

SAVP-XR: Socially-Augmented XR Training with Emotionally Expressive Virtual Patients for Psychology Students

Nesrine Mansouri^{1,*†}, Makram Soui^{1†} and Mohammed Naji Aldossari^{2†}

¹University of Michigan-Flint, Flint, Michigan, USA

²New Vision Group, Michigan, USA

Abstract

Training in clinical psychology continues to face ongoing challenges that affect trainees' preparedness, confidence, and well-being. Psychology students regularly face ethical dilemmas involving conflicting professional principles, experience burnout from ongoing emotional and cognitive stress, struggle with role ambiguity during supervised practice, and encounter a notable gap between theory and practice when applying classroom knowledge to real-world clinical situations. The traditional approaches, while valuable, often fall short of preparing future psychologists for the complex challenges of practice, which are further intensified by emotionally intense and unpredictable clinical scenarios. In this context, we propose SAVP-XR, a Socially-Augmented Extended Reality (XR) training framework where students can practice handling ethical dilemmas, managing their emotions, and making clinical decisions in realistic yet safe and supportive environments that enable learning from mistakes without risking patient safety, through dynamic scenarios that reflect the ambiguity of real clinical practice. The framework supports experiential, reflective, and socially grounded learning through immersive interaction, repeated rehearsal, and adaptive scenario progression. In addition, simulated short- and long-term patient outcome trajectories will be provided, allowing students to observe how their clinical decisions influence symptom improvement and treatment progress over time, thereby making their effectiveness visible and measurable within the SAVP-XR training environment.

Keywords

Social XR, Virtual Patients, Psychology Training, Immersive Learning, Emotional Regulation, Professional Identity, Ethical Decision-Making

1. Introduction

The behavioral health field is experiencing a significant workforce shortage, where over 122 million Americans currently reside in areas that lack enough behavioral health professionals. Michigan reflects this serious workforce shortage, where roughly 4 million people lack sufficient access to a mental health provider [1]. Additionally, more than 1 billion people worldwide live with mental health issues, which intensified after the COVID-19 pandemic by 25% [2], yet the availability of trained mental health professionals continues to surpass the supply nationwide, with fewer than 15 providers per 100,000 people [3]. This scarcity places considerable responsibility on newly trained psychologists to be clinically skilled, resilient, and ethically prepared from the start of their careers. This shortage often stems from low enrollment in these majors [4], driven by various barriers. One of which is the limited educational approach offered by colleges and universities, which, while valuable, often fails to provide comprehensive yet effective training for psychology majors that directly addresses the issues students encounter during their studies [5]. Indeed, students are often highly aware of the field's complexities despite their eagerness to pursue it [6]. Navigating the ethical complexities of practice is challenging when students are required to provide clinical therapeutic treatment while adhering to ethical standards. This is confusing for students, who indeed receive ethical codes rather than specific actions for complex

Proceedings of the ACM CHI 2026 Workshop on Shaping Future Human Connections: Social Augmentation through XR Technologies, April 13, 2026, Barcelona, Spain

*Corresponding author.

†These authors contributed equally.

✉ mnesrine@umich.edu (N. Mansouri); msoui@umich.edu (M. Soui); m.aldossari@newvisiongroupus.com (M. N. Aldossari)



© 2026 Copyright for this paper by its authors. Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0).

real-life situations [7]. The prevalence and poor handling of burnout symptoms are often viewed as personal issues to overcome rather than recognized as a factor that negatively impacts the training environment itself, which is often considered the main reason for low students' willingness to pursue these majors and to retain their jobs in the long term [8], leading to a career apocalypse that may affect the workforce for decades [9]. Supervision without awareness of professional barriers adds another layer that affects the majors' selection, and failure of existing educational approaches to consider these points further exacerbates trainee distress [10]. The visibility and effectiveness of measuring students' clinical decisions during therapy are limited due to the lack of long-term patient outcome data and a narrow focus on short-term results. Students may not be aware of their progress and find it difficult to learn from their mistakes, or conduct trials, especially in an environment that does not tolerate errors and prioritizes patient safety [11] and lacks clear step-by-step guidance for real-world scenarios. These complexities can be significantly mitigated by focusing primarily on altering the way students are being educated through tackling the issues from different perspectives in terms of the learning environment delivery, emotional experiences, and readiness for real-world practice.

