about attention, concentration, appearance, speech, behavior, thought process, insight

BACKGROUND INFORMATION

Please answer the following questions:

1. Your age (at last birthday): _____ years

2. Your gender:

☐ Male   ☐ Female

3. Your ethnicity:

☐ White or Caucasian (not Hispanic)   ☐ African American/Black (not Hispanic)
☐ Hispanic or Latino(a)   ☐ Asian/Pacific Islander
☐ American Indian or Alaskan Native   ☐ Other (Please specify): _____

4. As of today you are in your _____ year of your graduate program?

5. As of today, how many years of paid employment (past or current) have you had in the human services field?

6. How many hours per week, on average, do you work outside the home?

7. As an undergraduate did you complete a class in clinical diagnosis, abnormal psychology or the DSM diagnostic system?

8. Overall, how would you describe your familiarity with common mental health issues?

1	2	3	4
Very little or none	Some	A moderate amount	I am very familiar

Thank you for your time. Your participation is very important to us.

Sample Diagnostic Reporting Form (DRF)

Primary Diagnosis: (10 points)

Symptoms reported related to diagnosis: (10 points)

Symptoms reported not related to diagnosis: (10 points)

What are the medical, psychosocial and environmental factors that may be contributing to the diagnosis? (10 points)

Which diagnoses did you consider but rule out? (10 points)

Social Work Self-Efficacy Scale (SWSSE)

On a scale of 1 (lowest/least) to 10 (highest/most) please rate how confident you are that you can do the following in a way that an experienced supervisor would rate as excellent.

1. Initiate and sustain empathic, culturally sensitive, nonjudgmental, disciplined relationships with clients?

2. Elicit and utilize knowledge about historical, cognitive, behavioral, affective, interpersonal, and socioeconomic data and the range of factors impacting this client to develop a biopsychosocial assessment and plan for intervention?

3. Conduct the assessment in the time given?

4. Understand the dialectic of internal conflict and social forces in a particular case?

5. Maintain self-awareness in practice, recognizing your own personal values and biases, and preventing or resolving their intrusion into practice?

6. Practice in accordance with the ethics and values of the profession?

7. Reflect thoughts and feeling to help clients feel understood?

8. Inquire about symptoms client is experiencing in relation to his or her mental or emotional well-being?

9. Define the client's problems in specific terms?

10. Render a correct DSM-5 diagnosis for the client?

0 = I am not at all confident that I can execute this skill

5 = I am moderately confident that I can execute this skill

10 = I am very confident that I can execute this skill

OSCE used for pilot study:

<div align="center">

OSCE FOR SOCIAL WORK
PRACTICE PERFORMANCE RATING SCALE
University of Toronto
Factor-Interwash Faculty of Social Work

Integrated Social Work Knowledge, Values, Skills Scale
(Integration of content and process dimensions)

</div>

As the student conducts the interview examples of the following behaviors will reflect the student's level of performance on the dimensions to be examined.

- Appropriate use of open-ended questions
- Appropriate use of close-ended questions
- Seeks clarification
- Seeks concreteness
- Active listening through demonstration of nonverbal behaviors (e.g., appropriate body posture, physical proximity, facial expression, encouragements such as head nods, attentive gaze)
- Active listening through demonstration of verbal behaviors (e.g., utterances and simple furthering comments, voice tone, speech rate and volume)
- Restatement or paraphrase of content, thoughts, and meanings
- Reflection of feelings
- Appropriate use of silence
- Summary

OSCE FOR SOCIAL WORK
PRACTICE PERFORMANCE RATING SCALE
Bogo, Katz, Logie, Regehr, C. & Regehr, G. (Revised) 2012

Please **circle the number** corresponding to the candidate's performance.

I. Develops and uses a collaborative relationship

Introduction

1	2	3	4	5
Does not introduce self or role or agency service	Introduces self; no description of role or agency service	Before end of the interview introduces self & role but is general or vague about agency's service	Before end of the interview introduces self, role, and agency service	Sets the stage by introducing self, role in context of agency's service

Response to Client: general content and process (about communications and feelings)

1	2	3	4	5
Inappropriate or no response to client's communications & feelings	Responds to client with cognitive, behavioral or factual comments. No response to feelings expressed or implied	Mainly task & event focused with occasional warm and empathic response to client's feelings	Frequent warm and empathic responses to client's concerns, expressed and implied feelings	Consistent warm & empathic responses to client's concerns, expressed & implied feelings & assists clients in putting feelings into words

Response to Client: specific to situation (about death of husband, illness, accident, coming out youth, elderly, child protection)

1	2	3	4	5
Does not provide realistic reassurance or support or makes negative comments	Occasional realistic reassurance & support on a mechanical level	Some realistic reassurance & support, not consistent, and sometimes mechanical	Consistent realistic reassurance and support with some empathic connection	Effective, consistent and empathic realistic reassurance and support

Focus of interview

1	2	3	4	5
Interview has no coherence or rigidly follows student's own agenda	Minimal direction but still too focused on own agenda and pace too fast or slow	Provides direction but moves too quickly or too slowly to change topic	Provides direction, pace more appropriate; some transitions are rough	Provides direction to the interview maintaining focus flow, & smooth transitions while remaining responsive to client concerns

II. Conducts an eco-systemic assessment.

Presenting problem

1	2	3	4	5
Does not address presenting problem, current situation and/or precipitant event	Sole focus on presenting problem; does not identify current situation and/or precipitant event	Can identify presenting problem; gathers minimal/ some info about current situation and precipitant event	After some time identifies presenting problem, precipitant event & situation	Efficiently identifies present problem, situation & precipitant with linkages between them

Systemic assessment: nuclear family, extended family, neighborhood, friends, employment, school

