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Promoting Counselor Trainees' Clinical Skill Development Using Virtual Reality Simulations

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Promoting Counselor Trainees' Clinical Skill Development Using Virtual Reality Simulations

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Abstract

Although research on virtual reality (VR) as a pedagogical tool within counselor education is scarce, the parallel use of VR in health sciences education indicates VR simulations may have similar utility and effectiveness in training counselors. This conceptual piece aims to assist counselor educators in building VR simulations for counselors-in-training (CITs). The authors review the research on VR usage in counselor education and explore the practical implications of VR simulations for training counselors. The authors describe the development and utilization of VR simulations across multiple stages of training in a counselor education master's program to support CITs' clinical skill development during the COVID-19 pandemic. Advantages, limitations, and diversity and equity considerations of VR simulation usage in counselor training are discussed.

Significance to the Public

Virtual reality (VR) simulations are a versatile pedagogical tool that can enhance counselors-in-training's clinical skills across a variety of topics and situations in a safe and controlled environment. We describe the development and implementation of VR simulations in a master's counseling program to provide counselor educators with examples of how they can deploy VR simulations in their courses, along with suggestions for using VR simulations in an ethical and inclusive manner.

Keywords: virtual reality, simulations, counselor education, counselor training

Online methods for clinical education have expanded rapidly within the past decade as technological advances made it possible to engage in learning activities that traditionally occurred in-person, such as counseling skills practice. One such advancement is virtual reality (VR), a 3D computer-based environment that simulates authentic encounters by immersing the user in their surroundings (Piromchai et al., 2015). As technical capabilities in computer graphics expanded over the past decade to create more life-like digital environs, counselor educators began using VR to help students prepare for real-life situations they will encounter as counselors (Lowell & Alshammari, 2019; McGhee et al., 2012; Renfro-Michel et al., 2010; Walker, 2009; Walker & Rockinson-Szapkiw, 2009). Using VR, counselor educators can design simulations with graphic avatars that mirror authentic interactions with clients, thus teaching clinical skills through online-based experiential learning.

Developing clinical skills, such as active listening and empathic responding, is a crucial part of counselor training (Osborn & Costas, 2013). Traditional methods of instruction to promote clinical skill development include role-plays, mock sessions, case studies, active video watching, and experiential in-class exercises (Harrawood et al., 2011; Horton et al., 2022; Lowell & Alshammari, 2019; Osborn & Costas, 2013; Rapisarda et al., 2011). In the past decade, VR simulations emerged as a new experiential training method for counselors-in-training (CITs) to practice clinical skills. VR simulations are immersive experiences

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that emulate authentic face-to-face interaction, with the avatars responding in real time to the trainee participating in the simulation. VR simulations can promote development of empathy and perspective taking (Gavarkovs, 2019; Motz et al., 2018; Yee & Bailenson, 2006), enhance relational and affective learning (Walker, 2009), increase student self-efficacy (Jacobs & McEwen, 2021), mitigate the limitations of role-plays (Lowell & Alshammari, 2019), and allow for direct supervision with immediate corrective feedback (McGhee et al., 2012). Though VR simulations show promise as an accessible, practical, and effective training method for CITs' clinical skill development, literature on the use of VR in counselor education is limited. Contrarily, health sciences has an abundance of research that demonstrates VR simulations as an effective training tool in the clinical skill development of healthcare providers.

Use of VR Simulations in Health Sciences Education

Multiple health sciences professions have implemented VR simulations in clinical training of students, including dentistry, prenatal and genetic counseling, laparoscopic surgery, and primary care practice. Health sciences educators have creatively used VR to build immersive training environments, such as using computerized phantom heads with simultaneous feedback to teach clinical dental skills to students (Plessas, 2017). These virtual patients emulate real world interactions where patients express emotions and shift their reactions based on students' responses. Health sciences researchers determined VR simulations are an effective clinical training tool, tied to positive outcomes in quantitative studies and systematic reviews such as increased knowledge in the students' field of study, enhanced interpersonal skill development, increased student confidence and self-efficacy in use of clinical skills, and improved emotional recognition and increased empathy (Czart, 2014; Gavarkovs, 2019; Mitchell et al., 2011; Motz et al., 2018; Plessas, 2017; Piromchai et al., 2015; Reger et al., 2020). Of significance to counselor education, VR simulations can be effective at enhancing medical providers' skills in motivational interviewing (MI), substance use and mental health screening, and application of brief behavioral health interventions (Albright et al., 2013, 2018; Czart, 2014; Fleming et al., 2009, Mitchell et al., 2011), demonstrating successful transfer of MI training to human patients (Reger et al., 2020). This body of health sciences research suggests that VR simulations may be a particularly effective tool for training medical and behavioral health providers in evidence-based theoretical application.

