

***SIMULATION TOOLS AND SHOWCASING AS A MORE QUALITATIVE WAY FOR
ELEARNING PRACTICES***

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Abstract

E-learning trends have rapidly changed within a few years right from the pandemic. But most importantly the education sector was able to realize there was much more than classroom studying and thought of eLearning which has been largely a way to go today.

The research method employed in this paper was informed by a literature review; sources from the last decade include journals, conferences, books, and websites. The findings show that even with existing challenges with eLearning there is a need to address the issue of quality in instruction and assessment in e-learning. This paper explores the adoption of simulation tools and showcasing by teachers and students as a more qualitative way of knowledge sharing.

Keywords: *E-learning, virtual reality, simulation*

Introduction

Learning institutions have implemented the e-learning mode of instruction and knowledge acquisition. This involves a number of technologies and internet-based platforms that requires computer literacy for both learners and teachers.

E-learning has been upgraded to offer more flexible, interactive, and easier knowledge sharing at any time and in users' preferred environments. However, most institutions had to address the issue of e-learning in a dire situation especially within and after the pandemic with many learners unable to access these platforms

or devices, poor internet access, and lack of awareness or skills in using e-learning platforms which affected the readiness to adopt eLearning.

But to address such issues that affect the quality many aspects have been looked into, satisfaction has been a key factor Mtebe, J & Raphael C. (2018) found that system quality, instructor quality, and service quality had a significant positive effect on learners' satisfaction, with service quality being the strongest predictor. Satisfaction can therefore be brought about by student involvement and real-world activities, especially the practical aspects of e-learning. Therefore, the adoption of simulation tools and showcasing will help to address the satisfaction gap thus quality in e-learning

SIMULATION AND SHOWCASING

Simulations are instructional scenarios where the learner is placed in a "world" defined by the teacher to represent a reality within which students interact. The teacher controls the parameters of this "world" and uses them to help students achieve the learning outcomes. Students experience the realism of the scenario and gather meaning from it

Educational simulation is a teaching method that tests participants' knowledge and skill levels by placing them in scenarios where they must actively solve problems. The instructor defines the parameters to create a safe environment for hands-on learning experiences. Owen & Harry MD 2012.

Simulation tools can be highly effective for enhancing eLearning experiences in a more qualitative and engaging manner. They provide learners with interactive and immersive environments where they can apply their knowledge and skills in realistic scenarios. Here are a few simulation tools commonly used in eLearning:

Virtual Reality (VR) Simulations

VR technology creates a fully immersive and interactive environment that replicates real-world situations. Learners can explore and interact with objects, people, and environments, making their learning experience more engaging and memorable. VR was initially marketed toward gaming, but there are many potential and existing VR applications in various sectors and fields, including education, training, simulations, and even in exercise and healthcare Hamad et al. (2022).

Virtual reality in Education.

Educational applications of VR have not been utilized much yet, but there are many promising examples and studies of how beneficial VR can be in an educational environment. Using VR can help increase student attention by keeping them engaged with what is happening inside the VR environment

When students use exciting technologies such as VR, they are more interested and engaged with what they are learning while immersed in a virtual environment

Alhalabi (2016) VR headsets are also useful in blocking out visual and auditory distractions, creating an opportunity for the student to focus on teaching materials better. Such VR approaches open up more opportunities for teachers to interact one-on-one with students and have more useful and beneficial teacher-student interactions

Augmented Reality (AR)

Augmented reality is a combination of technology and interaction techniques to superimpose virtual objects onto the real-world Nakamura, R., Nunes et al (2021). AR overlays virtual elements onto the real world, enhancing learners' perception and understanding of complex concepts. AR can be used to provide interactive visualizations, 3D models, and step-by-step guidance, making learning more interactive and experiential.

AR is different from VR (Virtual Reality). In VR, the user wears a headset that shuts them off from their surroundings and is immersed in an entirely computer-generated

world. VR simulations are very useful in education, though the hardware can be expensive, and the cost of developing VR simulations can be high.

