

Educational Technology & Society

Reinventing pedagogies and practices of 3D Multi-User Virtual Environments (MUEs) with the rise of blended learning

Special-Issue Focus, Scope, and Rationale

Online multi-user virtual environments (MUEs) have been in use since the late 1970s. They have been referred to as MUDs (Multi-User Dungeons), MOOs (MUD, object-oriented), and MMORPGs (Massively-Multiplayer Online Role-Playing Games) (Dickey, 2003; Tüzün, 2006). These environments have recently been called immersive virtual worlds. Technologies such as virtual reality (VR), augmented reality, mixed reality, and blockchain continue to change 3D MUEs. It is currently well understood that 3D MUEs are becoming more feasible every day with faster Internet connection and devices with high processing capacity. 3D MUEs now offer a more “immersive” experience using VR headsets. Several tech companies have now created their own metaverses. However, it is the pedagogical use of new technologies in the context of learning environments that is central to their success. If pedagogical approaches are not included in the design of 3D MUEs, these environments will turn into ephemeral “Virtual Ghost Towns.” In this context, not only the tool used in these environments but also the pedagogical approaches implemented with the tool come to the fore (Doğan & Tüzün, 2022). All in all, in spite of the fact that there are some educational commentaries heralding a promising outlook pertaining to them (e.g., Hwang, 2023; Tlili et al., 2022), the academic community needs a greater focus on pedagogical approaches utilizing 3D MUEs.

Recently, the educational community has witnessed a massive exodus to distance education in the aftermath of the COVID-19 pandemic. This rapid shift was characterized by the use of direct instruction and synchronous communication platforms, typically Zoom, notwithstanding their well-known limitations. Even so, dipping their toes in the water and seeing that it is not that cold, they do not seem to revert to full face-to-face learning. Blended learning lies ahead. There is a great deal of literature attesting to 3D MUEs’ potential for fostering learning. These environments provide educational opportunities for solving authentic problems that have historically been inaccessible due to space, time, and cost barriers (Marešová & Ecler, 2022; Tlili et al., 2022). Further, they allow for collaboration without limits of physical space (Gresalfi et al., 2009). Their pedagogical affordances such as enhanced learner engagement, motivation, and positive attitudes together with their openness to explore, design, and manipulate 3D objects provide learners with more realistic and authentic learning environments (Doğan et al., 2018). They enable setting ambient conditions that could otherwise be dangerous such as emergency scenarios made safe in a virtual world (Meredith et al., 2012). Surprisingly, despite all these affordances, only a small fraction of educators have turned to 3D environments for distance education.

3D learning environments are not simply for 3D role-playing games and do not constitute all encompassing learning environments to suit all learner needs for all circumstances. Therefore, the design process of these learning environments requires inclusion of both instructional and 3D design elements that complement each other. As 3D MUEs are cut out for “learning by designing,” allowing participants to experience and create new environments, they do not get on well with mere lecturing, which makes users inactive. This inactivity seriously dampens the flow experience (Doğan et al., 2022). In addition, user-unfriendly interfaces also affect students’ behaviors towards these environments. For example, efficient navigation is also a design problem in 3D MUEs because users’ field of view cannot encompass the entire environment. This is a usability problem that causes disorientation (Tüzün & Doğan, 2009). Further, practitioners might encounter inconsistencies between intended and implemented educational purposes as they try to implement educational innovations in real-life contexts and achieve curricular objectives. These undesirable variations that occur in real-life contexts pose a threat to the fidelity of innovation (Thomas et al., 2009). This is why flexible adaptive designs (or design-based attempts) are so crucial for innovations to survive local variations. These environments have a social dimension that encourages interpersonal interaction. Some concerns also accompany the social dimension of 3D MUEs. This becomes even more apparent as the age of the group decreases. One of the increasing concerns among parents as well as teachers is the privacy and appropriateness of these environments for minors (Meyers et al., 2010). In conclusion, the design-intensive, complex, and student-oriented nature of 3D environments makes preparations difficult and time-consuming endeavors (Çınar et al., 2022), which seems to account for the reason why educators opted out of 3D-MUEs in the *Emergency Distance Education* process.

This issue solicits rigorous quantitative, qualitative, and mixed research studies related to the use of 3D environments for distance and/or mixed purposes. This special issue welcomes original empirical research articles, critical viewpoints, theoretical perspectives, systematic literature reviews, and meta-analyses. Studies

that are purely descriptive and drawing on self-report scales are not satisfactory unless they make a significant contribution to the field.

This issue seeks quality papers centering on, but not limited to the following topics:

- How to effectively foster learning by designing, design thinking, and problem-based learning in 3D MUVES
- The role of institutional support and teachers in the adoption process of 3D MUVES
- Contemplating 3D MUVES in terms of the digital divide
- Real application scenario/cases of 3D MUVES during the COVID-19 pandemic
- Strengthening the theoretical underpinnings of 3D MUVES
- Novel ways of utilizing guided or unguided instruction as well as their coalescence in 3D MUVES
- How to transfer gamification elements into education and leverage game-based learning through 3D online COTS (Commercial-off-the-shelf) games
- The role of nefarious tech actors in 3D MUVES
- The ways to integrate 3D MUVES to hybrid learning
- The pedagogical affordances of metaverses
- Exploring a critical lens towards the metaverse
- 3D MUVES for teacher training
- Novel student-assessment practices in 3D MUVES
- Security, privacy and addiction issues related to 3D MUVES
- Problematic cyber behaviors such as bullying, harassment, profanity, trolling and other issues for children in 3D MUVES
- User-experience (UX) designs and usability studies in 3D MUVES
- Emergency and disaster preparedness

We are looking forward to your quality contributions.

Timeline of Special-Issue

Actions	Important Dates
Manuscript Submission Due Date	May 30th, 2024
1st Round Review Notification	August 30th, 2024
1st Round Revision Submission Due Date	October 15th, 2024
2nd Round Review Notification	November 15th, 2024
2nd Round Revision Submission Due Date	December 15th, 2024
Final Acceptance Notification:	January 30th, 2025
Final Camera-ready Manuscript Due Date	February 15th, 2025
Editorial Preface Submission	March 15th, 2025
Estimated Publication Date	April 1st, 2025

Paper submission

All submissions to this special issue should be submitted through the system available on the journal's website <https://www.j-ets.net/submit>. Please select our special issue "Reinventing pedagogies and practices of 3D Multi-User Virtual Environments (MUVES) with the rise of blended learning" in order to differentiate it from a regular issue paper. Submissions to the special issue should abide by all the guidelines of *Educational Technology & Society* (ET&S) described on https://www.j-ets.net/author_guide.

Note. If you would like to contribute to this special issue, or if you have an interest to be a reviewer in this special issue, please contact the editorial office.

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Dilek DOĞAN is an Associate Professor at the Department of Computer Education and Instructional Technology at Ankara University in Ankara, Turkey. Her research interests are in 3D multi-user virtual environments, games, educational games, mobile learning, online learning environments, flow experience, and distance education.

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Michael K. Thomas is an Associate Professor in the Department of Educational Psychology at the University of Illinois at Chicago. His research focuses on the cultural dimensions of technology implementation in learning contexts and what this means for the design of technology-rich innovations for learning. He is particularly

interested in video games and gamification in learning environments and was a primary contributor to the Quest Atlantis project funded by the National Science Foundation.

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