Use of VR Simulations in Behavioral Health Provider Training

Similar to health sciences, the behavioral health fields of psychology (Ward et al., 2016; Yee & Bailenson, 2006), psychiatry (Dupuy et al., 2021), and social work (Phillips et al., 2018; Wilson et al., 2013) have researched the use of VR simulations to train students for interacting with future clients. Examples of VR use in behavioral health include application of psychological principles to work-based settings (Ward et al., 2016), home visits (Wilson et al., 2013), and therapy sessions (Phillips et al., 2018). Consistent with health sciences, researchers found multiple positive effects of using VR in behavioral health provider training. Through satisfaction survey results (Ward et al., 2016) and qualitative feedback (Dupuy et al., 2021; Wilson et al., 2013), behavioral health students reported VR simulations were a useful training tool in enhancing their ability to apply psychological concepts to a work-based setting, particularly for more complex scenarios that are difficult to replicate in a classroom (e.g., home-based visits). VR simulations provided the opportunity for students to practice counseling skills, increase confidence, and gain insight with lower risk and decreased anxiety, compared to in-person scenarios (Gavarkovs, 2019; Phillips et al., 2018; Ward et al., 2016). Further, instructor ratings of students' clinical knowledge and skill acquisition during VR simulations were comparable to traditional face-to-face training methods (Dupuy et al., 2021; Phillips et al., 2018). Clinical skills that can be enhanced through VR training include empathic communication and

diagnostic practice (Dupuy et al. 2020), clinical documentation (Phillips et al., 2018; Wilson et al., 2013), and perspective taking and reduction of negative stereotyping (Yee & Bailenson, 2006). Hence, VR simulations seem to be an effective method for behavioral health students to enhance a variety of clinical skills before engaging in real-life client situations.

Use of Immersive Simulations in Counselor Education

To assist CITs with clinical skill development pre-practicum, counselor educators have traditionally used immersive simulations in the form of enhanced role-plays that are standardized, experiential, and interactive (Larson et al., 1999; Lowell & Alshammari, 2019). Simulations typically occur with peers, and are a beneficial training tool in counselor education (Harrawood et al., 2011; Horton et al., 2022; Larson et al., 1999; Osborn & Costas, 2013; Rapisarda et al., 2011); however, role-plays have their limitations as a simulative exercise. CITs may be nervous to act out clients who are culturally dissimilar to themselves or presenting issues that they personally have not encountered (Harrawood et al., 2011; Rapisarda et al., 2011); thus, quality and consistency of role-plays can vary across CITs' preparedness, ability to stay in character, and commitment to engaging in the role of both client and counselor with a peer (Lowell & Alshammari, 2019). Even when role-plays are implemented with clear structure and directions, issues with personal boundaries may arise if CITs lapse into divulging personal information or CITs question if their peers' reactions are simulated during emotional exchanges (Harrawood et al., 2011). VR has the potential to address these limitations of peer-based simulations by emulating real-life scenarios and interactions with clients. Although the authors are aware of multiple counselor training programs who are using VR technology, the literature on VR in counselor education is limited.