1	2	3	4	5
Comprehensive systemic inquiry missing	Struggles to focus on more than one system	Identifies some of most obvious systems but connections between them lacking	Able to identify all relevant systems & some connections between problem and systems	Complete systemic assessment with depths of linkages between them

Strengths

1	2	3	4	5
Focus is exclusively on problems & deficits with no attention to client strengths	Minimal inquiry about strengths; still mainly problem focused	Begins to explore client strengths the client has not presented; less focus on problem	More than beginning at inquiring & exploring strengths in a way client has not presented	Consistent and effective inquiry exploration & id. of strengths in a way client has not presented

III. Sets the stage for collaborative goal setting

Involves client

1	2	3	4	5
Does not ask client what he/she needs	Tells client what he/she needs	Occasional inquiry about what client believes he/she needs; no exploration of client rationale	Inquires in directive manner about what client believes he/she needs; little exploration of client rationale	Collaborative, consistent and effective inquiry about & exploration of what client believe he/she needs

IV. Demonstrates cultural competence

Culture/Gender/Race/Sexual Orientation/Age-ability

1	2	3	4	5
Appears uncomfortable with cultural differences	Inconsistent recognition of cultural cues & issues; interest in, and openness to, cultural difference	Displays interest and comfort with exploration of cultural difference	Consistent recognition of obvious cultural issues; asks about, listens to, and explores some cultural issues	Demonstrates comfort in consistent effective exploration of cultural cues & content for understanding; appreciate cultural identity

OVERALL ASSESSMENT OF THE KNOWLEDGE AND SKILLS DEMONSTRATED IN THE ASSESSMENT

Based on your impression of the candidate's performance, this candidate demonstrated competence at the level of ...

1	2	3	4	5
No initiative or response to components of relationship building & assessment, no organization or cohesion	Very beginning & inconsistent attempts to take initiative, assess & build relationship, inconsistent organization & cohesion	Some consistent initiative & response to some components of relationship building & assessment consistent organization & cohesion	Most often consistent in response to most components of relationship building & assessment integrated organization & cohesion	Effective consistent perceptive initiative to all components of relationship building & assessment efficient organization & cohesion

OSCE Adapted for Castilla

Focus of interview

1	2	3	4	5
Interview has no coherence or rigidly follows student's own agenda	Minimal direction but still too focused on own agenda and pace too fast or slow	Provides direction but moves too quickly or too slowly to change topic	Provides direction, pace more appropriate; some transitions are rough	Provides direction to the interview maintaining focus flow, & smooth transitions while remaining responsive to client concerns

Presenting problem

1	2	3	4	5
Does not address presenting problem, current situation and/or precipitant event	Sole focus on presenting problem; does not identify current situation and/or precipitant event	Can identify presenting problem; gathers minimal/ some info about current situation and precipitant event	After some time identifies presenting problem, precipitant event & situation	Efficiently identifies present problem, situation & precipitant with linkages between them, asks about coping

Systemic assessment: nuclear family, friends, employment,

1	2	3	4	5
Asks about (1) family, friends or work	Asks about (2) family, friends or work	Asks about (3) family, friends and work but does not connect them	Asks about family, friends and work, makes minimal connections to presenting problem	Connects family, friends and work to presenting problem

Suicide assessment:

1	2	3	4	5
Does not inquire about past or present suicidal ideation or plans	Asks about current suicidal ideation	Asks about past *and* current suicidal ideation and attempts *or* plan	Asks about past and current suicidal ideation, past attempts *and* if the client has a plan	Asks about suicidal ideation, plan, past history of self-harm *and* method/means available

Substance use/abuse assessment:

1	2	3	4	5
Does not inquire about past or present substance use	Asks about (1or 2) alcohol, illegal drugs or Rx drug use	Asks about alcohol, illegal drug and Rx drug use	Asks about alcohol, illegal drug and Rx drug use and frequency/duration	Asks about alcohol, illegal drug and Rx drug use and frequency/duration, assesses if used for coping/neg impact of substance use

Health/injury assessment:

1	2	3	4	5
Does not inquire about clients health or injuries	Inquires about client's health *or* injuries	Inquires about client's health *and* injuries and prior services	Inquires about client's health *and* injuries, prior services, asks specific questions concerning memory, concentration & attention	Inquires about client's health *and* injuries, prior services asks specific questions concerning memory, concentration & attention and impact on regular fx

Response to Client: specific to trauma (about death of friend, explosion, suicide on base, partner abuse)

1	2	3	4	5
Does not acknowledges trauma event(s)	Acknowledges trauma event(s) suicide of colleague and past combat trauma	Acknowledges trauma event and probes for more details	Acknowledges trauma, event, probes for details asks about impact of trauma	Acknowledges trauma, probes for details asks about impact of trauma & how it relates to him

Response to Client: general content and process (about communications and feelings)

1	2	3	4	5
Inappropriate or no response to client's communications & feelings	Responds to client with cognitive, behavioral or factual comments. No response to feelings expressed or implied	Mainly task & event focused with occasional warm and empathic response to client's feelings	Empathic responses to client's concerns, expressed feelings, probes for additional feelings related to current situation including his concerns about talking about these issues	Empathic responses to client's concerns, expressed *and* *implied* feelings, probes for additional feelings or expectations related to current situation, including his concerns about talking these about issues

General Symptoms – presence and length of symptoms (multiple deployments, last 3 yrs ago)

1	1	1	1	1
Legal issues	What made wife think he needs to see you	What does he see as wife's problem/how she contributes to conflict	Depressed Mood	Sleep
1	**1**	**1**	**1**	**1**
Eating/appetite	Anger toward others /physical violence	Inquires about social Support	Content of nightmares	Isolation /withdrawal
1	**1**	**1**	**1**	**1**
Loss of pleasures/ interest in things	Hallucinations /Delusions	Cultural expectations of what it means to be a marine/in the military	Avoidance	Re-experiencing cognitively or somatically