In this context, we introduce a new, hands-on training platform for psychology students using immersive technologies and AI. By combining Extended Reality (XR) simulations with advanced LLM-driven simulated virtual patients, students can practice dealing with ethical dilemmas, managing their emotions, and making clinical decisions in realistic yet safe and supportive environments based on dynamic scenarios that present ethical conflicts, emotionally intense disclosures, supervision tensions, and unexpected patient responses, reflecting the ambiguity of real clinical practice. The platform also includes intentionally fun, humorous simulation sessions that provide emotional relief, enhance cognitive flexibility, and keep psychology students engaged without sacrificing clinical education, while reducing burnout. In addition to these realistic simulations, the platform offers AI-guided reflection sessions after each session to help students understand their experiences, identify errors, learn how to overcome them, build resilience, and develop a strong professional identity. Through repeated exposure to realistic simulations, the platform will empower future psychologists to navigate the ethical and emotional hurdles they will encounter in clinical practice, boosting their confidence and equipping them to succeed and grow in their careers.

2. Background and Motivation

The psychology training environment presents several significant challenges for students in clinical psychology, particularly during supervised practicum and internship. These challenges often become deeply personal and emotionally charged as trainees navigate real-life situations. The psychology education's reliance on therapy models, ethical rules, and structured procedures equips students with strong conceptual knowledge but lacks clear translation and step-by-step guidance for real-world scenarios, and it is further exacerbated by limited opportunities for repeated, high-stakes rehearsal. Furthermore, prioritizing patient safety prevented psychology students from making mistakes, conducting trials, and learning from them, leaving students technically informed but clinically underprepared, hesitant, and second-guessing themselves when providing therapeutic care [12, 13]. Furthermore, there is no measure of students' clinical decisions regarding symptom improvement and treatment progress, particularly for long-term patient outcome trajectories [5]. Ethical dilemmas are inevitable for psychology students during their training, as they navigate difficult choices in which their professional principles may conflict, and no single option can provide a clear-cut answer that clearly trades off between patient confidentiality and the need to ensure safety [11]. What students receive during their training are ethical codes that provide general frameworks but rarely prescribe specific actions for complex real-life situations, with limited exposure to what can occur in practice. As a result, a lack of knowledge of how to balance conflicts effectively often results in uncertainty, hesitation, and fear of making harmful or professionally consequential mistakes [14, 15].

The hybrid role of psychology students as both learners and clinicians responsible for real patients creates role ambiguity, as the boundaries of their duties are not explicitly defined between students and

their supervisors during clinical work. Students are expected to make important choices about patients' therapy, handle cases, and build professional connections while simultaneously being evaluated by supervisors. Dual capacity leaves students uncertain about when to act independently on even simple decisions, when to postpone judgment, and how much responsibility they truly hold [5]. Poor management of role ambiguity during training stems from assuming that responsibility clarity will develop over time and from dealing with unclear guidance [16]. Moreover, inconsistent supervision styles, hierarchical dynamics, and evaluation pressure often discourage students from seeking clarification [16]. These aspects intensify the role ambiguity that has left psychology students required to adapt individually, rather than being supported by a coherent, supportive training environment [10].

Psychology students are repeatedly exposed to a whirlwind of emotionally intense patient sessions, rigorous coursework, and practicum and internship responsibilities, which leads to burnout. The presence of ethical gray areas and constant pressure is exacerbated by insufficient space to manage and process these sensitive situations during training. As a result, students become more fragile, increasing self-doubt in handling difficult psychological cases and experiencing slow progress in academic and professional terms. The way these multidimensional conditions are treated is often framed as a personal struggle to overcome, rather than recognized as a factor that not only negatively affects the training environment itself but also students' academic and mental abilities and the therapeutic interventions provided for the patient's treatment [9, 17, 18].

