Impact of Virtual Reality on Modern Education

Yosr Chamekh[a*], Mohamed Amin Hammami[b]

aCollege of Computer and Information Systems, Umm Al-Qura University, Makkah, Saudi Arabia
bComputer Department, Deanship of Preparatory Year and Supporting Studies, Imam Abdulrahman Bin Faisal
University, Dammam, Saudi Arabia
aEmail: yashamak@uqu.edu.sa
bEmail : mahammami@iau.edu.sa

Abstract

Virtual reality in education is at its center stage. For students to gain relevant skills there is a need to introduce a virtual world so that one can achieve the practical aspect needed in the workplace environment. Memorizing facts makes students bored; hence, the need for virtual reality that will help students gain expertise. The paper seeks to discuss the impact of virtual reality in modern education. To understand the effects of virtual reality in the education sector, the theoretical approach and quantitative research have been used. The results of the study show that virtual reality assists students with special education needs and ensure skills are obtained. Virtual reality improves student self-esteem.

Keywords: Virtual Reality; Self-esteem; attention deficit disorder.

1. Introduction

The use of technology plays a significant role in education. Sometimes technology is viewed as one of the main distractors in a classroom. Technology results in distraction when learners are not aware of the importance of technology in education. When technology is applied excellently in school, it increases engagement, collaboration, and spark innovation. The modern education is competency-based; hence, there is a need to improve learner's engagement. Technology makes learning collaborative or interactive; thus, students engage excellently with the designed course materials.

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* Corresponding author.

In the competency-based curriculum, students should not memorize facts; instead, they should learn to do things so that they can gain the skills that will be used in the workplace environment. To make education engaging, instructors should ensure that students are interacting with various devices. For example, calculating some mathematical equations on a laptop is not different than calculating the same mathematic on a paper. However, when the augmented reality that animates mathematical challenge is embraced, the learning experience is different. Therefore, there is a need to use simulations or virtual reality so that students understand complex concepts. The future of education is based on technology since learners can obtain knowledge via the web. Education is a fundamental aspect of society; therefore, knowledge is transferred using different techniques. Instructors look for different ways in which they can transfer knowledge to learners quickly and effectively. Based on the fact that we are in the digital era, education stakeholders have the opportunity to ensure that better learning is accomplished using technology. Virtual reality (VR) will improve the quality of education and the learning process [5]. Notably, technologies that are designed currently, aid learning and accessibility of information. For example, the use of computers is used to retain facts and help learners understand digital literacy. Before computers were introduced in the education sector, facts were retained in books. The era of digital technologies has turned books into eBooks, which are easily accessible through search engines; hence, fact-finding is easy with few clicks. However, even if knowledge is easily accessible and available to individuals, the current education system has notable challenges that can be addressed by the use of modern technology. The current education is based on the old format on fact retention. The teaching methods focus on facts, though; it is significant to understand that consuming and accessing a lot of facts is not learning. Learning is gaining skills or expertise that is needed in the current workplace environment [6]. The other problem associated with ongoing education is making learners robots. Learners are taught how to pass examination or assessment tests; hence, they have to comprehend a lot of information taught in the class. A lot of information is taught in the classroom within the designed timeframe, which easily overwhelms learners. Therefore, they are bored, disengaged, and lack the essence of learning some concept. Most students feel that some topics have no benefit in their career; hence, it is a waste of time and resources.

H1: Is the VR education beneficial?

Virtual reality enhances learning and ensures that students are engaged. The significance of VR is to transform educational content by creating a virtual world. A real and imagined world is created, which helps a student to understand what is being taught. It allows learners to see and interact with a virtual world. When one is immersed in the virtual world, a learner is motivated and understands it. The virtual world requires a learner to use less cognitive ability to process different information.

H2: Virtual reality simplify education

The education sector is currently embracing the practical use of technology. The objective of VR in the education sector is to change or "simplify learning experience by making it practical and exciting to students." Therefore, VR helps learners to understand different subjects in simulated learning. Virtual reality stimulates learners' brain; thus, he or she remember VR lesson without problems.