Usability Feedback Form (UFF) – Adapted from the System Usability Scale (Brooke, 1996)
Administered on line via Surveymonkey link https://www.surveymonkey.com/s/7Q3TDBG
On a scale of 1 (strongly disagree) to 5 (strongly agree) please rate your level of agreement
with each of the following statements

1. I think that I would like to use this training method frequently

2. I found this training method unnecessarily complex*

3. I thought this training method was easy to use

4. I needed the support of a technical person to be able to use this training method*

5. I found that the various functions in this training method were well integrated

6. I thought that there was too much inconsistency in this system*

7. I would imagine that most people would learn to use this training method very quickly

8. I found this training method very awkward to use*

9. I felt very confident using this training method

10. I needed to learn a lot of things before I could get going with this training method*

Indicates items that are reverse scored

Please rate this training in relation to the VIRTUAL PATIENTS that were used in this study. If your group also used live actor patients, please base your evaluation only on your interactions with VIRTUAL PATIENTS

1. During this study you may have interacted with "standard (actor)" patients. How similar or different do you think your interactions were with the "actor" patients to your interactions with live clients in your job or field placement?

2. During this study you interacted with "virtual (avatar)" patients. How similar or different do you think your interactions were with the "virtual" patients to your interactions with live clients in your job or field placement?

3. Did the gender of the virtual or standardized client you worked with during this study impact the potential diagnoses that you considered for each of the clients? Why or why not?

4.You were asked to work with standardized and virtual patients who were affiliated in some ways with the armed forces. Did knowing this impact the potential diagnoses that you considered for each of the clients? Why or why not?

5. You were videotaped when you did your first and last client interviews. Did knowing you were being interviewed impact your level of anxiety about doing the interview? Please explain.
6. How did your interactions with virtual patients impact your brief (done in 30 minutes or less) interview and assessment skills?

7. Did your interactions with the virtual patients prepare you to briefly (done in 30 minutes or less) interview and assess real patients? Why or why not?

8. What did you like best about your interactions with the virtual patients?

9. What did you like least about your interactions with virtual patients?

10. Would you recommend working with virtual patients to other student? Why or why not?

11. You may have also had a chance to do a "live client simulation" using a standard "actor" patient. Do you think these types of simulations may be helpful to UH students in social work, counseling or psychology? Why or why not?

12. Please offer any suggestions concerning how to improve interactions/ training using virtual patients

Michelle (Micki) Washburn MA, LPC-S, NCC
Graduate College of Social Work University of Houston
#309 Social Work Building, Houston TX 77204
mewashbu@central.uh.edu/832-498-1015

Research Interests:

Evidence-based mental health practice and culturally adapted intervention research, interdisciplinary mental health education, affirmative practice with LGBTQ communities, applications of technology in education and behavioral health interventions.

Dissertation Title:

Virtual Patient Simulation Training for Clinical Social Work Diagnostic Assessment and Skills Evaluation

Education:

Doctor of Philosophy in Social Work, Graduate College of Social Work.
University of Houston Main Campus. Houston, TX.

Master of Arts in Clinical Psychology, School of Human Sciences and Humanities.
University of Houston, Clear Lake. Houston, TX. Magna Cum Laude.

Bachelor of Arts in Psychology, Department of Social Sciences.
Rice University, Houston, TX. Magna Cum Laude.

Publications Currently in Review:

Rubin, A., **Washburn, M.** & Scheizer, C. Benchmarks for one group outcome evaluations of adaptation of cognitive behaviorally based interventions for childhood trauma

Washburn, M. Simulation, technology and the evolution of clinical social work education: Role plays, standard patients and virtual clients.

Washburn, M., Bordnick, P. S. and Rizzo, A**.** Virtual patient simulation to enhance brief diagnostic assessment skills: A pilot study

Washburn, M., Bordnick, P. S. & Parrish, D. E. A randomized control trial of virtual patients for brief assessment of common mental health disorders

Washburn, M., Parrish, D. E. & Ren, Y. Clinicians' use of the evidence based practice process: The evidence for a needed change in the mental health industry.

Accepted Publications:

Washburn, M (In press). Identity synthesis or identity schism? [Review of the book Conservative Christian beliefs and sexual orientation in social work: Privilege, oppression and the pursuit of human rights by A. Dessel & R. M. Bolen] *Research on Social Work Practice*

Bordnick, P. S. & **Washburn, M.** (2015) Virtual reality applications for drug and alcohol assessment and treatment. In P. Sharkey (Ed.). *VR Technology for Health and Clinical Applications (Series Two).* New York, NY: Springer

Rubin, A., Parrish, D. E. & **Washburn, M**.   (2014) Benchmarks for one-group outcome evaluations of adaptation of research supported treatments for adult traumatic stress. *Research on Social Work Practice.* doi:1049731514547906.

Parrish, D. E. & **Washburn, M**. (2014). DSM5: Changes and implications for children and adolescents. *NASW Newsletter, CAYA NASW Specialty Practice Section.* Spring/Summer edition.

Washburn, M. (2013). Gender Identity Game: Who am I? In M. Cheung (Ed.) *Therapeutic games and guided imagery, Volume II: Tools for professionals working with children and adolescents with specific needs and in multicultural settings.* Chicago, IL: Lyceum Books.

Washburn, M. (2013). Five things social workers should know about DSM-V. *Social Work.* doi: 10.1093/sw/swt030

Washburn, M. & Parrish, D.E. (2013). A review of DBT-Self Help application for mobile devices. *Journal of Technology in Human Services, 31*(2), 175-183.

Ren, Y., **Washburn, M**. & Kao, D. T. (2013). The role of health insurance in the promotion of health equity and human rights for Chinese children. *Social Development Issues, 35* (2), 18-34.

