Positive Effects of VR In Education

Schools are still using the traditional classroom setting to educate students. Many research papers have shown that using Virtual Reality in the classroom is not only practical but can improve student performance. The research papers on this topic cover many ways virtual reality can be beneficial in the classroom. One paper discusses asynchronous distance learning which is essentially students taking a class away from a classroom setting, on their own time, and another paper talks about using VR technology in a classroom setting to improve performance. The research papers use surveys and experiments to help validate their claims of Virtual Reality being the future of learning. This research is significant because with enough evidence of VR being practical and improving student performance, school will begin using the technology because it will be in demand. This can change the way we learn and the way our kids learn.

In the article "The Application of Virtual Reality Technology in Physical Education Teaching and Training" the authors discuss the benefits of Virtual Reality in a Physical Education class. They argue that the traditional mode of PE teaching and training mode can no longer satisfy the needs of students, but with the help of Virtual Reality tech those problems can be solved. Some of the problems they hope VR would help solve is reducing the incidence of injury, Reduce the influence of the external environment to teaching and training, increase appeal of sports to students, and Improve the quality of PE teaching and training and students' fitness (Zhang and Liu, 245). Unlike many of the papers that support the use of Virtual Reality in

education, this paper does not have much to support their claims. The authors suggest that students' living in Internet + era will find the digital environment more appealing. I don't agree with that idea because if a person is not interested in playing sports than playing virtual sports will not make them want to play sports in life. However, even though all their claims are not backed up, some of them make sense. Using VR will Reduce the influence of the external environment to teaching and training because everything will be under control. It will also lessen the incidence of injury by having students participate in sports in a virtual environment. I agree that it may be beneficial in some aspects to have students use VR for PE class, but it's not as beneficial as it would be for other academic disciplines

Unlike the previous article in "Smartphone Based Virtual Reality Systems in Classroom Teaching", the authors try show the feasibility of using VR systems to improve the teaching process, and similarly to other VR supporters, the effect of VR systems on learning outcome. The questions the authors sought to answer were, "Is the proposed VR system affordable, such that every student can use it individually? Do the students agree that the hardware is easy to use and portable? And are there any significant improvements in student performance upon using VR system in classroom learning?" (Ray and Deb,70). To answer these questions, the authors did an experiment that involved two groups of 20 students that were assigned by random matching. Group A and Group B both used vocational fact delivery by the instructor as the primary teaching method, but Group A used whiteboard, slides and projector, and Group B used VR systems to show contents in 3D and panoramic views. The experiment showed that by the end, the average performance of Group B was significantly better than Group A, which supports the claim that using a VR system will significantly improve students' performance. It was also shown that the VR system is affordable because each Google Cardboard viewer cost less than

300 dollars and for a group of 20 that would be about 6000 dollars. This would be a one-time expenditure, and is easily affordable by any institute. They also gave the students a questionnaire where the students gave portability a rating of 5 out of 5, and rated ease of use 4.35 out of 5 (Ray and Deb,71). The experiment showed that VR systems are feasible, and they improve performance. Like many other research articles, this paper has ample supporting evidence for the positive effects of using VR systems in a classroom. The set of questions the authors answer help validate their claims, and shows that VR systems should be used in classrooms.

Similarly, In the Article "An overall solution of Virtual Reality Classroom" Xisong Dong argues that the VR classroom can be fully compatible with the existing traditional school classroom, multimedia classrooms, and intelligent classroom. He also argues that doing this integration will be more beneficial than sticking to the normal classroom setting (Xisong Dong,119). "People can only remember 20% of what they heard, and can remember 30% of what they saw, while can remember 90% of their personal experience or simulation (Xisong Dong,119)". This data supports the idea that VR in the classroom is more beneficial than the normal classroom because the normal classroom is based on reading and listening. Dong gives many examples of how VR can be used to design classes across multiple disciplines. He says that the VR classroom can be used in Biology so students can observe the life change and multiply of the cells, viruses, organs, and other life material, to understand the biological environment, biological evolution and other macro issues. Dong also gives an example for astronomy, where Students can take virtual trips to other planets and learn from experience (Xisong Dong, 120).

The Article "Towards Simulation of the Classroom Learning Experience: Virtual Reality Approach" the authors take a slightly different approach by supporting a new method for

asynchronous distance learning, where virtual reality is used to simulate a classroom setting so the user can have the experience of being in a classroom. The purpose of the study is to give the student a real classroom experience where they are in control (Tsaramirsis et al,1344). Research carried out by Elinda Ai-Lim Lee and KokWai Wong show that students can perform better using desktop virtual reality systems for learning, but the quality of the experience is affected by factors such as video and sound quality (Tsaramirsis et al,1344). The paper claims that because students perform better while using virtual reality, and because it's more enjoyable than watching videos, it will have a positive effect on a student's learning experience. To prove their hypothesis, the authors conducted an experiment where they had two groups of students with good, average, and low academic performance take exams after a lecture. Group one watched an HD video of a lecture and group two used a virtual reality system. Group two did better on the first exam, but when the groups switch lectures, group one did better. The authors believe that this experiment helps support the idea that a virtual reality has a positive effect on education. This paper suggests that, the best way to learn on your own time is to use a virtual reality system. It provides a valid experiment that supports the idea that students can have a more positive experience by using virtual reality instead of the typical video lectures online. Like other research that support virtual reality in the classroom, this paper provides a system that if implemented correctly would probably work.

The Article "Virtual Reality— Making Good on the Promise of Immersive Learning" takes a completely different approach than the rest of the papers. This Article is focused more on the effects of VR in training employees. The article argues that the current way of training workers is not as effective because they are using information transferring methods. Although they cannot claim that hat all classroom training and e-learning is dull, low-quality, or

ineffective, research shows that hands-on experience that simultaneously allows real-time feedback is more effective (Pagano et al, 46). Some benefits that are mentioned are the capacity to impact events and outcomes, Ability to interact with the environment, and Heightened presence in the environment. A great example of the benefit of having immediate feedback is sales training. The article states that, “Real-time feedback can be provided to the sales representative to improve his or her technique and sales messaging. This allows for the opportunity to course correct and reinforce appropriate sales techniques and responses instead of inappropriate ones”, this would not be possible using traditional training. The article also mentions the benefits of using VR to have trainees experience scenarios from another person’s point of view. This would be beneficial because the trainee can acquire skills by embodying the first-person experience to register the memory as if it were their own (Pagano et al, 47). Although this article doesn’t provide much support for their claims, their ideas make sense. The article uses some other research to back up some of their ideas but not all of them. However, the idea of using VR to improve learning seems to be valid in many other settings, so it only makes sense that it would also be useful in a work setting. Even though these employees are not technically students they are still learning.

The idea of using VR to improve performance is becoming very popular. Many people are beginning to support the idea, and there’s a bunch of research coming out that reinforce the benefits of making a change from the traditional way of teaching things to the Virtual way of doing it. Many of the articles had similar benefits of using VR tech, but many of them proposed to use the technology in a different way. One article wanted to use it for PE, another for training employees, another in the classroom, and another for asynchronous distance learning. Many of the benefits these articles proposed were similar, but some had more support than others. After

reading these articles I would have to agree that moving towards VR would probably be the most beneficial in terms of learn effectively, but because of the lack of research for some cases, I would not suggest it for every type of learning experience.

Works Cited

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