Current Understanding of the Problem

The education system should impart knowledge to learners. Reading and listening are the most techniques used in imparting knowledge though some institutions have adopted the use of virtual reality. The use of VR is beneficial to learners and instructors/facilitators. Students feel alive, and most of them are eager to learn in a virtual environment [7]. Virtual reality is a new technology being introduced in the education sector; hence, it motivates learners to achieve excellent grades. Instructors will not be annoying robots again since there is another alternative teaching approach that is more effective and realistic. VR is an exceptional or safe platform since a student can experiment and obtain the required skills. The research problem being investigated is solved by the use of a theoretical approach and quantitative research. Scholarly materials will be discussed to show the impact of virtual reality in the education sector. The search engines will demonstrate how virtual reality is transforming the education sector positively. Notably, quantitative research will discuss the attention deficit disorder of students, which makes it challenging for students to concentrate in the class. The virtual reality will help such students to focus in the classroom to obtain the relevant skills.

2. Materials and Methods

To understand the benefit of VR in the education sector, theoretical data and information will be used as the research method. The report will demonstrate the practical aspect of virtual reality in the transformation of the education sector so that it can offer quality education. Teaching students how to comprehend facts will not make a significant impact on the workplace environment. Therefore, imparting skills is the only way that learners can obtain a quality education. The studies done by Nick on virtual reality demonstrate that VR is a powerful tool of offering quality education because it provided "a better sense of place [4]." When students obtain knowledge of a particular project, they want to experience what they have learned. VR will help in the description and illustration of the topic, and one can explore it so that he or she can get the practical aspect of that topic. A student will learn a particular subject by living on it. The feeling engages learners' minds; hence, one will attain the necessary skills since there are no distractions. Notably, a student gains practical experience in virtual reality. In science subjects such as chemistry and biology, the learning experience allows a learner to understand various concepts since practical experience is obtained. A student learns best when they are involved in practical learning. In modern education, students do little practical experiments. Most students focus on instructions that do not embrace the practical aspect; thus, if a student does not enroll for an internship does not have the practical perspective needed by organizations. VR inspires students to discover and have the opportunity of learning through doing or gaining skills instead of reading.
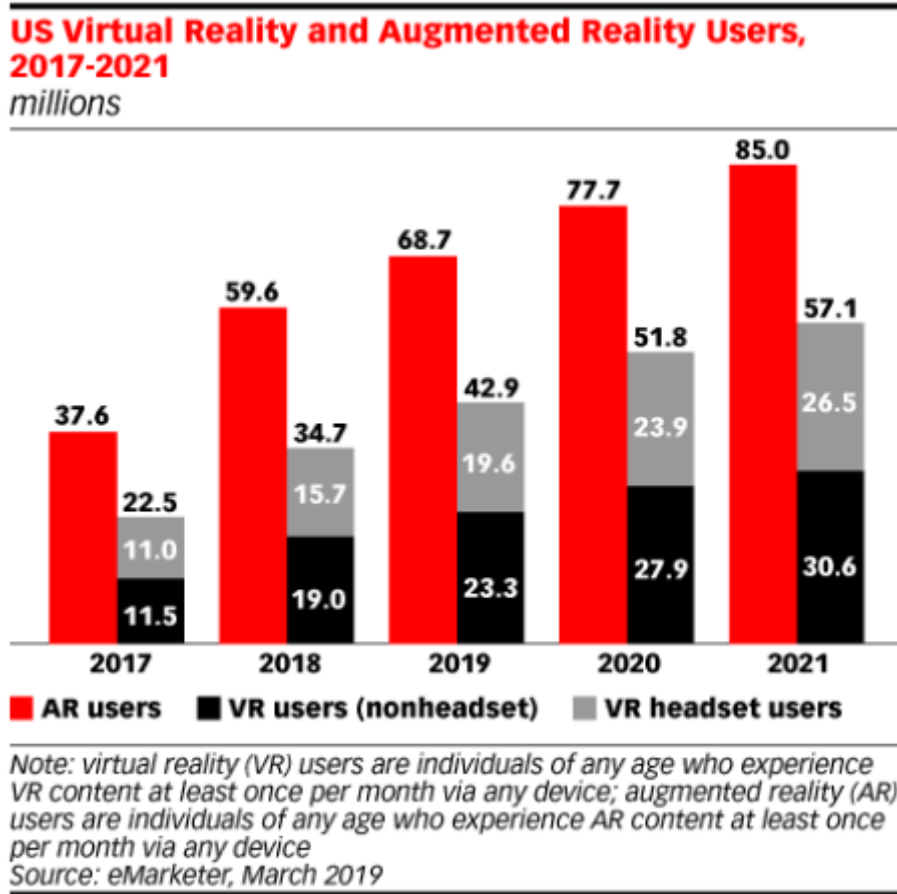
Figure 1: Virtual reality Statistics [11]