Publications in Preparation for Submission:

Washburn, M., Kao-Meier, B. & Eckert, G. Inclusion of LGBTQ specific coursework in culturally diverse MSW programs: Changes and challenges for the future of social work education.

Washburn, M., Rubin, A. & Parrish, D. E. Benchmarks for one group outcome evaluation of adaptations of Dialectical Behavior Therapy (DBT) for adults with Borderline Personality Disorder.

Washburn, M., Narendorf, S. C. & Glaude, M., Usability of virtual patient simulations for teaching brief assessment skills: Social work and psychology students feedback and preferences.

Ren, Y., **Washburn, M**. and Kao, D. T. Impacts of universal insurance coverage on Chinese children's health equity 2000-2009.

Parrish, D. E., Washburn, M. & Kao-Meier, B. A randomized control study of virtual reality and in vivo exposure for adolescent social anxiety disorder.

Parrish, D. E. **& Washburn, M.** & Oxhandler, H. Social Workers' perceptions of barriers and supportive factors related to the evidence based practice process

Narendorf, S.C. , **Washburn, M**. & Wagoner, R., Young adult emergency mental health services: Usage, preferences and proposed improvements

Parrish, D. E., Rubin, A., **Washburn, M**., & Oxhandler, H. Benchmarks for one-group outcome evaluations of adaptation of motivational interviewing for adolescent substance abuse disorders.

Other Publications and Media:

Craft, J. (Host) (2015, March 23). *Mental Health for the Transgender Community: Interview with Micki Washburn, MA, LPC-S and Kenneth McLeod, LCSW.* Interview can be retrieved from: http://archive.kpft.org/

Singer, J.B. (Host) (2012, November 10). *Proposed Changes in DSM-V: Interview with Micki Washburn, MA, LPC-S and Danielle E. Parrish, Ph.D.* Podcast can be retrieved from: http://socialworkpodcast.blogspot.com/2012/11/proposed-changes-in-dsm-5-interview.html

Funded Research Proposals

2014   *Gulen Institute Dissertation Fellowship* – Awarded annually from the Gulen Institute to fund research related to the areas of conflict resolution, reduction of poverty and education in the hopes of promoting peace and transcultural understanding. ($12,000)

2013   *Gulen Institute Pre-Dissertation Fellowship* – Awarded annually from the Gulen Institute to fund research related to the areas of conflict resolution, reduction of poverty and education in the hopes of promoting peace and transcultural understanding. ($6,000)

2012   *Texas Counseling Association Educational Endowment Fund Award.*
Awarded to members of the Texas Counseling Association pursuing independent
research in the field of counseling impacting the profession and the clients it serves.
($500)

2011   *Mark Phillip Magaziner Fellowship Endowment Award.*
Fellowship is in recognition of excellence in scholarly research among GCSW students,
awarded based on academic merit and a clear commitment to the pursuit of research
that will benefit the greater Houston community. ($2,500)

Competitive Fellowships and Awards

2013   *Phi Alpha Mu Lambda Chapter Scholarship*– Awarded annually to those who have
attained excellence in scholarship and service while pursuing a social work degree.
($500)

2013   *University of Houston Teaching Excellence Award* - University wide award given
annually by the Teaching Excellence Committee in conjunction with the Faculty Board
of the Center for Teaching Excellence to an outstanding graduate teaching
assistant/fellow. ($3,500)

2012   *University of Houston Graduate College of Social Work – Graduate Teaching
Fellowship.* Fellowship awarded to GCSW doctoral students who have shown
exemplary aptitude in social work education and clinical skills training. ($11,000)

Unfunded Proposals

2014   *Fahs-Beck Fund for Research and Experimentation* Doctoral Dissertation   Grant.
Project title *Virtual Patient Simulation Training for Clinical Social Work Diagnostic
Assessment Skills Evaluation* ($5,000)

Research Experience:

Fall 2014-Summer 2015 – **Project Coordinator: Grants to Enhance Research (GEAR)
University of Houston Graduate College of Social Work in collaboration with University of
Houston Department of Psychology**. Project title "Comparative Efficacy of Virtual Reality
Exposure Therapy and In Vivo Exposure Therapy in Reducing Adolescent Social Anxiety".
Duties included providing in vivo PE and VRET interventions for adolescents with social
anxiety disorder. Assisted with IRB preparation, recruitment, development of treatment protocol
/manuals, data analysis, and manuscript preparation for submission to peer reviewed journals.
Additional duties included grant writing for funding for follow up projects and abstract
submission for national conference presentations. Research Advisor: Danielle Parrish, PhD.

Fall 2013/Spring 2014 – Research Assistant University of Houston Graduate College of Social Work. Duties included selecting and systemically reviewing articles for meta-analysis of evidence based interventions for adult trauma treatment including Eye Movement Desensitization and Reprocessing (EMDR), Cognitive Processing Therapy (CPT), and Prolonged Exposure (PE). Calculated effect sizes and synthesized data to establish benchmarks for clinicians to use to evaluate treatment efficacy in relation to anxiety, depression and trauma symptomology.   Assisted with MSW class focusing on trauma treatment. Research Advisor: Allen Rubin, PhD.

Fall 2013/Spring 2014 –Research Assistant University of Houston Graduate College of Social Work. Project funded by the Hogg Foundation for Mental Health. Project title "Service Use Patterns and Preferences of Young Adults using Emergency Mental Health Services". Duties included construction and piloting of qualitative interview guide for research project focusing on utilization patterns of young adult mental health consumers using in-patient short term crisis stabilization services. Conducted qualitative interviews, assisted with transcription and data coding. Additional responsibilities included administration, scoring and analysis of quantitative study measures and scholarly writing for submission to peer reviewed journals. Research Advisor: Sarah Narendorf, PhD.