Benefits of VR Simulations in Counselor Training

The parallel use of VR simulations in health sciences suggests VR may have similar utility and effectiveness in training counselors. To start, the virtual environment allows counseling students to practice clinical skills with diverse clients through enhanced experiential learning opportunities (Lowell & Alshammari, 2019; McGhee et al., 2012; Walker, 2009). VR simulations imitate traditional learning methods like role-playing, with the advantage of altering the simulation difficulty to suit CITs' developmental level. VR simulations eliminate the ethical complication of dual relationships between students that can occur during role-plays (Harrawood et al., 2011). CITs may be more relaxed and less anxious in VR environments, increasing expression and appropriate risk-taking in practice of clinical skills (McGhee et al., 2012; Walker, 2009). Hence, VR simulations can provide a safe environment for CITs to practice responding to clients in complex scenarios that are ethically impossible to replicate with real clients during early stages of counselor training (Gavarkovs, 2019; Walker & Rockinson-Szapkiw, 2009), such as de-escalating a family conflict during a home visit (Wilson et al., 2013) or counseling a client with open wounds from self-injurious behavior (Lowell & Alshammari, 2019).

The empirical research on the use of VR in counselor education is limited, as the authors only identified three studies examining the effectiveness of VR in preparing CITs to enter clinical practice. In each of the three studies, the authors used Second Life, a low-cost online virtual world platform that allows users to interact with each other as avatars. In a mixed-methods study, Lowell and Alshammari (2019) created VR simulations for diagnostic interviewing practice among a sample of 23 master's students, using avatars controlled by mental health professionals. Students described the VR learning exercises as realistic, interactive, fun, and engaging (Lowell & Alshammari, 2019). Similarly, Walker (2009) explored the use of immersive VR simulation in a counseling techniques course. In this case study, students

themselves role-played using the avatars in the VR counseling environment created on Second Life. CITs found the emulation of a clinical setting to be helpful to their learning, although most reported they did not learn more from the course because the instructor used a VR environment for students to conduct role-plays (Walker, 2009). Finally, Renfro-Michel et al. (2010) also used Second Life to compare learning outcomes of graduate CITs enrolled in a face-to-face and hybrid group counseling course. The hybrid CITs engaged in synchronous and asynchronous group activities in an immersive VR environment to promote application of group counseling concepts. At the end of the semester, the hybrid CITs had significantly higher test scores and final grades than the face-to-face CITs, suggesting the use of technological tools like VR increased hybrid CITs' comprehension of course concepts and theories (Renfro-Michel et al., 2010). Limitations of these studies are small sample sizes (Lowell & Alshammari, 2019; Renfro-Michel et al., 2010; Walker, 2009), reliance on student self-report of learning outcomes (Lowell & Alshammari, 2019; Walker 2009), limited concrete descriptions of the simulation development and implementation (Lowell & Alshammari, 2019; Renfro-Michel et al., 2010; Walker, 2009), and inability to isolate VR simulations as the primary variable contributing to between-group differences (Renfro-Michel et al., 2010). Further, only Lowell and Alshammari (2019) utilized a person unknown to CITs to simulate a client, which is one of the main advantages of using live VR simulations over experiential role-plays in the classroom, as using a trained person as the avatar emulates a more realistic counseling environment in which the client is unknown to the CIT.

The use of VR simulations within counselor education is evolving and warrants further examination of its effectiveness as a training tool for counselor skill development. The growing body of empirical studies in health sciences that demonstrate VR simulations as an effective method of training medical providers in MI and mental health screening techniques (Albright et al., 2013, 2018; Czart, 2014; Fleming et al., 2009; Mitchell et al., 2011; Reger et al., 2020) supports the potential for VR use in counselor training. VR simulations have the capability to aid training in trauma-informed, telehealth, and culturally responsive practice in CITs to meet the needs of clients and communities. The versatility and adaptability of VR makes it an ideal method to meet these training needs. The purpose of this article is to describe how counselor education faculty developed and utilized VR simulations with master's-level CITs during the COVID-19 pandemic through contracting with Mursion, a company that designs immersive AI environments.