The figure above shows that use of Virtual reality in class is increasing significantly. Virtual reality help learner to focus. In the classroom, students are not only immersed in a virtual world, but it also blocks distractions. The students focus on what is being illustrated and demonstrated, and they have to do it so that they can attain the skills required. In quantitative research of students with attention deficit disorder shows that more than 5.7 million students experience hyperactive disorders [3]. Therefore, it is challenging for them to focus in the classroom. The study was conducted by checking whether students are distracted by minimal issues such as noise and failure to concentrate for more than 45 minutes in the classroom. The students who are easily distracted means that they are hyperactive, and they need to learn by doing things practically. The use of virtual reality will help such children to focus and attain the necessary skills that are required for the workplace. Virtual reality handsets help a student to interact and concentrate on their studies. Therefore, students with ADD will not be distracted and will obtain the necessary information and skills comfortably. The brain of students is exposed to the virtual world since most students are exposed to smartphones and the internet. This is because students focus on skills when researching various topics. Virtual reality is a feasible solution to the student who has attention deficit disorder. The use of virtual reality in education sector makes lectures more interactive since it reduces because it reduces distractions. More so, the "virtual reality headset" helps students to learn to work and collaborate with other students [8]. Teamwork plays a significant role in the workplace since it results in creativity and innovation. In the virtual world, a student will learn to work with other students though they are not real.

Figure 2: Virtual Reality Headset [12]

The figure above shows a child with autism using virtual reality headset to learn. The headset helps students to learn and collaborate with other students.

3. Results

Virtual reality in the education sector is on the center stage based on the fact that learning institutions have embraced computer-generated software to improve teaching. One of the results of virtual reality is assisting students with special education needs [9]. As discussed above, virtual reality software help student to focus and concentrate in the classroom. Most students have attention deficit disorder; hence, it is challenging for them to focus, understand, or gain the necessary skills needed in the workplace environment. Some students need special attention because they have a physical disability while other has mental incapacities. The VR apps help such students to attain the relevant skills in their academic journey. The students explore various possibilities through the use of the headset. Based on the fact that the virtual reality headset uses sound or sight, students can remember the taught lesson easily. For example, autistic students can acquire social skills in the virtual world. Students "learn how to work, talk, or collaborate with their peers in the various school setting [3]." A student with special needs will understand the taught lesson easily since instructors concentrate on how a student can attain skills. It is the role of the parent and teachers to ensure that they provide education to their children irrespective of their disability status. The VR app help student to perfect the required skills because it does allow imperfections. The simulation helps students to attain the relevant skills without making errors. The other result of virtual reality is the ability to achieve practical aspects in the classroom. The competency-based curriculum help student to gain various skills. The VR application helps a student to explore the world through virtual trips. A student will have access to multiple locations around the world physically. For example, in a history class, a student can visit virtual sites, which help one to obtain real experience which cannot be achieved in a traditional classroom. The google expedition plays a significant role in making sure that students understand what is being taught [4]. The use of virtual reality in learning makes education fun and engages students. The immersive education foster learning; hence, a student retains the skills gained during virtual trips. Based on the fact that pictures improve learning, VR combines pictures and text; thus, a student understands various topics quickly. Immersive learning is valued since a student retains the taught information due to simulations. The simulations improve education since students are creative and innovative. Virtual reality is not only concerned with content consumption, but it boosts creativity [10]. A student must practice what they understood in the

virtual tri; thus, it improves and develops creativity. Currently, education is not only memorizing facts like a robot; instead, the competency-based curriculum nurtures student skills. Without the relevant skills, the student will not have the courage to seek employment opportunities. For example, in the medical field, virtual reality plays a significant role in perfecting a student's skills. The trial and error method is not accepted in the medical field; thus, a student has to improve his or her expertise in the virtual world.