Fall 2013/Spring 2014 – Research Assistant University of Houston College of Optometry. Project title, "Preschool Vision Screening by Parental Risk Factor Questionnaire, NEI, 1R-21EY023086". Duties included construction and piloting of qualitative interview guide for research project focusing on early detection of vision problems in children under age three. Conducted qualitative interviews and focus groups to inform screening instrument construction. Research Advisor: Ruth Manny, PhD.

Spring 2013 – Research Assistant University of Houston Graduate College of Social Work, Center for Drug and Social Policy Research. Duties included testing and evaluating the feasibility of interactive 3-D virtual patient software for use as a clinical training tool. Conducted pilot study and data analysis of virtual patient simulation training protocol. Research Advisor: Patrick Bordnick, PhD.

Spring 2012 – Research Assistant University of Houston Graduate College of Social Work Child Welfare Education Project (CWEP) program. Child and Family Center for Innovation Research. Duties included assisting PI with qualitative data analysis and program evaluation/report writing for University of Houston federally funded Title IV-E program. Developed presentation for annual Texas Title IV-E National Roundtable Conference for Principal Investigator. Additional responsibilities included independent teaching of CWEP sponsored clinical track MSW course. Research Advisor: Patrick Leung, PhD.

Fall 2011-Spring 2013 –Research Assistant University of Houston Graduate College of Social Work Center for Drug and Social Policy Research. Conducted an investigation of barriers to consistent use of the Evidence-Based Practice Process (EBPP) by mental health professionals. Duties include: assisting with proposals to secure program support from external funding sources, conducting literature reviews, instrument selection, communicating with Institutional Review Board, data collection and analyses of quantitative data via SPSS, thematic

analysis of qualitative data, and scholarly writing for submission to peer reviewed journals. Research advisor: Danielle Parrish, PhD

Teaching Experience:

2013-2015   Social Work With LGBTQ Communities – Clinical Instructor
University of Houston Graduate College of Social Work, Houston TX
Human Behavior and Social Environment (HBSE) elective course highlighting issues related to clinical and community practice with LGBTQ communities. This course applied a contextualized social justice perspective to clinical work and advocacy with LGBTQ communities. Students learned evidence-based intervention strategies for work with clients who identify as LGBTQ as well as the implications of current social policy related to LGBTQ individuals. (Live MSW)

2013 Clinical Social Work Practice: Evidence Based Interventions - Clinical Instructor.
University of Houston Graduate College of Social Work, Houston, TX.
Online/hybrid class designed to expose advanced students to evidence-based clinical social work interventions, with emphasis is on the development of clinical practice skills in Motivational Interviewing, Cognitive-Behavioral Theory, and Dialectical Behavior Therapy. Live classroom meetings focused on skills acquisition and experiential exercises, while online component emphasized theoretical understanding of approaches while exposing students to the evidence base supporting the use of these interventions with a variety of client populations.
(Online/Hybrid MSW)

2012   Transtheoretical Social Work Practice - Clinical Instructor
University of Houston Graduate College of Social Work, Houston, TX
Developed syllabus and lectures of advanced practice course focusing on the major theoretical perspectives in social work and their applications in a variety of practice settings. Facilitated class discussions and experiential exercises to reinforce and aid in the application of theoretical constructs related to integrative clinical practice. Applied OSCE for assessment of practice skills. (Live MSW)

2012   Clinical Applications of DSM in Social Work Practice – Clinical
Instructor University of Houston Graduate College of Social Work, Houston, TX
Developed syllabus and lectures for advanced practice MSW course concerning the use of the DSM in clinical practice. Course focus was on ethical and culturally competent multiaxial diagnosis of mental disorders in a variety of social work settings. Facilitated class discussions and experiential exercises to reinforce and aid in the application of theoretical constructs related to DSM diagnosis. Composed tests and graded written assignments. (Live MSW)

2012 Transtheoretical Practice **-** Teaching Assistant
University of Houston Graduate College of Social Work, Houston, TX
Supervisor: Monit Cheung, PhD
Assisted with class focusing on major clinical practice perspectives in social work practice and acquisition of associated clinical skills. Assisted with construction of Blackboard learning modules, lectures and live practice components of class, as well as assisted co-instructor with

evaluation of student written assignments and skills practice. Graded online discussion boards and provided students feedback via Blackboard. (Online/Hybrid MSW)

2007-2008 Introductory Psychology - Instructor
Houston Community College, Houston, TX
Supervisor : Carol Laman, PhD, Department Chair
Developed syllabus and lectures for undergraduate survey course covering a wide range of areas in contemporary psychological study. Applied principles from a variety of fields in psychology to real-life situations and professional environments. Facilitated class discussions and experiential exercises to reinforce and aid in the application of theoretical constructs presented in lecture. Composed tests and graded written assignments. Taught three semesters. (Live undergraduate)

2002 Sports Psychology - Instructor
Department of Physical Recreation and Dance, New Mexico State
University, Las Cruces, NM
Supervisor Harold Maude PhD., Associate Dean.
Developed syllabus and lectures for upper level undergraduate course applying psychological principles to athletics and coaching. Facilitated class discussions and experiential exercises to reinforce and aid in the application of theoretical constructs presented in lecture. Composed tests and graded written assignments. (Live undergraduate)

2002 Human Growth & Development - Instructor
Department of Counseling and Educational Psychology. New Mexico State University, Las Cruces, NM.
Supervisors: Deborah Gardner, PhD.
Developed syllabus and lectures for graduate course focusing on cognitive, social and psychological development across the lifespan. Facilitated class discussions and experiential exercises to reinforce and aid in the application of theoretical constructs presented in lecture. Composed tests and graded written assignments. (Live Masters)

Classes Developed and Accepted for Inclusion in the University of Houston Graduate College of Social Work MSW Curriculum:

***2012* Social Work Practice with LGBTQ Communities.**
Accepted fall 2012 for inclusion as a HBSE elective for the Masters of Social Work program at the University of Houston for the 2013-2014 academic year. Seminar focusing on culturally competent practice with members of the LGBTQ communities. Topics to be covered include models of LGBTQ identity development, the application of social justice to clinical practice, social policy relating to LGBTQ communities, adoption of evidence based practices for the LGBTQ communities, working with partners and families, discrimination, internalized homophobia and violence, trans-negativity and practice with children and adolescents.