At their core, these challenges focus on the social and interactive nature of clinical training; they indeed stem from emotional exchanges, conversations, and the need to make real-time decisions during therapeutic sessions with patients. Socially Augmented XR enables students to interact with virtual patients who display real emotions, translating theory into lived interpersonal experience where students can develop genuine empathy, confront ethical dilemmas, and refine their professional judgment through realistic, socially grounded scenarios. This controlled environment is valuable because it allows students to explore complex emotional dynamics and learn from their mistakes without any real risk to the patient. By emphasizing these human aspects of learning, the work represents a significant step forward in Social XR research, demonstrating how immersive social experiences help prevent burnout, build emotional resilience, influence decision-making, and support the development of professional identity among future psychologists.

3. Related Work

Recently, XR has attracted considerable attention, particularly for the use of socially interactive virtual and human-AI-powered simulation tools in clinical and psychological training [19, 20]. In fact, the use of AI-driven virtual patients has been shown to be effective in making learning experiences more practical, enhancing communication skills, and increasing engagement in psychology training [21]. Moreover, the advent of large language models (LLMs) has contributed to the emergence of AI-powered digital characters, which positively impact students' engagement and adaptation and respond effectively during immersive sessions [22]. The mental health training began to leverage immersive XR applications, underscoring that virtual humans that elicit expressive emotions and respond socially can have a strong impact on learners' feelings, the quality of therapeutic exchanges, and overall learning outcomes [23]. Fernández-Alcántara et al. [24] demonstrated that simulation tools can be effective for teaching therapeutic communication, making interactions more realistic and helping students develop practical skills. These virtual training platforms offer notable benefits but also have certain limitations. While they excel at improving communication skills, they often overlook areas such as emotional adaptation and professional identity formation, both of which are essential to comprehensive clinical training. Similarly, Amithasagaran et al. [25] leverages XR and LLMs to enable psychology students to engage in lifelike clinical conversations. While this approach is valuable, it primarily emphasizes authentic interactions while often overlooking the development of emotional resilience, ethical decision-making, and the formation of a professional identity. Botero et al. [26] introduce advanced patient simulations that closely mirror real-life scenarios, providing trainees with valuable opportunities to practice clinical

assessment and diagnostic skills. However, these simulations primarily focus on technical evaluation and do not address cultivating emotional intelligence or strategies to mitigate burnout among trainees. Hicke et al. [27] provide students with the chance to practice scenarios multiple times and receive instant, personalized feedback, and make hands-on, simulation-based training more available to a wider range of students, regardless of their location or resources.

Despite the advantages of existing approaches, notable shortcomings arise. In fact, most existing approaches emphasize practicing communication, mastering clinical interviews, or rehearsing basic scenarios. Nevertheless, they often fall short in preparing psychology students for the complex situations of therapeutic work [20, 22, 24, 25], in which they should navigate ethical uncertainties, manage emotional pressures, and simultaneously shape their developing professional identities. While emotional struggles and the risk of burnout are widely recognized in research, these issues are not typically integrated into the core structure of training programs [8, 9]. The essential processes of building a professional identity and clarifying the boundaries of a student’s role as students transition to becoming clinicians are also not adequately addressed in today’s approaches [10, 28].

The present work proposes a Socially Augmented XR framework, SAVP-XR, that views immersive simulation not only as a means of practicing skills but also as a space for real personal and professional growth. The proposed framework brings together emotionally responsive LLM-based virtual patients, carefully paced emotional challenges, opportunities for thoughtful reflection, and simulated supervision. This combination enables students to develop their clinical thinking, ethical judgment, emotional resilience, and professional self-awareness simultaneously. Unlike existing approaches that treat communication, emotional experience, and identity as separate tracks, this framework examines how these elements interact in rich, socially immersive therapy sessions. By using Social XR and LLMs to create emotionally authentic and socially meaningful learning experiences, this work moves immersive training beyond simple role-play or realistic interactions. It aims to fully prepare psychology students for the emotional complexity and real-life challenges they will face as therapists.

4. Research Questions

In this section, we present the research questions that guide this work and describe how each question is addressed within the proposed framework.

