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Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Innovative digital learning: Leveraging animation, AI, and immersive reality in nursing education

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This poster highlights the effective use of learning technologies like animation, generative AI tools, and immersive reality to create digital learning and assessment artifacts for university nursing students. The purpose is to deliver a high-quality digital learning experience aligned with the university's pedagogy and education plan. It also showcases accessible, inclusive digital artifacts and early evaluations of their impact on learning.

Animation technology is at the forefront of creating engaging educational content. By using animation, complex concepts can be shown in a visually appealing and easily digestible manner, making learning more engaging for students (Liu & Elms, 2019). It also allows for dynamic storytelling and the illustration of abstract ideas, which can be particularly beneficial in concepts that are challenging to visualize (Rasmusson & Bourne, 2017).

Generative AI plays a pivotal role in developing scripts for these educational animations. Leveraging AI, we generate content tailored to learners' needs and optimized for clarity and engagement. Though AI-generated, our academic team thoroughly edits and revises the scripts to be clinically representative of the topic covered. This AI-driven script development ensures efficient collaboration with academics, resulting in accurate, relevant, and pedagogically sound material. (ProQuest LLC, 2024).

Using cutting-edge animation and generative AI technologies can create impactful nursing education materials that boost student engagement. (White, Huang, & Campanale, 2023) and facilitate learning outcomes (Huang et al., 2020). These activities are anchored in the university's signature pedagogy—active, applied, and authentic—immersing students in educational content and inspiring them to apply their knowledge and skills in real-world scenarios presented through animated learning activities. In addition, immersive reality technologies, including Virtual Reality (VR) and Augmented Reality (AR), further enhance the educational experience. By incorporating AR and VR as additional resources to complement the animations, we create immersive environments where students can interact with the material in a hands-on manner. This not only can make learning more engaging but can also help students better understand and retain complex concepts through experiential learning (Tene et al., 2024).

A digital learning developer collaborated with the academic team to create an augmented reality-based artifact for nursing students. Integrated into Canvas our institution's learning management system this artifact presented difficult topics in three dimensions with the aim of effectively explaining concepts and enhancing student engagement.

While animation and immersive technologies can boost engagement, they can also present inclusivity and accessibility challenges for some students. To facilitateinclusivity and accessibility, we followed digital accessibility guidelines and universal design principles (Ismailov & Chiu, 2022). We evaluated tools like animation, AR/VR, and interactive modules for accessibility, offering alternatives when needed. This approach accommodated diverse learning preferences, making education accessible and inclusive for all students. The environmental impact of adopting these technologies is a significant consideration. Digital tools can reduce the need for physical materials and decrease travel-related emissions, making education more sustainable.

The early assessment of the digital learning materials, incorporating animation, AI, and immersive learning technologies, reveals promising results in enhancing student engagement.

These materials cater to various learning preferences reflecting insights from the academic team.

Keywords: digital learning design, learning experience, technology, animation, immersive reality, generative AI, accessibility, Universal design for learning

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