Presentations Under Review:

Narendorf, S. A, Wagoner, R. ,**Washburn, M.,** & Fedoravicous, N. *Doin' It out of the Kindness of Heart:" Experience Driven Preferences Among Young Adults Seeking Psychiatric Stabilization.* Paper submitted for Society for Social Work and Research 20th Annual Conference - Grand Challenges for Social Work: Setting a Research Agenda for the Future. Washington, DC, January 13-17, 2016

Narendorf, S. A, Wagoner, R**. ,Washburn, M., &** Fedoravicous, N**.** *Relationships Between Substance Use and Psychiatric Medication Use in Young Adults with Psychiatric Disorders*. Paper submitted for Society for Social Work and Research 20th Annual Conference - Grand Challenges for Social Work: Setting a Research Agenda for the Future. Washington, DC, January 13-17, 2016

Upcoming Professional Presentations:

Washburn, M*. Virtual patients: Innovation in Simulation Based Education.* Oral presentation for the Council on Social Work Education 61st Annual Program Meeting, Denver Colorado, October 16-18, 2015. (Refereed)

Washburn, M. *Ethical Dilemmas when Working with Transgender and Gender Diverse Youth: Case Based Solutions Ethical Codes Collide with Patient Values.* Training seminar presented for the 4th annual Gender Infinity Conference, Houston, TX, October 24th, 2015. (Invited)

Professional Presentations:

Eckert, G., Sarrango, R. & **Washburn, M.** (2015). *Working with transgender clients in emergency housing settings.* Training seminar for the Salvation Army Houston Area Command. Houston, TX, June12th, 2015. (Invited)

Washburn, M. *DSM-V: Changes and Challenges for Clinicians.* Continuing education seminar for Bay Area Mental Health Providers NETwork. Houston, TX, February 10th, 2015. (Invited)

Rubin, A., Parrish, D. E, and **Washburn, M**. *Benchmarks for one-group outcome evaluations of research supported treatments.* Paper submitted for the Society for Social Work and Research 19th Annual Conference: The Social and Behavioral Importance of Increased Longevity. New Orleans, LA, January 14-18th, 2015. (Refereed)

Narendorf, S. A, Munson, M. & **Washburn, M**. *Psychiatric emergency service use among young adults: Precipitators and patterns.* Paper submitted for the Society for Social Work and Research 19th Annual Conference: The Social and Behavioral Importance of Increased Longevity. New Orleans, LA, January 14-18th, 2015. (Refereed)

Washburn, M. *Virtual patient OSCEs: Innovation in Clinical Social Work Education and Assessment.* Paper submitted for the Council on Social Work Education 6oth Annual Program Meeting. Advancing Social Work Education, Tampa, FL, October 23-26th, 2014 (Refereed)

Washburn, M. *Social Work With LGBTQIA Clients: Ethical Standards, DSM and Affirmative Practice.* Presented at the Graduate College of Social Work, Houston, TX. July 1, 2014. (Invited)

Washburn, M., Ren, Y., & Kao, D. T. *The Role of Health Insurance in Promoting Health Equity for Chinese Children: A Rural/Urban Comparison.* Presented at the 2014 Conference on Social Work and Social Sustainability in Asia. City University of Hong Kong, Kowloon, Hong Kong. June 19th-20th, 2014 (Refereed).

Washburn, M. *Effective Supervision for Clinical Social Work Practice: Choices and Challenges in a Chinese Context.* Presentation for the Shenzhen Association of Social Workers. Shenzhen, Guangdong Province, People's Republic of China. June 17th, 2014. (Invited).

Washburn, M. *Self-Care for Social Work Students and Practitioners.* Presentation at East China University of Science and Technology, Shanghai, People's Republic of China. June 16th, 2014 (Invited).

Washburn, M. & Parrish, D. E., *Evidence Based Practice Behaviors: Implications for Third Party Reimbursement.* Paper for the Society for Social Work Research 18th Annual Conference: Research for Social Change: Addressing Local and Global Challenges. San Antonio, Texas. January 15th – 19th, 2014. (Refereed).

Washburn, M. *Practitioners' Engagement in Evidence Based Practice: Implications for Direct Practice and Third Party Reimbursement.* Presented at the 2013 Annual University of Houston Graduate College of Social Work Social Work Research Conference. Houston, TX, December 7th, 2013

Parrish, D. E, **Washburn, M.,** & Torres, L. R. *Bridging the Research and Practice Gap Through Enhancing Factors Facilitating Evidence Based Practice Behaviors.* Paper for the Council on Social Work Education 59th Annual Program Meeting. Global Social Work – the World is Here. Dallas, TX. November 3 2013. (Refereed)

Washburn, M. & Eckhart, G. *Creating Visible Space: Development, Implementation and Evaluation of LGBTQ Specific MSW Curriculum.* **Faculty Development Institute** for the Council on Social Work Education 59th Annual Program Meeting. Global Social Work – the World is Here. Dallas, TX. October 31, 2013. (Refereed)

Washburn, M. *DSM-V Update: Integrating updated diagnostic criteria into your everyday practice.* MD Anderson Cancer Center Department of Social Work, Houston, TX, October 8th, 2013 (Invited)