Implementation of VR Simulations in a Counseling Training Program

The first author's previous employer contracted with Mursion, a company that programs and designs simulations utilizing artificial intelligence and immersive environments for skills practice in the workplace, education, healthcare, and defense (Mursion, n.d.). Mursion uses "Simulation (Sim) Specialists" trained to play the avatars who respond to the user in real-time, both verbally and through avatar actions such as leaning forward, crossing arms, taking out a cell phone, or looking away. Mursion's immersive platform provides a variety of environment and avatar options for the scenario developer to meet their needs of the simulation design. The VR environment selection includes office settings, medical exam rooms, classrooms, and conference rooms. Avatars range in age from young children to older adults, with a variety of racial and ethnic backgrounds. Simulations can accommodate up to five avatars, and thus can be designed for relationship and family counseling, small groups, or classroom management, in addition to individual counseling scenarios.

Diversity and Equity Considerations

Although one of the main benefits of VR is providing CITs opportunities to practice skills with diverse populations, the platform used must be

examined. Mursion recently came under scrutiny for predominantly using White actors to play avatars of color, described as "digital Blackface," particularly when simulations were created for antiracist and/or diversity, equity, and inclusion (DEI) training, despite having actors of color available (Baker-White, 2021). Mursion responded to the criticism by stating their use of White actors was in part to prevent actors of color from constantly having to do the emotional labor of reenacting marginalization experiences from their daily lives. Though antiracist and DEI work is certainly not the sole responsibility of people of color or those of marginalized identities, those of marginalized groups often experience tokenism and tend to carry the invisible labor for social justice work (Thacker & Barrio Minton, 2021). However, using actors of privileged identities to play avatars of marginalized identities is problematic, and creates the potential for insensitive and harmful portrayals of diverse populations. Both authors are White women, and we acknowledge our positionality and privilege of Whiteness. The majority of the Sim Specialists for the simulations described in the next sections (to the first author's knowledge) were White individuals. We provide suggestions for counselor educators in the Limitations of VR Simulations section when considering this facet of simulations.

Development of VR Simulations

The first author (in collaboration with the second author and other master's and doctoral students) designed Mursion simulations for master's-level CITs to practice essential clinical skills, including diagnostic interviewing, suicide assessment, telehealth intakes, and crisis intervention. In writing the case studies for the simulations, we predominantly focused on the client's presenting concerns, as the scenarios were developed for specific skills practice, with relevant contextual background for the client provided as needed. We chose adult avatars representing diverse racial backgrounds so that CITs could practice case conceptualization after the simulation in a multiculturally responsive manner. Using Mursion's Scenario Guide format, we established learning objectives and associated performance objectives. For each performance objective, CIT responses were identified as a "hit" (CIT response meets the performance objective) or a "miss" (CIT response does not meet the performance objective). The identified hits and misses were then associated with specific avatar reactions based on the CIT's performance throughout the scenario. The Scenario Guide assisted the Sim Specialist with tailoring responses to the CIT based on the performance objectives and provided a baseline for instructors to assess how the CIT met the learning objectives for the simulation.

As an example, the learning objective for the suicide assessment scenario was "gather information and accurately assess suicidal ideation and risk." The associated performance objective was the "Learner will ask open-ended questions and continue to use reflection to contextualize client's suicidal ideation." A behavioral response that constituted a "hit" for the CIT was "maintains calm demeanor and demonstrates openness to exploring suicidal risk in a non-judgmental manner," in which the avatar client would respond by "nodding, demonstrating open body language," and "demonstrating more comfort as [the avatar client] discusses their suicidal thoughts further." Conversely, an example of a "miss" was the CIT "displays anxiety or nervousness around discussing and assessing suicide risk," in which the avatar client would respond by "turning body away from learner" and "displaying frustration and/or discomfort."

Along with the Scenario Guide, the first author developed a case study that described the avatar client's background and presenting issue and provided the Sim Specialist with brief quotes to utilize and symptoms to display during the simulation. Brief clinical information on the diagnosis was provided to the Sim Specialist to further their understanding of the clinical issue displayed by the avatar during the simulation and ensure the Specialist was appropriately playing the severity level of the presenting concern. For example, with the suicide assessment scenario, the

suicidal ideation (SI) level was to be mild so that CITs could practice constructing a safety plan with the avatar client. Additional information provided in the case study were specifics on the presentation of mild SI, such as: "Client has no thought-out plan. Client has considered taking pills but doesn't know what type or how much it would take to kill themselves," and "Client denies intent with statements such as 'I know the thoughts are irrational and I wouldn't do it because I would hurt my family, but the thoughts won't go away.'"

