A View of Virtual Reality in Learning Process

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Abstract VR has a great deal of promise, and its application to education has recently seen a great deal of research interest. However, there is currently little systematic work on how researchers have used immersive VR for higher education purposes, despite the use of both high-end and budget head-mounted displays (HMDs). Therefore, to classify design elements of current research dedicated to VR in higher education, we recommend using systematic mapping. The papers reviewed collected through the extraction of critical information from documents indexed in digital scientific libraries. The settings of VR also represent 3D space, which may be real or fictional, macroscopic or microscopic and based on natural physical laws of physics, or imaginary dynamics. The multiple examples that can use to represent VR make it widely applicable to education in different fields. A primary characteristic of VR is that it allows multi-sensory contact with space to simulate. This paper explores and discusses the view about the virtual reality, the problems, and the challenges faced in the learning process.

Keywords Virtual reality environment · Technology · Simulator

1 Introduction

During the instructive interaction, because of the trouble and need for consistent reasoning and ideas, understudies experience challenges with comprehension. An ever increasing number of instructive focuses are beginning to consolidate incredible new innovation-based assets all throughout the planet that can oblige the requests of an assorted gathering of understudies [1]. Virtual reality (VR) propels out of core interest. Schooling had the option to stay up with these turns of events and unrests

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that happened in data innovation sciences, and among these advanced advances are the virtual simulation innovation that showed up toward the start of the eighties of the century past, which is another sort of PC learning [2].

Artificial intelligence (AI) is one of the core drivers of industrial improvement and a vital aspect in promoting the integration of emerging technologies, such as graphic processing unit, Internet of things, cloud computing, and the blockchain, in the new technology of significant records and Industry 4.0 [3, 4]. In this paper, we assemble an extensive survey over the previous years of technology and deep learning. The lookup presents a valuable reference for researchers and practitioners thru the multi-angle systematic analysis of technology, from underlying mechanisms to practical applications [5–7].

2 Literature Review

In various settings, researchers have investigated the advantages and applications of virtual reality (VR). VR has a great deal of promise, and its application to education has recently seen a great deal of research interest [8]. However, there is currently little systematic work on how researchers have used immersive VR for higher education purposes, despite the use of both high-end and budget head-mounted displays (HMDs). Therefore, to classify design elements of current research dedicated to VR in higher education, we recommend using systematic mapping [9]. The papers reviewed collected through the extraction of critical information from documents indexed in four digital scientific libraries that were systematically filtered using exclusion, inclusion, semi-automatic, and manual methods. Our analysis highlights three key points: the existing domain framework as a basis for effective VR-based learning in learning content, VR design features, and learning theories [10–12].

5 million virtual and virtual reality products in 2016. In a CCS survey, it planned to sell 24 million VR devices by 2018 [13]. Even if this figure is petite relative to the number of smartphone users, this degree of development is impressive, given how recently this technology has entered mainstream consumerism [14].

3 VR Advantages on Learning Process

Provides outstanding visualizations that are not possible in the traditional classroom. Virtual reality is perfect because it helps us to explore and alternate our encounters with various facts. By wearing a VR headset, you experience high-quality visualizations that can positively describe you [15]. Students would always love to sit and watch something instead of reading it no matter what age they are [16]. Take medication, for instance. Innovative physicians are taking advantage of VR technology in 2016 to discover new medicine areas and better educate others [17] (Table 1).

Table 1 Summarized studies on VR applications

No	Author	Problem and method	Contribution to knowledge
1	Lippert-1987	It found that there is a need for an in-depth analysis of the subject required to develop expert systems Method: Survey	The in-depth and decisive analysis of the topic helps to develop as much as possible and understand the field and is necessary to solve problems
2	Martin and Oxman-1888	Literature review organizing knowledge facts and reasoning to solve problems that need the expertise of humanity Method: Experimental method	The technology is a model for a knowledge-based approach, and the primary goal is to adopt knowledge at the expert level to the level of beneficiaries
3	Durkin-1990	The technology defined as a computer program developed to model its ability to solve a human expert's problem Method: Survey	This system can help the expert when solving problems
4	Jonassen-2005	Solve the issues of intelligence software Method: Survey	The writer mentioned that expert systems computer intelligence programs designed to simulate expert logic to support decision-making for any problem
5	Chakraborty-2010	The technology comprises expert knowledge about a problem area Method: Experimental method	Technology is a computer-based interactive tool that contains facts in addition to reasoning

4 Problems and Challenge

VR is the future of the learning process but still has many challenges to implement it on our learning process due to the price is too high, and the price is one of the main roadblocks facing the industry. Plain and simple—the bulk of the audience concerned cannot afford to purchase VR equipment [18]. On the other hand, since virtual reality gear production is expensive, competition on the market is practically non-existent and no excessive demand from customers, industry players cannot afford to reduce the price to an acceptable level. The second point is the content is lacking. Provide an action piece. It is a reasonably obvious matter. Innovative and entertaining content is also the perfect way to bring modern, cutting-edge innovations to the mass market [19]. Third point is lack of viable business models. Digital reality tech is in a strange place right now. Another significant problem currently facing the VR industry is concern regarding potential impacts on consumer wellbeing. The VR can view as an industry-crushing obstacle in some way. If there is even the slightest risk that VR will

somehow put its users in the line of fire, public sentiment and eventual legislation will conflate the industry. Also, the security users are at an all-time high of digital immersion; they are also at an all-time high in exposure to incoming dangers [20]. Cybersecurity and data privacy are a sensitive issue in every industry. Because of its novice state, it is especially critical for the VR industry to develop an effective solution. Finally, the batteries a power-based constraint is the most obvious obstacle for VR applications. While that may not be much of an issue for a desktop-based gear, it is certainly something to deal with in the mobile domain. The epistemological position of AI studies what sorts of information about the world is accessible to an observer with given opportunities to observe, how this information can represent a computer's memory, and what regulations permit reputable conclusions to draw from these facts [21]. It leaves apart from the heuristic issues of searching spaces of chances and how to match patterns [22].

5 Discussion and Conclusion

Discusses VR technology remains in a particular space of exploration, the principal kind of VR stand is fundamentally used to show a condition of comprehension, helping understudies with the learning of hypothetical information, like phrasing, times, information, laws or logical hypotheses [23–25]. The most un-vivid air, for example, divider-based or screen-based projection with unique goggles or HMD with essential information gadgets like a console, cursor, touchscreen or regulator, is in this manner ordinarily required. These circumstances ordinarily comprise of 3D representation. Risky condition preparing [10], just as flight and space travel. There are extremely solid references by [12] where he sums up the impact of VR on training in culture. As indicated by his examination, VR exercises incorporate the capacity for understudies to "move on schedule" with their own eyes to notice verifiable occasions just as to experience chronicled destinations, design, dress, and activities of individuals. As indicated by recently educated insight, the second classification of VR stage is utilized to show practical capacity. Such circumstances are part into a hypothetical data introduction (as a manual/necessity introduction). This part would eventually be imitated/duplicated in the way of a reasonable occupation by the student. This type of use may include a more significant feeling of submersion and force.

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