Berger-Cardoso, J. & **Washburn, M.** *DSM-V Update: Integrating updated diagnostic criteria into your everyday practice.* Houston LPC Association, Houston, Texas October 4th, 2013 (Invited)

Washburn, M. *Culturally Competent Social Work Interventions with Transgender and Gender-Variant Clients*. Training workshop for the 37th Annual NASW Texas State Conference: Weaving Threads of Resilience and Advocacy: The Power of Social Work. Austin, TX. September 2, 2013. (Academic refereed track)

Washburn, M. *Addressing the Mental Health Needs of Transgender Clients Through Out the Lifespan.* Transgender Healthcare: Medical, Psychological and Spiritual Considerations. Texas Tech University Student Wellness Center, Lubbock, Texas, April 5th, 2013. (Invited)

Washburn, M. *Factors Related to High Levels of Engagement in Evidence Based Practice Behaviors.* University of Houston Graduate College of Social Work, 2nd Annual Social Work Research Conference: Connecting Students to Education and Social Work Research. Houston, TX. December 7th, 2012. (Refereed)

Washburn, M. *I've Never Done This Work Before – Culturally Competent Practice with Gender Variant Clients.* Submitted for the 56th Annual Professional Growth Conference of the Texas Counseling Association. Galveston, TX. November 16. (Refereed)

Washburn, M. *DSM-V: Changes and Challenges for Social Work Education*. Skills Training Workshop. Council on Social Work Education 58th Annual Program Meeting. Social Work: A Capital Venture. Washington, DC. November 10th , 2012. (Refereed)

Washburn, M. *DSM-V: Implications for Social Work Practice, Research and Policy.* Training Workshop for the 36th Annual NASW – Texas State Conference. Houston, TX. September 12, 2012. (Refereed)

Washburn, M. & Meier, S. C. *Culturally Competent Practices With Gender Variant Clients*. Texas Counseling Association annual TAGLBTIC training seminar. St. Mary's University, San Antonio, Texas. June 8th, 2012. (Invited)

Bakos-Block, C., Eckert, G., Foreman, K, P., Ren, Y., Singh, S., Trahan, M. H. & **Washburn, M.** *Balancing Opportunities: The Grateful PhD Student.* Doctoral student panel discussion, 2011 Social Work Research Conference. University of Houston, Houston, TX. December 2nd, 2011. (Invited)

Washburn, M. *Memory: Implications for Medical and Mental Health Treatment.* Interdisciplinary training seminar at Legacy Community Health Services. Houston, TX. February 15, 2010. (Invited)

Washburn, M., and Jones, S. *Emo: Ignore or Intervene?* Continuing education seminar for LPCs and LMSWs sponsored by Counsel of Agencies Serving Youth. Galena Park High School, Galena Park, Texas. September 9, 2009. (Invited)

Washburn, M. *Successful CRCS Strategies with Culturally Diverse Clients* Roundtable discussion at National Minority AIDS Council Prevention Leadership Summit, New Orleans, LA, May 22, 2007. (Referred)

Arscott, K. & **Washburn, M**. *Engaging High Risk Client: Successful CRCS Recruitment and Retention.* Presented at the 15th annual Texas HIV/STD Conference, Austin, TX, December 13, 2006. (Refereed)

Poster Presentations:

Parrish, D. E & **Washburn, M**. *Bridging the gap of research and practice: Professional Social Workers' perceptions and use of the evidence-based practice process.* Poster submitted for the Third International Conference on Practice Research. Silberman School of Social Work at Hunter College, New York, NY June 9-11 2014 (Refereed).

Washburn, M. *Putting the "T" in LGBT. Integration of transgender specific curriculum in graduate education in the human services fields – Moving beyond DSM.* Poster submitted for the 23rd World Professional Association for Transgender Health Symposium. Transgender Health from Global Perspectives. Bangkok, Thailand. February 14th-18th 2014 (Refereed).

Ma, A., **Washburn, M.,** Oxhandler, H. & Parrish, D. E. *Texas Social Workers Perceptions of Barriers and Facilitators of Evidence Based Practice.* Presented at the 2013 Annual University of Houston Graduate College of Social Work Social Work Research Conference. Houston, TX, December 7th, 2013 (Refereed)

Narendorf, S. C, Wagoner, R., & **Washburn, M.** *Young Adults Accessing Psychiatric Emergency Services: Preliminary Findings.* Presented at the 2013 Annual University of Houston Graduate College of Social Work Social Work Research Conference. Houston, TX, December 7th, 2013 (Refereed)

Washburn, M. *Review of Barriers and Supportive Factors for Social Worker's Engagement in Evidence Based Practice Process Behavior: Next Steps.* Bridging the Research and Practice Gap: A Symposium on Critical Considerations, Successes and Emerging Ideas. Houston, TX. April 5, 2013. (Refereed)

Licensure:

2011   Licensed Professional Counselor Supervisor – Texas Board of Examiners of
Professional Counselors

2008   Licensed Professional Counselor – Texas Board of Examiners of Professional
Counselors

2006   Licensed Professional Counselor Intern – Texas Board of Examiners of Professional
Counselors

Clinical Experience:

2014 – Present
Clinical Evaluator/Psychiatric Assessor (Pro-Bono)
Department of Social Services, Salvation Army Greater Houston Are Command. Provided
psychosocial and psychiatric assessments to determine program eligibility for supportive housing
and associated social services for homeless young adult (18-25) consumers.

2011– Present
Licensed Professional Counselor Clinical Psychotherapy Supervisor
M. Washburn Therapy, PLLC, Houston, TX
Conducted weekly individual and group clinical supervision for Licensed Professional
Counselor-Interns as part of the required 3000 supervised hours of post Masters clinical work for
independent licensure. Developed assessment and practice evaluation skills, assisted in case
conceptualization and treatment planning, and transtheoretical counseling skill development.
Focused on ethical and culturally competent counseling in a variety of settings. Used
Interpersonal Process Recall (IPR) model for feedback and processing of live/videotaped intern
sessions.