4.1. RQ1. Closing the Gap Between Theory and Practice

How does engaging with adaptive, real-time clinical simulations help psychology students translate classroom learning into real-world therapeutic situations? To address RQ1, we will examine how well students can translate theoretical knowledge into practical, flexible actions during therapy. This will be assessed by observing how they handle realistic clinical scenarios: Are their choices appropriate for the situation? Do their decisions show clear reasoning and understanding? Can they adjust their approach as emotions and interactions shift? By tracking their progress across several sessions, we will gain insight into how their clinical judgment and decision-making skills develop and improve over time.

4.2. RQ2. Strengthening Ethical Decision-Making

How does interacting with LLM-based virtual patients who show genuine emotions, especially in socially difficult and ethically ambiguous situations, influence psychology students’ perspectives on ethical decision-making? To address RQ2, we will examine how students handle complex ethical situations by observing how they manage conflicting responsibilities and make context-appropriate decisions. We will closely monitor their reflections and reasoning through scenarios, evaluating their explanations for the choices they make in emotionally charged, socially interactive settings. This will provide insight into how they recognize ethical dilemmas and justify their actions in real-world ambiguity.

4.3. RQ3. Emotional Processing and Burnout Reduction

To what extent can graduated exposure to emotional interactions with humorous scenarios, combined with AI-supported reflection and emotional processing, influence emotional regulation, resilience, and perceived risk of burnout? To address RQ3, we will examine how students adapt emotionally by focusing on their stress levels, responses to difficult situations, and confidence in handling challenging patient interactions. The framework gently guides students through scenarios that increase in emotional intensity from easier, low-stress moments to more demanding ones, enabling them to gradually build coping skills and regulate their emotions. Alongside these intense interactions, students also participate in lighthearted, relaxed sessions with virtual patients, which offer a welcome break and help ease performance anxiety. By combining these experiences, we can see how repeated, immersive practice helps students better manage their emotions, build resilience, and reduce their risk of burnout over time.

4.4. RQ4. Professional Identity and Role Development

How does simulated scenario supervision, provided by SAVP-XR, help psychology students clarify their professional roles and develop their identity as they transition from learners to clinicians? To address RQ4, we will examine how psychology students develop their professional roles by focusing on their sense of readiness to assume real clinical responsibilities, their clarity about what their role entails, and the evolution of their confidence and judgment over time. We will closely monitor their personal reflections, narratives, and insights into how their perspective as future clinicians evolves as they participate in immersive simulations and virtual supervision.

4.5. RQ5. The Role of Emotional Realism and Social Presence in Social XR

What level of emotional realism and social presence is required for effective learning in socially immersive therapeutic environments? To address RQ5, we will examine how students perceive and connect within the immersive environment. We will consider the realism of virtual patients' emotions, students' engagement during sessions, and whether they perceive others' presence. By focusing on these factors, we can better understand how authentic emotions and responsive interactions influence learning, guide decisions, and enhance the quality of therapy encounters.

5. SAVP-XR: Socially Augmented XR Framework

The proposed framework is currently being developed in partnership with our industry collaborator, XR Innovation Lab, at New Vision Group. This collaboration can leverage their real-world knowledge of immersive design to ensure that our ideas are not only practical but also developable into a socially immersive training tool for psychology students, and adaptable and extendable to other training domains. The SAVP-XR framework is designed to help psychology students better manage the real-life challenges they face during their training, especially those tricky and emotionally charged situations where the right path is unclear. By allowing students to interact with virtual patients that exhibit genuine emotions, the SAVP-XR creates a safe, supportive space for them to practice responding to challenging scenarios, learn through social interactions, develop ethical judgment, and build confidence in handling difficult moments that arise in real clinical work. The scenarios change based on a set of guidelines that respond to each psychology student's choices, shaping how the virtual patient feels and acts throughout the session. After each interaction with the virtual patient, the SAVP-XR gently prompts students to pause and reflect, encouraging them to consider how they communicated, managed their emotions, and made ethical decisions. This approach helps students not only practice clinical skills but also gain deeper insight into their own reasoning and growth. The SAVP-XR framework comprises four main parts, each designed to address a specific challenge faced by psychology students during their training, while these components help answer the key research questions that guide this work.

