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Support for Health Education Classroom Instruction for Mini-Review

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Abstract

The purpose of this scoping review was to provide a description of the outcomes associated with 3D technology from a teaching and learning perspective as well as the use of three-dimensional (3D) technology to support teaching and learning in health care education. The study found 31 articles that were eligible for inclusion. The outcomes are introduced in four classes: 3D printing, a 3D image, a 3D environment, and so on. The teaching of anatomy was one of many pedagogical contexts. Positive learning outcomes and outcomes that supported learning, such as satisfaction, were linked to all categories. Students' perceptions and emotions were all linked to positive learning outcomes, as were their skills and knowledge. Multiple applications of 3D technology that have the potential to enhance student learning in health care education are described in these findings. In-depth qualitative interviews were held with physicians in two separate settings as part of this study to learn how the EHR affects their professional activities and how it makes them uncomfortable. We examined the effects that the core competencies of the Accreditation Council for Graduate Medical Education had on reported professional activities (ACGME). The ACGME standards, which serve as a representation of expected physician behaviors, are embedded in the American system of medical education, which is why we selected this framework. They also serve as examples of ethical behavior in the workplace. Our hypothesis states that institutional EHR laws may limit professional behavior associated with these skills and may be in conflict with professional standards, upsetting physicians.

Keywords: Health; Education; Instruction; 3D technology

Introduction

International education guidelines include requirements for developmental needs in addition to digital technology (European Commission, 2018 [1-5]).Education in the health care field are not an exception, and technology holds a high priority for education in the future. Three-dimensional technology is one promising field of technology. Numerous fields employ 3D technology, including engineering, biochemistry, and astronomy.3D technology is typically associated with visualization, and it is utilized in printing and images. According to Sung, Hwang, Wu, & Lin, 3D technology has the potential to positively impact actual learning outcomes as well as the motivation to learn. Different kinds of 3D technologies are used a lot in health care education:Augmented reality (AR) and 3D; are two ways teachers can help students learn.3D images (Brown, Hamilton, & Denison, 2012), both of which were associated with beneficial learning outcomes. A broader perspective on health care education ought to be given more consideration, despite the numerous 3D technologies utilized in medical education.According to Mikkonen , health care education is an entity made up of numerous professions that ought to basically collaborate with one another.2018). There is currently a lack of research on health care education from the perspective of utilizing 3D technology to enhance instruction. Linden Lab's Second Life® is the most widely used 3D technology, and the company also dominates virtual reality. It is necessary to have a more comprehensive description of the current state of the 3D technology that is utilized in order to enhance comprehension of the various 3D technologies that have the potential to support teaching and learning in health care education. Additionally, we require a more organized definition of the various components of 3D technology. This description may assist educators in comprehending the actual possibilities of utilizing 3D technology to support education. We can boost learning outcomes by carrying out these kinds of actions.

3D technology

A structured definition of 3D technology is difficult because it can be part of other technologies (Hackett & Proctor). From the point of view of display technology, visualization is connected to 3D technology. A three-dimensional (or "3D") image requires our brains to work harder to comprehend while a two-dimensional (or "2D") image can be perceived as a flat object. Despite the fact those doctors and healthcare administrators both want to provide great patient care while preserving the stability and wellness [5-10] of the healthcare team, physician burnout has been on the rise. An imbalance between institutional and professional ideals, interference with professional autonomy, moral agony, and moral injury are some of the predisposing factors that have been theorized in prior research. Additionally, earlier research has linked inappropriate behavior and tiredness. According to polls, the adoption of electronic health records (EHR) contributes significantly to physician stress. Although these surveys have provided some insightful data, it is still challenging to comprehend and treat physician anxiety brought on by EHRs. Qualitative study may be the most effective way to understand the connections between physician discomfort and the adoption of EHRs. A qualitative approach can be used to investigate the contextual reasons for physicians' discomfort, the resulting feelings, and how distress influences their attitudes and behaviors. These types of inquiries are rare. A qualitative study conducted in a primary care setting revealed that professional disagreement and a sense of under appreciation have an impact on burnout. Emotional response studies have shown that there is a strong link between EHR and negative emotions. But has allowed space for additional investigation into how this connection is created. Finding out more about these deeper

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connections may lead to useful ideas that improve career satisfaction and healthcare delivery.

Materials and Method

The purpose of this scoping review was to investigate the outcomes associated with 3D technology from a teaching and learning perspective and the use of 3D technology to support teaching and learning in health care education. Rapid technological change is transforming our culture. How teachers teach and how students learn has been significantly impacted by new teaching and learning formats that rely on digital and web-based technologies. Ransack of the MIT Media Lab claims that our society is quickly evolving into a creative society, where the trained and knowledgeable workers of the previous century are being replaced by creative workers who are good at problem-solving. This pattern highlights the value of creativity in student learning and highlights the fact that problem solving is both a crucial talent and one that may be aided by technological resources. Technology can improve learning effectiveness in a variety of ways, including by enhancing functionality, feedback, engagement, and simulation. The use of podcasting, blogging, and video blogging (vlogging) as part of classroom instruction has been shown to improve student performance, encourage reflection, creativity, and knowledge production, according to a large body of empirical research. Similarly, as part of a learning activity or project, teachers can give students instructions on how to produce their own [11-15] multimedia content. Instead of using podcasts as a teaching tool, students can make them, as demonstrated by the work of Freedenberg and Armstrong. After completing a podcast assignment successfully, according to Freedenberg students are more interested and feel more confidence in their knowledge and skills. As a way for students to learn goal-driven corporate communication, Armstrong mandated student-created podcasts (students could choose audio vs. video). Students were given the opportunity to create their own podcasts as a creative approach to share knowledge while simultaneously improving their communication and literacy abilities through teamwork, planning, time management, technical literacy, and general organization.

Description of selected studies

In this perusing survey, 140 articles were incorporated for a full text examination, and 31 of these met the last consideration standards. All of the articles were from 2011 to 2019.The vast majority of the articles were research articles (n = 27) with a few plans, the greater part of which were semi exploratory (n = 8).The majority of the articles (n = 10) were from the United States of America. Communication, literacy, creativity, problem-solving, and the right use of technology are among the fundamental competences required of public health practitioners and other healthcare workers. Students' use of video and other multi-media formats, such as podcasts and vlogging, for exploration, creation, and dissemination may provide a fresh and useful tool for improving these abilities. Little scholarship has been written about the use of student-produced video and the pedagogical advantages specifically for health science students, despite the rising body of research and popularity of multimedia in higher education, health education, and society. This essay aims to provide a jumping off point for further investigation into how student-produced videos might improve health science and public health instruction.

Discussion

The purpose of this scoping review was to investigate the outcomes associated with 3D technology from a teaching and learning perspective and the use of 3D technology to support teaching and learning in health care education. The utilization was connected with 3D conditions 3D photographs, and 3D printing.

Conclusion

The main finding of this scoping review is that teachers in health care education can use a variety of different 3D technologies to help them teach. Despite the limited amount of research, it appears that using 3D technology can improve learning outcomes and student perceptions. This demonstrates a promising aspect of utilizing 3D in health care education in multiple ways.

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Conflict of Interest

For the research, writing, and/or publication of this work, the authors disclosed no potential conflicts of interest.

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