Once the Scenario Guide and case studies were developed, the first author met with the primary Sim Specialists who would be emulating the avatar client to review the information, answer their questions about the scenario, and conduct a trial run of the scenario to ensure the Specialist accurately portrayed the client's symptoms and reactions. After the trial run, the scenario was deployed in the selected graduate courses. All simulations were delivered online via Zoom and recorded for review of the CIT's performance. Simulations were either scheduled during class so the faculty and other learners live-observed the session or used as an individual recording reviewed later by the CIT, faculty, and/or peers. The Scenario Guides also included reflection questions for the learner to address immediately following the simulation, during supervision, or in a written assignment.

VR Simulation Descriptions

Brief descriptions of designed scenarios and their implementation in the master's-level curriculum are illustrated next.

Suicide assessment. The suicide assessment simulation was a 30-minute triage for the CIT to practice quickly establishing rapport, conduct a suicide assessment, and create a short-term safety plan with the client. The avatar was a 35-year-old Black cisgender female recently diagnosed with HIV. This simulation was deployed during master's-level practicum courses to assist CITs with obtaining required recordings for their university supervisors and counted as indirect hours toward practicum. CITs' university supervisors reviewed recordings to identify strengths and growth areas for the CIT in assessing SI. This simulation also could be deployed as a skills-based assignment in the helping skills, diagnosis, or crisis courses.

Diagnostic interviewing. The diagnostic interviewing scenario ran as a 45-minute intake session, designed for the CIT to build rapport, conduct an intake interview, and gather information to appropriately identify the client's diagnosis. The avatar was a White cisgender female in her early 40s demonstrating signs of hypomania, including restlessness, insomnia, tangential thinking, and pressured speech, with Bipolar II being the most accurate diagnosis of the client's symptoms per her report and clinician observation. As with the suicide assessment scenario, this simulation was deployed during master's-level practicum to assist with required recordings. This simulation would be appropriate for use in the diagnosis or assessment course.

Telehealth intake. The telehealth intake was a 30-minute session with a White cisgender female client in her 70s who was using telehealth for the first time. Since all Mursion simulations were conducted virtually, the sessions emulated telehealth counseling and were appropriate for students to practice ethical and legal procedures in establishing a relationship with a client via telehealth. The learning objectives were to conduct an informed consent appropriate to telehealth, set up session boundaries and expectations, answer client questions about telehealth, and help the client navigate technological challenges related to telehealth. This scenario was designed as an assignment for the professional ethics course, but was never fully deployed due to funding cuts in the use of Mursion within the first author's institution.

Psychological First Aid. The Psychological First Aid (PFA) simulations were developed by the first author and an instructional design doctoral student as part of a project in the student's graduate coursework. The PFA simulations were relevant to the current context of COVID-19, providing CITs with an opportunity to practice brief crisis intervention skills with healthcare workers experiencing symptoms of trauma and burnout due

to the pandemic. Learning objectives for CITs were to practice the five intervention principles and eight core actions of PFA in a brief 15-minute encounter with a healthcare professional, addressing their immediate needs and identifying next steps for support and collaborative services. The avatars were a 23-year-old Latinx cisgender female nurse who had started working in the hospital a few months prior to the onset of COVID-19, and a 60-year-old White cisgender male doctor who had practiced medicine in the hospital's emergency department for 25 years. The nurse scenario was set at a mild intensity level and the doctor scenario at a medium intensity level, so the avatars displayed varying demeanors and openness to support. The PFA scenarios were deployed in practicum and internship as a means of assisting CITs with obtaining indirect hours during the height of the pandemic. Practicum and internship CITs who participated in the PFA scenarios took the 6-hour PFA training offered by the National Child Traumatic Stress Network before engaging in the simulations. CITs' performance was reviewed in practicum or internship supervision by their university supervisors. The PFA scenarios could be used as an assignment in the crisis course.