5.1. Bridge the theory–practice gap through adaptive, real-time clinical simulation (RQ1)

The platform offers students the opportunity to engage with realistic XR scenarios in which LLM-driven virtual patients respond in real time to the student’s words, timing, tone of voice, and therapeutic interventions. Rather than following a strict script, these scenarios develop organically, challenging students to draw on their knowledge of CBT strategies, ethical decision-making, and risk assessment. As the interaction progresses, the difficulty level adapts, presenting students with realistic clinical challenges such as shifts in emotion, patient resistance, awkward silences, or unexpected revelations, closely reflecting the unpredictability of real-world practice. In these scenarios, students are actively encouraged to try different approaches, learn from their mistakes, and explore new solutions in a risk-free environment. This XR component transforms learning into an iterative process, giving students the chance to see both immediate and longer-term impacts of their actions. Because these scenarios can be revisited, restarted, or redirected, learners have the freedom to experiment, reflect, and grow with each attempt.

5.2. Strengthening ethical decision-making in complex clinical situations (RQ2)

This component helps students improve their ability to identify, understand, and address ethical dilemmas, particularly those in which professional values may conflict and there is no clear answer. Using immersive XR, students will be placed in challenging scenarios, such as choosing between keeping a patient’s information confidential and ensuring their safety, that closely resemble real dilemmas they will face in practice. With LLM-powered simulated patients, trainees experience interactions that are socially immersive, emotionally nuanced, and dynamically responsive, thereby supporting more realistic therapeutic engagement within the SAVP-XR environment. These simulated patients respond in real time to students’ choices, using natural language and expressing authentic feelings. Rather than following a fixed script, the conversation unfolds unpredictably, much like actual clinical encounters, allowing students to practice handling the unexpected and adapt their approach as needed. These realistic, repeatable experiences allow trainees to safely work through challenging situations, build confidence, and sharpen their instincts, all without putting real patients at risk.

5.3. Reduce burnout through AI-supported reflection and emotional processing (RQ3)

This component focuses on reducing the mental and emotional burden associated with burnout. Our framework initially offers lighthearted VR sessions featuring virtual patients, in which students engage in playful, comedic, or low-pressure clinical scenarios. These fun interactions are designed to spark laughter and lighten the mood without making fun of patients, giving students a chance to decompress and reset. Challenging XR scenarios also include stressful moments organized by emotional intensity levels (low, moderate, and high). During interactions, students can pause to ground themselves, focus on their breathing, or reconsider their approach before proceeding. Graduated emotional exposure not only allows them to regain composure and continue with renewed confidence, but also to progressively build tolerance, avoid sudden emotional demands and overload, and strengthen resilience. Following these sessions, psychology students enter guided VR reflection spaces where a virtual avatar mentor helps normalize difficulty, label emotions, and reframe challenges.

5.4. Clarify professional roles and support professional identity development (RQ4)

To help students better understand and navigate their professional roles, this objective uses supervision simulations powered by LLM. In these exercises, the student interacts with virtual supervisors, works alongside team members from different disciplines, and communicates with institutional leaders. The goal is to give students a safe space to practice important skills, such as setting healthy boundaries, raising concerns when needed, and making decisions that align with their responsibilities, all without

the pressure or risk of judgment. With VR and LLM-based avatars, students can truly step into their roles, while the AI adapts responses based on how they communicate, how confident they seem, and their level of reasoning. This approach makes the experience feel realistic and tailored to each student, helping them grow more comfortable and capable in their future profession.

6. Evaluation Strategy and Expected Outcomes

Since this study is still in its early stages, we have developed a plan to evaluate how engaging with virtual patients who display genuine emotional responses can shape students' learning experiences, guide their decision-making, strengthen their emotional resilience, and nurture their growth as future professionals.

6.1. Evaluation Plan

This work will employ a combination of qualitative and quantitative methods, inviting psychology students to participate in immersive therapy sessions with virtual patients that exhibit real emotions. Students will address scenarios that are not only socially and ethically challenging but also emotionally intense, including situations in which the appropriate course of action is unclear and interactions that require resilience. AI-generated supervision scenarios will also be simulated, providing learners with opportunities to practice their professional roles in realistic settings. The effectiveness of the SAVP-XR environment will be measured against more traditional learning methods, such as working through case studies or role-playing with peers. A panel of psychology experts will be involved in the validation process to evaluate the AI-generated scenarios, as well as the outputs and interactions between students and virtual patients. By exposing students to repeated sessions, we can observe how their ethical judgment, emotion regulation, and self-assurance evolve over time, and we will measure and analyze these changes.