2006-Present
Psychotherapist – Private Practice
M. Washburn Therapy, PLLC, Houston, TX
Conducts individual, couples, family and group sessions with adolescents and adults in a private
practice setting. Specialization in LGBTQ affirmative therapy. Coordinates the diagnosis and
treatment of clients with mental health issues. Formulates and executes treatment plans,
evaluates client outcomes and assists clients in development of adaptive coping mechanisms.
Conducts counseling from a combined dialectical and cognitive behavioral perspective, provides
linkage with appropriate referrals. http://www.mickiwashburntherapy.com

2005-2007
Prevention Intervention Specialist/Risk Reduction Counselor
Legacy Community Health Services, Houston, TX
Positive Options program. Supervisor: Kristina Arscott LCSW
Conducted psychosocial and behavioral assessments with HIV+clients and their partners with
co-occurring disorders. Provided counseling and service linkage for newly relocated clients who

had been displaced due to Hurricane Katrina.   Used motivational interviewing to develop risk reduction plans based on HIV specific Evidence Based Interventions (EBIs). Provided individual and couples counseling focused on issues associated with being HIV+ such as medical adherence, mental health and substance abuse concerns. Conducted STI education for clients and staff members and facilitated the dissemination of safer sex information in the community. Was actively involved in outreach and recruitment activities for the program, including identification of potential clients, social networking and making presentations to staff of other HIV and mental health care agencies. Had additional responsibilities of weekly "social worker on call" shifts which provided support and service linkage coordination for Legacy clients centering around mental health linkage, community based case management, medical case management and crisis intervention.

2002
Clinical Intern – Department of Educational Psychology
New Mexico State University, Las Cruces, NM
Supervisor: Michael Waldo, PhD
Provided short term supportive and cognitive/behavioral counseling interventions for Native American and Latino first generation undergraduate students. Developed treatment plans and conducted pre-post assessments using the SCL-90 assessment tool. IPR model for clinical supervision was used to provide feedback concerning clinical skills and therapist's self-awareness.

2001
Clinical Intern – Psychological and Social Services
Harris County Juvenile Justice Center. Houston, TX
Supervisors: Jorge Ordonez PhD, & Zee Odoula, LCSW
Performed all essential functions of staff therapist including intake and assessment of mental, emotional, academic and social functioning of incarcerated male and female youths age 10-17 . Prepared clinical assessment reports for adjudication and long term placement when appropriate. Received intensive training on crisis intervention and suicide prevention. Practiced group and individual supportive counseling and cognitive/ behavioral therapies.

Journal Review Board:

2011-2015   Member, Editorial Board: *Perspectives in Social Work* doctoral student online
             journal. Graduate College of Social Work University of Houston.

Peer Reviewer:

2015   Invited textbook reviewer for proposals related to LGBTQ issues in social work:
             Routledge Publishing

2013   Phase 1 Reviewer for 2013 Council on Social Work Education Annual Program
             Meeting, Mental Health Care Track

Certifications:

2012   State of Texas approved CEU provider for Professional Counseling

2012   State of Texas approved CEU provider for Social Work

2008   Nationally Certified Counselor – National Board of Certified Counselors

2006   SMART Recovery Program Facilitator

Advanced Clinical Training:

Dialectical Behavioral Therapy: Validation Principles & Strategies and Skills Training
    Behavioral Tech. LLC

Dialectical Behavioral Therapy: Group Process
    Houston Group Psychotherapy Society

Trauma Focused Cognitive Behavioral Therapy
    The Medical University of South Carolina

Helping Heroes Trauma Training for Clinical Work With Firefighters
    The Medical University of South Carolina

Professional Associations/Service:

- NEST: Collaborative to prevent LGBTQ Youth Homelessness Training and Professional Development Committee (2015 - present)
- Society for the Advancement of International Social Work, PhD Representative (2014-present)
- Texas Regional Mental Health Minority Mentor Network (2014-present)
- University Dean of Students Advocates (DOS Advocates) program member (2013-present)
- National Gay and Lesbian Task Force: Member (2012 – present)
- Cougar Allies – University of Houston (2012 - present)
- Profs with Pride – University of Houston (2012 - present)
- Group Leader – *Gender Infinity: Day of fellowship and education for families with gender variant children* (2012-2015)
- Society for Social Work Research (SSWR) (2012-present),
- World Professional Association for Transgender Healthcare (WPATH) Voting Member (2011-present)
- Council on Social Work Education (CSWE) (2011 - present)
- Association of Rice Alumni Committee on African-American student and alumni retention (2010 – 2012)
- Houston Pro-Bono Counseling Project (2009-2011)

- Texas Counseling Association (2008-2012)
- Texas Association for Lesbian, Gay, Bisexual and Transgender Issues in Counseling (TALGBTIC) (2008-2012)
- Houston LGBT Health Coalition (2005-2007)

Honors:

- Phi Beta Delta Honor Society for International Scholars, Delta Iota Chapter University of Houston (2015)
- Phi Alpha Social Work Honor Society Mu Lambda Chapter University of Houston (2015)
- Golden Key International Honor Society University of Houston (2012)
- Phi Beta Kappa – Beta of Texas Chapter Rice University (1997)
- S. W. Fulton Scholar Rice University (1997)
- Rice University Women's Resource Center - Rice Outstanding Woman Award Rice University (1996)
- Psi Chi (1994-2001)
- Phi Eta Sigma Freshman Honor Society (1994)

International Social Work Activities

- 2012: *Study Abroad* – Scandinavia & Eastern Europe
    - Poland, Latvia, Sweden, Finland & Russia
- 2014: *Study Abroad* – Asia
    - China & Hong Kong