4. Discussion

The significance of virtual reality in assisting students with special needs helps them to improve their self-esteem. Some autistic students are unable to work, talk, and socialize with other students. Based on the fact that virtual reality allows students to interact with their peers, both with disabilities and without, it provides a social opportunity that is not practiced in the classroom. The autistic students will take time to understand various concepts but virtual reality headsets will offer practical skills that will improve the understanding capability of such students. Importantly, students without disabilities also need to view issues in the practical aspect that will help one to understand and gain necessary skills that will help him or her in future. Currently, employees are concerned with work experience due to stiff competition in the market. The virtual reality headsets will ensure that students attain experience due to the simulation and the practical aspect embraced in such learning platform. This improves student self-esteem since he or she will practice to talk and collaborate with peers [2]. The virtual reality app will help the student to visualize him or herself beyond his or her disability, which improves confidence and self-image. The improvement of self-esteem does not apply only to the disabled person, but it also enhances the self-image of students without disabilities. For example, a student might lack sufficient skills in statistics class, but when the topic is simulated, he or she gains/develops the relevant skills to calculate such mathematic problems. The virtual reality headset will help a student to view math in a positive perspective. A student will visualize himself or herself positively since he or she has the confidence to handle a particular topic excellently. In the field of management, a student will gain the necessary expertise such as supervision roles, management, planning and coordinating. The student will act as a senior manager where he or she will demonstrate expertise such as planning, coordinating and decision making among others. The other significance of virtual reality is gaining skills. Through a virtual trip, a student obtains the relevant skills in various topics. More so, it perfects skills that are required in life. Learners develop skills through training on a virtual trip. A virtual trip is simulation of real location that has videos and images. The learner learns from real perspective since he or she will integrate with other people so that he or she can gain skills. For example, a crisis might break out anytime, such as crime, fire, and flood, among others, but through the help of virtual reality apps, one can manage disasters significantly. Virtual reality can be applied in various fields apart from education. In medical school, virtual reality plays a significant role in training and perfecting student skills [1]. Before a student is allowed to handle patients and perform sensitive operations, one is required to have adequate skills to manage medical conditions. Therefore, virtual reality or simulation prepares doctors and nurses on how to lessen medical errors. In such a field, perfection is required since one cannot rely on trial and error method. Using trial and error method will result to costly litigation due to medical negligence. It is the role of the teachers to ensure that the headset and other apps are performing excellently and will add the relevant skills to students. The skills gained help students to apply it in the real world. The virtual world is similar to the real world; hence, a student should pay attention and focus on the information and data used in the simulation since

it will perfect his or her skills. Exploring the virtual world makes the student be attentive and apply various concepts to ensure that he or she understands the course concept. Technology in education is an aspect of change that is inevitable. Resistance to change will make it challenging for a student to obtain quality education that is relevant in the current workplace environment. Experience is required in all fields; hence, one should demonstrate competence even if he or she has not been employed. The competency-based curriculum emphasizes on the need for skills, instead of memorizing facts that make education boring.

5. Conclusion

The implication of virtual reality on a student with special needs is simplifying and making education more accessible to students. Based on the fact students are engaged, they are likely to perfect their skills. Virtual reality uses safe environment to transfer knowledge and expertise in the real world. Through technology, the student with special needs measures their strengths and abilities. The self-esteem of students with special needs is improved significantly since one can work and collaborate with other peers in the virtual world. When the skills are implemented in the real world, a student self-image and self-esteem is improved. It is the role of the teachers to ensure that virtual reality apps are installed and programmed well so that a student with special needs can acquire various skills. Virtual reality eliminates boredom in the class since everything is done practically. Technology in the education sector enhances interactivity since students attain skills through researching or receiving feedback. Students will be passionate about what is learned due to interactivity. The other implication of virtual reality is gaining skills in various subjects. Skills will be achieved when students share ideas with their peers or when a particular concept is analyzed practically for students to understand. The virtual trips play a significant role in making sure that students attain the necessary skills in a specific subject. Based on the fact that a student will view and hear what is happening, he or she will gain the skills significantly. Reading and memorizing of phrases is not interactive. Students will only learn to pass assessments, but when asked to demonstrate and show their skills in a particular project, they are unable. This is because the curriculum is not competency-based and only test how well can memorize information. Skills are necessary for a growing economy based on the fact that individuals must be creative and innovative for economic growth. Discussion and forums in the virtual world should continue since it improves how students demonstrate their skills and understanding. The discussion forums connect with other students and teachers. Therefore, virtual reality should be introduced in those institutions that are not embracing it.

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