6.2. Expected Outcomes

This section presents the expected outcomes. Since the proposed framework is still in its early stages, the following are our informed expectations and are theoretically grounded. Our main focus is to examine how psychology students' interactions with virtual patients, whose emotions are expressed in immersive environments, can affect their clinical thinking, ethical decision-making, emotional resilience, and professional identity.

By engaging psychology students in immersive SAVP-XR, the gap between what they have learned in theory and how they apply it in real-world therapy settings is expected to be bridged, supporting context-sensitive clinical reasoning and improved decision-making in socially and emotionally complex situations (RQ1). By participating in therapy sessions that are socially and ethically challenging, students will learn to navigate uncertain situations, weigh competing responsibilities, and make thoughtful ethical choices appropriate to each context. This framework is expected to encourage students to reflect deeply on their actions and judgments, thereby increasing their confidence and competence when faced with complex clinical decisions in which the right answer is not always clear (RQ2). When students are gradually exposed to emotionally intense situations and have opportunities to reflect on their experiences, they are more likely to regulate their emotions, recover from challenges, and feel confident in their ability to handle difficult interactions. By combining high-pressure scenarios with calmer moments, this approach aims to help students avoid feeling overwhelmed and develop healthy coping strategies for stress over time (RQ3). By participating in immersive, socially rich experiences and simulated supervision, psychology students are likely to develop a clearer understanding of what it means to become a clinician. These activities help them better understand their responsibilities and professional roles, boost their confidence, and feel more prepared to face the challenges they will encounter in real therapeutic settings (RQ4).

The current framework also aims to show how students' perceptions of authentic emotions and genuine social presence in virtual environments shape their engagement, their ability to connect with others, and to apply what they have learned to real-life situations. We anticipate that when students perceive that emotions and social interactions are real, they will become more immersed in the experience, respond more empathetically to others, and gain deeper, more meaningful learning from the sessions (RQ5). Ultimately, the heightened emotional authenticity and sense of connection in these virtual environments are expected to make the experience more engaging, foster genuine interpersonal skills, and support the transfer of learned skills to real-world practice.

7. Implications for Social XR

This work suggests that Social XR has the potential to offer more than merely practice communication skills. By combining emotionally expressive virtual patients with realistic, socially rich therapy sessions, immersive environments help students improve their clinical thinking, make ethical decisions, and develop emotional resilience, particularly in high-stakes situations. The framework also points to the benefits of gradually introducing emotionally charged scenarios and providing opportunities for structured reflection. Such an approach can teach students healthy ways to cope with stress, prevent them from feeling overwhelmed, and support the development of their professional identity as future clinicians. Basically, these insights suggest that Social XR creates powerful, real-life learning experiences in which emotions and social interactions are central to the application of knowledge and the shaping of behavior. Importantly, this work also highlights that experiences feel more impactful when the emotions and social presence in these environments feel genuine. For Social XR systems to be truly effective, they should focus on creating emotionally authentic and socially meaningful interactions, rather than merely pursuing technical realism or perfect simulation.

8. Limitations and Future Work

This work presents an early-stage framework and therefore has several limitations. First, the proposed work has not yet undergone full empirical validation, and the evaluation described represents a planned study rather than completed experimental results. The work we propose has not yet been fully tested or validated through real-world studies; to date, it is a plan for future research rather than findings from completed experiments. In the future, we intend to implement this framework and conduct thorough, long-term studies to better understand how students learn and adapt emotionally over time, as well as how this approach influences their professional growth in the long run. Because this framework is intended for psychology students, its applicability may not extend to other groups, training stages, or professional fields. To broaden its impact, future research should consider how this approach can be adapted and applied across a range of educational and clinical settings. Third, it remains a significant technical and methodological challenge to create virtual patients that behave in a convincingly natural and emotionally responsive manner. Besides, ensuring emotional realism and social presence in XR remains a complex task, largely because LLMs can produce inconsistent responses, and current avatar animations have their own limitations. Moving forward, future research could focus on integrating more sophisticated models of conversation and emotional expression. This would help make virtual patients more lifelike, improve their responsiveness to users, and enhance the overall quality of social interactions in these simulations. Finally, immersing students in emotionally intense scenarios can carry ethical and psychological responsibilities. Future research should focus on incorporating features that detect students' emotions in real time, such as their tone of voice or facial expressions, and adjust the virtual patients' reactions accordingly.