Sexuality counseling assessment. The first author designed the 20–30 minute sexuality assessment simulations as a skill-focused assignment in her master's-level sexuality counseling elective course. The avatars were both cisgender male clients experiencing symptoms of erectile dysfunction (ED). The first client was a 31-year-old Latino individual experiencing conflict in his intimate relationship of 5 years, who started having symptoms of ED approximately 1 year ago. The 31-year-old client was nervous about being in counseling and reticent to talk about his sexual functioning issues. The second client was a 61-year-old White husband, happily married for 25 years, seeking to make lifestyle changes to improve his health including his diet, exercise, and sexual functioning. The 61-year-old client was very direct and open to talking about his ED, which started approximately 3 years ago, and expressed frustration that his general physician did not take his concerns about sexual functioning seriously at a recent appointment. The CITs' learning objectives were to display comfort in talking about a sexuality-related concern, establish a supportive professional environment for the client, gather information and accurately assess the client's sexuality-related concern, and identify next steps to take with the client. Similar sexuality assessment scenarios for a 29-year-old Asian American cisgender female client with low sexual arousal and 40-year-old Black cisgender female client with female orgasmic disorder were developed. Mursion funding, however, was eliminated before the female-based scenarios were deployed. The ED simulations ran in small groups during class so other students could observe their peer's performance. The CITs were not given information on the avatars prior to the simulation but were instructed to focus on the sexuality-based concern for the purposes of the assignment. Directly after each simulation, CITs answered three reflection questions regarding what they found to be the most challenging aspect of the simulation, and identifying one thing they did well and one thing they would do differently. During the simulations, the observing peers completed an evaluation of the CIT's skills that they provided to the CIT serving as the counselor. Each CIT reviewed their recording and their peer's evaluations to complete a self-evaluation that rounded out the assignment.

Couples counseling intake. The couples intake was designed as a 45-minute session. The avatars were a Black cisgender male and female couple in their early 30s who had been married for 6 years, had no children, and identified as Christian. The couple presented to counseling because the female partner discovered the male partner was viewing porn, which diminished the trust in their relationship. After the discovery, sex became infrequent and conflicts intensified; however, both partners were committed to working on their relationship. The learning objectives were to establish rapport with both partners, utilize assessment questions appropriate for a couples intake, screen for contraindications to couples counseling, and track the clients' interactional patterns, focusing on the process of what occurred between the partners rather than the content of what

they shared. The couples intake was designed as an assignment in a couples counseling elective similar to how the sexuality assessment was implemented; however, this simulation was not used in the course due to Mursion funding cuts. The couples intake was deployed in master's-level internship classes to assist CITs with acquiring recordings during the pandemic.

Summary of VR Simulation Utilization

For 2 years, the first author developed and utilized VR simulations across multiple stages of training in a counselor education program to support CITs' clinical skill development. Based on her experience, VR simulations offer advantages and limitations to counselor training.

Advantages of VR Simulations

Similar to other researchers' descriptions regarding the utility of VR (Dupuy et al., 2020; Jacobs & McEwen, 2021; Lowell & Alshammari, 2019; McGhee et al., 2012; Phillips et al., 2018), the Mursion simulations were a versatile, convenient, and online-accessible method for master's-level CITs to practice clinical counseling skills. Given that Mursion programs and creates the VR environments, the first author only needed to focus on designing the training simulations to emulate counseling sessions and promote clinical skill development. Hence, the first author found the development of Mursion simulations to be a simple and quick process, which only took a few weeks from the start of the simulation design to deployment in courses. The VR simulations were deployed through Zoom, so CITs could both record the simulations for future review and log in to observe peers' simulations. VR simulations created opportunities for CITs to practice clinical skills with diverse clients across a variety of topic areas and session configurations (i.e., individual, couples, group). Once designed, simulations could be set from "low" to "high" intensity based on the CIT's developmental level, meaning the same simulation could be utilized at multiple points during the master's program. For example, the suicide assessment scenario set at low intensity could be used in a basic helping skills course, and used again later in the master's program, perhaps in internship or a crisis elective, set at a high intensity to match the CIT's advanced developmental level. Further, VR simulations showcased how a similar client concern (e.g., ED) could present based on the client's identities and contextual factors, providing CITs with the opportunity to compare and contrast treatment approaches and interventions appropriate to the client's background, focusing on multicultural responsiveness in case conceptualization after the simulation's conclusion. Finally, VR simulations emulate telemental health sessions to train CITs in best practices for virtual counseling.

