The applicability of metaverse in nursing education: exploring head dissection.

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Hands-on dissection and prosection activities enable students to study actual human beings and cultivate an understanding of the variety of anatomical systems. Student can also gain a fundamental grasp of these structures on a topographical level, particularly regarding their positions and connections with other structures. Nursing students typically must convey a lot of information in a short amount of time. Because of this, there are fewer opportunities for students to enter the dissecting room, which limits their ability to build these mechanisms [1]. Metaverse interventions can support increased knowledge, self-confidence, engagement, satisfaction, and performance in nursing students while facilitating real-time collaboration and communication [2]. Through a virtual environment, it is possible to simulate a dissection laboratory where students can perform anatomical dissections by accessing a virtual body. Human patient/bodies avatars undermine an even more realistic and visually appealing teaching tool [3].

1. METODOLOGY

1.1 VR Technological Resources

A VR program was made available to 130 first-year nursing students for use in lab exercises. The program was designed and customized to meet our educational goals. In particular, the following device configuration is required for Immersive Learning Classrooms (AIDA): four VR head-mounted displays (HMD) and four hand-held controllers of any commercially available brand; a desktop or laptop computer with a standard graphics card (such as Intel(R) UHD Graphics 620); an average processor (such as Intel(R) Core(TM) i7-8550U GPU @ 1.80 GHz 1.99 GHz) and 16GB of RAM; and a standard router to establish a local Wi-Fi network to which all devices are connected in a shared wireless network.

1.2 Head Dissection

The option to dissect a human head has been included in the metaverse for the Anatomy course for the Nursing degree. The lesson plan included a plane-by-plane dissection of the skin to identify key anatomical features such the brain, muscles, bones, meninges, nerves, arteries, and veins.

1.3 Evaluation of the experience

Following the experience, students were asked to fill out a questionnaire that was like the one in Rodriguez-Florido et al. (2024) and questioned about several issues related to the metaverse's practical environment [4].

2. RESULTS AND CONCLUSIONS

2.1 Results of the questionnaire

A total of 122 Anatomy Nursing students answered the aforementioned survey. The results of the completed surveys are displayed in this section. Cronbach's alpha was used to assess the questionnaire's validity, and bootstrap was performed to determine the 95% confidence intervals. R was the statistical software that was utilized.
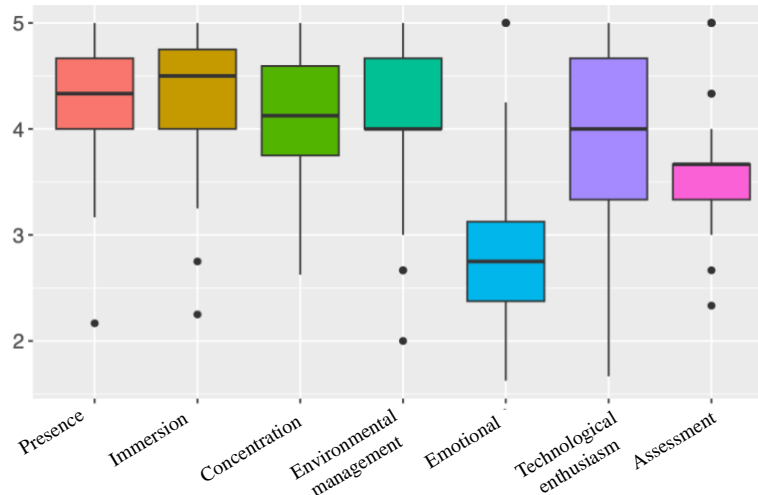

Figure 1. A box plot displaying the average values for each subscale. The score values are coded from 1 to 5, and the lowest score in the "emotional" block, indicating a better assessment.

2.2 Interpretation of the questionnaire

We were able to draw useful scientific conclusions from our study because the questionnaire passed the statistical validity checks for each subscale of questions. In particular, according to Figure 1, the overall assessment of the use of an Immersive Learning Classroom (AIDA) in the dynamics of the practices of Nursing Degree is fairly positive, with the values of each subscale being above 3 on a scale of 1 to 5. In the case of the "emotional" subscale, the evaluation is positive for values near to 1.

2.3 Conclusions, strengths and limitations

The metaverse may be effectively used to teach anatomy nursing students thanks to the technological adaptations. However, the metaverse cannot be implemented without cutting-edge and innovative technologies, which call for specific training and use. Everyday VR execution is challenging and needs continuous technical assistance for consistent use in practice. Nevertheless, the utilization of digital technologies in the classroom offers a change of pace and opportunities for learning that are not achievable in traditional anatomy education.

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