Besides, we plan to incorporate collaborative scenarios where multiple students interact with virtual patients, providing trainees the opportunity to reflect with their peers and learn from one another, thus making the clinical training experience more interactive and socially engaging. Providing personalized virtual patient scenarios for each student's unique progress will also be studied to ensure they receive

the support and experiences needed to develop at their own pace. We also aim to explore how the skills gained in SAVP-XR translate into real-world clinical work by tracking students over time to assess the impact of SAVP-XR on their confidence, empathy, and ethical decision-making when working with actual patients.

9. Conclusion

This work presents SAVP-XR, a new Socially-Augmented XR framework designed to help psychology students address real challenges in therapy, including ethical dilemmas, emotionally charged moments, and tricky social situations and role ambiguity. Instead of viewing immersive simulation solely as a means to rehearse skills, the proposed framework integrates emotionally expressive virtual patients, gradual exposure to increasingly challenging scenarios, guided reflection, and simulated supervision. The aim is to build a supportive environment that safely tolerates mistakes without risking the patient, where students can develop not only their clinical thinking and decision-making skills but also their emotional management and professional identity. Although the SAVP-XR framework remains under development, it demonstrates the strong potential of Social XR to enhance learning effectiveness in psychology education. Future research will be necessary to test and refine these ideas, ensuring that socially immersive experiences genuinely help students be well prepared for the challenges of real-world therapeutic practice.

Declaration on Generative AI

During the preparation of this work, the authors used ChatGPT for language refinement and grammar checking. All content was reviewed and validated by the authors, who take full responsibility for the final manuscript.

References

- [1] Medicaid recipients struggle to find mental health care. looming cuts could make it harder, <https://michiganadvance.com/2025/03/15/medicaid-recipients-struggle-to-find-mental-health-care-looming-cuts-could-make-it-harder/>, 2026. Accessed: Feb. 01, 2026.
- [2] World Health Organization, COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide, <https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide>, 2026. Accessed: Feb. 01, 2026.
- [3] World Health Organization, World mental health report: Transforming mental health for all, <https://www.who.int/publications/i/item/9789240049338>, ??? Accessed: Feb. 01, 2026.
- [4] National center for education statistics (NCES), <https://nces.ed.gov/>, 2026. Accessed: Feb. 01, 2026.
- [5] R. Palitsky, et al., Systemic challenges in internship training for health-service psychology: A call to action from trainee stakeholders (2022). doi:10.1177/21677026211072232.
- [6] K. Sylaska, J. D. Mayer, Major choices: Students' personal intelligence, considerations when choosing a major, and academic success, *Journal of Intelligence* 12 (2024). doi:10.3390/jintelligence12110115.
- [7] G. D. Constantin, et al., Moral distress in ethical dilemmas: A comparative study of medical students and physicians, *Healthcare (Switzerland)* 13 (2025). doi:10.3390/healthcare13192547.
- [8] S. Di Mario, E. Rollo, S. Gabellini, L. Filomeno, How stress and burnout impact the quality of life amongst healthcare students: An integrative review of the literature (2024). doi:10.1016/j.teln.2024.04.009.