By contrast, AR can be viewed on smartphones and tablets with the naked eye and does not require special hardware.

Learners can be immersed in training sessions and lessons, and get live-action practice and context to help them more thoroughly gain essential skills and knowledge on a particular subject or task. This method significantly increases information retention and adds value to abstract concepts or lessons that are better explained in real-time Open LMS (2018).

As research continues to demonstrate the effectiveness of AR and VR in eLearning, it's clear that these tools will play an increasingly important role in the future of education and training. By embracing these technologies, we can create a more engaging, effective, and efficient learning experience for learners across the globe
Dr Greg Blackburn (2023)

Simulated Environments

Simulated environments, such as virtual labs or virtual patient simulations, provide learners with hands-on experiences in a controlled setting. These tools allow learners to practice skills, experiment, and make mistakes without real-world consequences. They are particularly beneficial for fields that require practical training, such as healthcare or engineering.

As a technology still in the earlier stages of development on a grand scale, VR has made significant leaps in evolution. Still, more substantial progress must occur before VR can be fully utilized in all possible applications and purposes. Right now, the standardization of VR technology and presentation is still limited Timmerer (2019); every developer may have their own interface specifications and functionality associated with their technology, but this technology can be used in different ways to address education challenges

When showcasing simulations as a more qualitative way for e-learning, it's essential to consider the following to achieve quality in knowledge sharing,

1. Realism: *Simulations should strive for authenticity and accuracy to provide learners with a realistic experience. The closer the simulation mirrors the real-world context, the more effective it will be in enhancing learning outcomes.*

These environments that have been created tend to focus on more achievable lower-order learning, such as demonstrations, opportunities to practice, and testing (Min, 2006). Quinn (2005) expands on the issue of fidelity or accuracy in learning simulations. But how realistic do problems need to be in education for effective learning to occur? Some authors and researchers argue that problems should be real, or that simulations should have ultrarealistic physical similarities to an actual context. Herrington et al (2007)

2. Interactivity: *Simulations should offer learners the ability to actively engage with the content and make decisions that affect the outcomes. This interactivity promotes learner involvement, critical thinking, and problem-solving skills.*

Universities of all types will increasingly focus on responsiveness to learner needs and desires such as convenience, timing, engagement, application of knowledge to the workplace, and learning by doing. The role of the teacher will be changed, giving him a different, much more responsible role. The teacher-student relationship will be changed from teacher-oriented to student-oriented. Students and teachers have to interact in new and crucial ways to facilitate learning Mihaela et al (2023)

3. Feedback and Assessment: *Incorporate mechanisms for providing timely and constructive feedback to learners. Simulations can offer immediate feedback on actions, allowing learners to learn from their mistakes and make corrections. Additionally, assessments within the simulation can help evaluate learners' understanding and progress.*

lack of proper tools and guidelines for e-assessment, especially issues related to subjective assessments. Popular learning platforms like Moodle and Blackboard do not support core learning skills, critical thinking ability, or any method to assess them. L. S. Prakash et al 2012

Virtual reality and augmented reality can offer a more effective response as a form of feedback, especially for students

4. Accessibility: *Ensure that the simulation tools are accessible to all learners, considering factors such as user-friendly interfaces, compatibility with different devices, and support for diverse learning styles.*

Based on this approach, universities and corporations now own their own platform where they teach special courses for those who are interested in learning without having to travel long distances. However, having a large variety of online courses is a great opportunity but only for those who are lucky enough to have a fast internet connection. Usually, an online course contains multimedia-rich content, documents, hands-on tutorials, forums, etc. Mihai Stancu et al (2015)

By leveraging simulation tools, e-learning can move beyond passive content consumption and provide learners with engaging, experiential, and qualitative learning experiences.

Conclusions

In this paper, I have stretched that there is a need for quality in e-learning and this can be addressed by making knowledge acquisition more practical with the adoption of simulation tools such as virtual reality and augmented reality.

Currently, there are many virtual labs and virtual reality machines which have become an integral part of the tourism industry but teachers and learners have an opportunity to implement this in academia.

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