VR simulations that emulate real-life client interactions can assist counseling programs in meeting CACREP's (2016) professional practice requirement of including video recording or live observation of CITs' interactions with clients in supervision. VR simulations do not count as direct service, but the recordings can be useful for supervisors to obtain a baseline on a CIT's clinical skills and to supplement required recordings/observed sessions with clients for CITs who encounter difficulty taping at their placement site. At the height of the COVID-19 pandemic, the VR simulations helped master's-level CITs meet the recording requirements of practicum and internship as their sites grappled with the transition to telemental health practice.

Lastly, CITs who participated in the Mursion simulations provided positive informal (e.g., verbal discussions) and formal (e.g., first author's student opinion surveys) feedback on their experience with VR counseling sessions to support their clinical skill development. CITs indicated the VR simulations were a useful learning tool that allowed them to practice clinical skills in a "safe environment." One CIT who participated in the sexuality counseling assessment simulations described the simulations as "bring[ing] students out of their comfort zones to learn something new about an unfamiliar population. Another stated, "the Mursion assignment… makes [students] feel and

reflect on [their] experience in a manner that can be generalizable to understanding future clients in a new way that isn't simply taught from a textbook."

Limitations of VR Simulations

As with any pedagogical strategy, VR simulations has limitations in its use in counselor education. Foremost, the use of White actors to play avatars of color is a critical limitation. Although several of the simulations developed by the first author were created in conjunction with faculty or students of color, the first author did not critically consider the impact of White actors playing avatars of color (hence, her White privilege) until her institution's contract with Mursion had ended; thus, she did not intentionally implement the suggestions described here in the design of the previous scenarios. When choice of actors is possible through funding sources (whether institutional, grants, or outside organizations), we strongly suggest counselor educators cast actors of color to represent diverse avatars. Choice over Sim Specialists or actors may be limited, however, depending on the funding source for the VR platform. In our case, we did not have a choice of actors, and used the Sim Specialists provided by Mursion, which to our knowledge, were predominantly White women actors. In either case, counselor educators could provide additional cultural responsiveness training to the actors during the simulation development phase, to help ensure diverse avatars are being portrayed in a sensitive manner. Further, counselor educators should consider their positionality in designing scenarios of clients representative of marginalized backgrounds, and intentionally include faculty or students from backgrounds representative of the avatar in designing the scenario to ensure the client(s) are portrayed in a culturally sensitive manner. Finally, we recommend counselor educators be transparent with students about this crucial limitation of VR simulations, particularly when White actors are playing diverse clients. We can provide space for students to discuss their feelings or hesitation in engaging in such simulations and prepare them in advance for what to do should they encounter stereotyping behavior during a simulation.

Mursion and similar VR simulation platforms (e.g., SimSkills, Virit, Moth+Flame) are complex training tools and can be costly to implement over time, which may inhibit their use in higher education as many institutions face budget cuts amidst the COVID-19 pandemic's impact. VR simulation platforms such as Mursion not only fully design the VR environments but also typically require personnel resources to run the simulations, which creates logistical challenges in implementation. Each Mursion simulation required a facilitator (usually the course instructor) and a Sim Specialist to be present; hence, scheduling simulations outside of synchronous class time was challenging, particularly if multiple students were involved in the simulation as observers. Practicum and internship students reported they felt less prepared for the simulation when the facilitator was a graduate assistant rather than their course instructor. Several CITs reported the graduate assistant facilitator did not adequately communicate the intended expectations of the simulation when setting up the session. Thus, facilitator coaching is important to appropriately prepare CITs entering a Mursion simulation (Lowell & Alshammari, 2019; Walker & Rockinson-Szapkiw, 2009), which requires additional time from the instructor to write facilitator scripts and provide training to individuals serving in the facilitator role. Additionally, facilitators can observe the behavior and interactions of the Mursion Sim Specialists and report any concerns about culturally insensitive depictions to the course instructor, so the concerns can be addressed with the class and the Sim Specialist.