- [9] M. G. Pereira, M. Santos, R. Magalhães, C. Rodrigues, O. Araújo, D. Durães, Burnout risk profiles in psychology students: An exploratory study with machine learning, *Behavioral Sciences* 15 (2025). doi:10.3390/bs15040505.
- [10] M. M. Boustani, S. L. Frazier, D. Marin, D. Bashoura, A qualitative review of community health workers' training, supervision, and service delivery needs, *Administration and Policy in Mental Health and Mental Health Services Research* 52 (2025) 1061–1075. doi:10.1007/s10488-025-01439-w.
- [11] J. F. Boswell, M. J. Constantino, A. N. Gaines, A. E. Smith, Responding to key process markers as a focus of psychotherapy training and practice, *Clinical Psychology in Europe* 6 (2024). doi:10.32872/cpe.11967.
- [12] M. Daneshfar, H. K. Moonaghi, The impact of clinical simulation on bridging the theory–practice gap in nursing education: a systematic review, *BMC Medical Education* 25 (2025). doi:10.1186/s12909-025-07790-8.
- [13] N. R. Schwarzbach, R. Hoekstra, A. Poppe, T. K. Bouman, G. H. M. Pijnenborg, When theory and therapy part ways—a scoping review of the science-to-practice gap, *Psychotherapy Research* (2025). doi:10.1080/10503307.2025.2488019.
- [14] K. Hiney-Saunders, Moral distress within clinical psychology, 2025.
- [15] T. J. VanderWeele, et al., Moral trauma, moral distress, moral injury, and moral injury disorder: definitions and assessments, *Frontiers in Psychology* 16 (2025). doi:10.3389/fpsyg.2025.1422441.
- [16] H.-l. Zhang, F. Liu, H.-j. Lang, The relationship between role ambiguity and anxiety in intensive care unit nurses: The mediating role of emotional intelligence, *Intensive and Critical Care Nursing* 81 (2024). doi:10.1016/j.iccn.2023.103597.
- [17] R. G. Maunder, et al., The relationship between moral distress, burnout, and considering leaving a hospital job during the COVID-19 pandemic: a longitudinal survey, *BMC Nursing* 22 (2023). doi:10.1186/s12912-023-01407-5.
- [18] R. G. Maunder, et al., The relationship between moral distress, burnout, and considering leaving a hospital job during the COVID-19 pandemic: a longitudinal survey, *BMC Nursing* 22 (2023). doi:10.1186/s12912-023-01407-5.
- [19] O. Emma, Extended reality in the digital age: A literature review on technology-driven learning environments, *Computers and Education: X Reality* 8 (2026). doi:10.1016/j.cexr.2025.100127.
- [20] D. Draschkow, et al., Using XR (extended reality) for behavioral, clinical, and learning sciences requires updates in infrastructure and funding, *Policy Insights from the Behavioral and Brain Sciences* 10 (2023) 317–323. doi:10.1177/23727322231196305.
- [21] D. García-Torres, C. Fernández, J. J. Mira, A. Morales, M. Á. Vicente, Using AI-based virtual simulated patients for training in psychopathological interviewing: Cross-sectional observational study, *JMIR Medical Education* 11 (2025). doi:10.2196/78857.
- [22] M. A. Quirós-Ramírez, T. Wichert, T. Hempel, S. Streuber, Interacting with LLM-powered virtual humans in AR and VR: Does medium mediate social presence and realism?, 2026. doi:10.21203/rs.3.rs-8583699/v1.
- [23] S. Wei, D. Freeman, A. Rovira, Virtual humans in virtual reality mental health research: Systematic review (2025). doi:10.2196/75087.
- [24] M. Fernández-Alcántara, et al., Virtual simulation tools for communication skills training in health care professionals: Literature review (2025). doi:10.2196/63082.
- [25] A. Amithasagaran, S. Dakshit, B. Suryadevara, L. Stockton, CLiVR: Conversational learning system in virtual reality with AI-powered patients, <http://arxiv.org/abs/2510.19031>, 2025.
- [26] V. Botero, V. Yadav, J. Ouyang, A. Abbas, M. Worthington, A voice-enabled virtual patient system for interactive training in standardized clinical assessment, 2025. doi:10.48550/arXiv.2511.00709.
- [27] Y. Hicke, et al., MedSimAI: Simulation and formative feedback generation to enhance deliberate practice in medical education, 2026. doi:10.1145/3785022.3785092.
- [28] G. Sheedy, M. Clancy, Defining therapeutic clinical placement expectations: A training framework for enhancing clinical supervision, <https://eric.ed.gov/?id=EJ1483123>, 2025.