The use of VR simulations relies heavily on computer technology to create the immersive environment, which contributes to additional limitations of its pedagogical utility. Users need to have reliable and high-speed Internet service for the simulation to run smoothly without lags or freezing, and not all CITs have access to consistent networks at home (McGhee et al., 2012; Walker, 2009). Instructors using VR should build in time for

technological glitches when running simulations in their courses and ensure their university information technology services can be responsive to simulation users. Additionally, several CITs stated they were caught off guard by interacting with the Mursion avatars, even though they knew they were entering a VR environment. Instructors should prepare students for engaging in the virtual environment prior to the simulations (McGhee et al., 2012; Renfro-Michel et al., 2010; Walker, 2009) through technology tutorials or by showing clips of unrelated simulations so CITs know what to expect when they begin their simulation. Although the avatars in the Mursion simulations were life-like and respond in real time through verbal communication, body language, and facial expressions, the technology currently is not capable of fully capturing the range and nuances of human reactions that clients present. A final limitation is CITs do not experience the client's role, which can be beneficial to trainees in enhancing affective learning, other-awareness, and understanding of what it feels like to be the client (Gavarkovs, 2019; Harrawood et al; 2011; Rapisarda et al., 2011).

Conclusions and Future Directions

There are a wide range of possibilities for using VR in counselor education. In this article, we focus on one use, VR simulations, to emulate clinical skill practice with clients in a counseling setting. VR immersive environments can also be used for group activities (e.g., Renfro-Michel et al., 2010), creative pedagogy (e.g., creating a museum for CITs to explore on a specific concept such as the development of trauma-informed practices), or to support online delivery methods in counselor education programs. Further, VR interventions are showing promise with treating mental health concerns, particularly in using exposure therapy for trauma-related and anxiety disorders (Pira et al., 2023), so integrating VR into counselor training will become even more relevant as these developing technologies are used in clinical practice.

Given the dearth of literature on the use of VR in counselor education, our aim was to provide counselor educators with specific examples of how VR simulations can be utilized with CITs, review the advantages and limitations from our experience to inform counselor educators as they make decisions about using VR simulations in their curriculum, and offer specific ideas to expand practice and research to promote the effective use of VR simulations in counselor education. Although contracting with a company like Mursion was beneficial in that the faculty had to know very little about programming or VR itself, the current high cost of such platforms may prevent counselor education programs and institutions from accessing this technology. Low-cost VR technologies such as Second Life also are a viable option for VR simulations; however, counselor educators either need to learn more about VR design and programming to utilize these platforms effectively or contract with a VR developer who can assist with building the immersive platform. Additionally, counselor educators who are building their own immersive environments for VR simulations need to identify and train actors who will play the client avatars. Although CITs could role-play as the avatars (Walker, 2009), research is needed to determine if there are advantages to CITs' role-playing in a VR environment over synchronous video communication.

Finally, counselor educators who are utilizing VR simulations should consider viable strategies to research their effectiveness for CITs. The primary area in which research is needed is how to effectively attend to cultural sensitivity in VR simulations. The ideal is to hire actors of various marginalized backgrounds who can play diverse avatars, but when this option is outside of the control of the faculty member, are there appropriate ways to use VR training to represent diverse clients? We recommend counselor educators continue to grapple with this critical question. The health sciences literature provides multiple examples of empirically sound research studies in using VR simulations to training health providers in MI (Albright et al., 2013, 2018; Czart, 2014; Fleming et al., 2009, Mitchell et al., 2011; Reger et

al., 2020) that can be used as models for studies in counselor education. Utilizing evidence-based practices to design VR simulations and determine learning outcomes also would be helpful in determining the effectiveness of the training method. To address the limitations of research on VR simulations in counselor education, researchers should strive to increase sample sizes, implement randomized controlled trials, and include self-report and instructor observation measures to assess clinical skills. Lastly, research is needed on the transfer of learning to clinical practice, with follow-up measures of CITs' learning and skills based on observations of interactions with clients during practicum and internship courses or postgraduation.

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