# Virtual Reality Educational Transforms and Prospect for Pakistan

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## Abstract

Virtual Reality is a technology that enables a person to engage with a virtual computing world. It provides unprecedented possibilities for immersive and collaborative education. Virtual reality also provides tremendous opportunities for students to learn in a unique manner. The existing virtual reality technology and its applications are discussed in detail. Further we seek to examine and explore the use of virtual technology in education and insight to the world-wide applications of this technology. The role of virtual reality in Pakistan's education system is also discussed and compared with the role of VR in the education systems in the rest of the world. Problems and issues related to the use of VR technology in education system of Pakistan have also been discussed before this paper represents possible solutions to overcome the limitations. It also describes how Pakistan's education system can be improved through virtual reality. In the last section, this article concludes with a few insightful remarks.

## Keywords

Education, Educational Technology, Immersive Education, Virtual Learning Environment, Virtual Reality

## Introduction to Virtual Reality

### Definition

Virtual Reality can be defined as a visualization of the environment that is generated by computer, with which a human using a special electronic device can connect in a physical or apparently real manner. According to Howard (2017), "virtual reality is a visualization of an

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environment that can replicate physical presence in the real or imagined world."

**History**

History of virtual reality is not very long. In 1838, the first stereoscope was designed to generate a single picture utilizing double mirrors (Thompson, 2017).

**Table 1)** Brief History of Virtual Reality

| Year | Progress |
|---|---|
| 1838 | First stereoscope was invented |
| 1839 | View-Master |
| 1960s | Sensoroma |
| 1965 | The Ultimate Display |
| 1978 | Creation of Aspen Film Map |
| 1980s | First time use of the term: Virtual Reality |
| 1990 | Sega VR (Head Mounted Display) |
| 2001 | SAS Cube |
| 2007 | Google Street View |
| 2011 | First version of Oculus Rift |
| 2018 | More than 300 organizations were working on Virtual Reality |

This finally became the View-Master, registered in 1939 and still manufactured today. Lanier used the term "virtual reality" for the very first time in the mid-1980s (Batty, 2008). Heilig took things even further by inventing a large booth-like machine called the Sensorama (Afnaan, 2018). Sensorama was intended to combine multiple technologies to give a few people the illusion of being in a fully 3D immersive world, but this device remained a prototype during his whole life. Sutherland, proposed the "The Ultimate Display" in 1965, a head-mounted unit he said would act as a "virtual world window" (Sterling, 2009). The Aspen Film Map

was created by MIT in 1978, a virtual reality twist on Google Street View with a bit of help from DARPA (Cubitt and Malina, 2003).

Sega, which developed Sega VR in 1990 as an upgrade for Genesis, was one of the first entities to try to release a VR headset (Hecht, 2016). SAS Cube became the first cubic room built on PCs by Z-A Production in 2001(Pursel, n.d.). In 2007, Google launched Street View, a service that offers stunning views of an increasing number of locations around the globe (Norman, 2010). Luckey created the Oculus Rift's first version in 2011 (Kickstarter, 2016). At least 300 organizations were already creating VR related technologies by 2018. Current virtual reality hardware pays homage to the past six decades of innovative scientists and engineers who set the stage for readily accessible low-cost, high-quality products. In table-1, the history of VR is represented.

**Types of Virtual Reality**

There are three common types of virtual reality.

Immersive Virtual Reality: Immersion in VR is the feeling to be present in a non-physical world or virtual world. The illusion is generated by surrounding the VR device operator with pictures, audio or other effects that provide an atmosphere that is very engaging. Immersion takes place when a person feels that the virtual world is conceptually credible, it looks "genuine" and "actual," and the person feels that he is actually in that world (Slater and Sanchez-Vives, 2016).

Non-immersive Virtual Reality: While immersion tends to be a key element of VR, as Robertson et al., (1993) claim, VR can also be non-immersive when it "put the viewer in a 3D world that can be controlled physically, but it does so with a traditional graphics work space using a screen, a, mouse, and a keyboard." Non-immersive or anti-immersive virtual reality is a form of virtual reality system that offers a machine-generated experience for users without a sense of immersion in the digital world (Saposnik et al., 2016).

Semi-immersive Virtual Reality: Semi-immersive virtual reality lets users communicate and interact with a partially virtual world. This form of virtual reality is used mostly for the objectives of training and education, where familiarity with interactive computing and large

projection technologies is made possible. The tools before the operation are actual in this case, and the screens are displaying the simulated environment. It should be kept in mind that while experiencing this type of VR, the user feels that he is in the different environment like fully immersive VR (Kyriakou et al., 2017).

**VR Environments**

In video games, sensory stimulation is provided. Similarly, VR environments deliver sensory incentive in an indoor sensory setting. In virtual environments everything including faces, items, voice, comments, movements etc. is duplicated to emulate the real world environments by isolating the person from the real world environment. Additionally, by using enhanced graphical presentation and other modalities, it gives the feeling of another location to the user. To create a VR environment, we need the following two essentials:

High-tech Computer

Human Computer Interface

Hardware devices which are needed to setup such environments are given as:

- Sensors: To generate the delusion of virtual environment
- Effectors: To deliver necessary stimulation
- Connecting Hardware: To connect sensors and effectors

This connection creates environments having mysterious similarity to the real world. Applications are designed and connected with these hardwares to examine the shape of a person, objects and virtual interactions. Each such environment works on the senses of human beings and feedback of these senses to a person is delivered by many devices which perform their work in collaboration with input sensors.

Visual comments are generated by graphical monitors and audio is provided by MIDI output. Four most commonly used devices and environments in VR are described below:

Cave: It is a partition or small room in which minimum three walls work as big screens (Muhanna, 2015). Sometimes the ceiling of the roof and floor is also incorporated. In this way a large field of view is

obtained which can't be achieved in other type of VR environments. Person who is experiencing this environment is free to move anywhere in this small room without connecting to a computer. Only thing which he needs to use is 3D glasses (Katsouri et al., 2015).

Head-Mounted Display: The word 'virtual reality' possibly generates a very definite picture of a cool helmet in your mind if you ever watched a TV program related to virtual reality or searched the internet with the keyword "virtual reality". This cool helmet is known as HMDs (Head-Mounted Displays) or VR glass, and these are mostly common and identifiable gadgets related to the VR environment (Dodds et al., 2011). Sometimes, they are called VR headsets. HMDs are directly linked to the head and images are displayed to the eyes and maybe with additional excitement to peripheral vision. Any device which fulfils the above mentioned criteria may be considered a head mounted display in a broader sense.

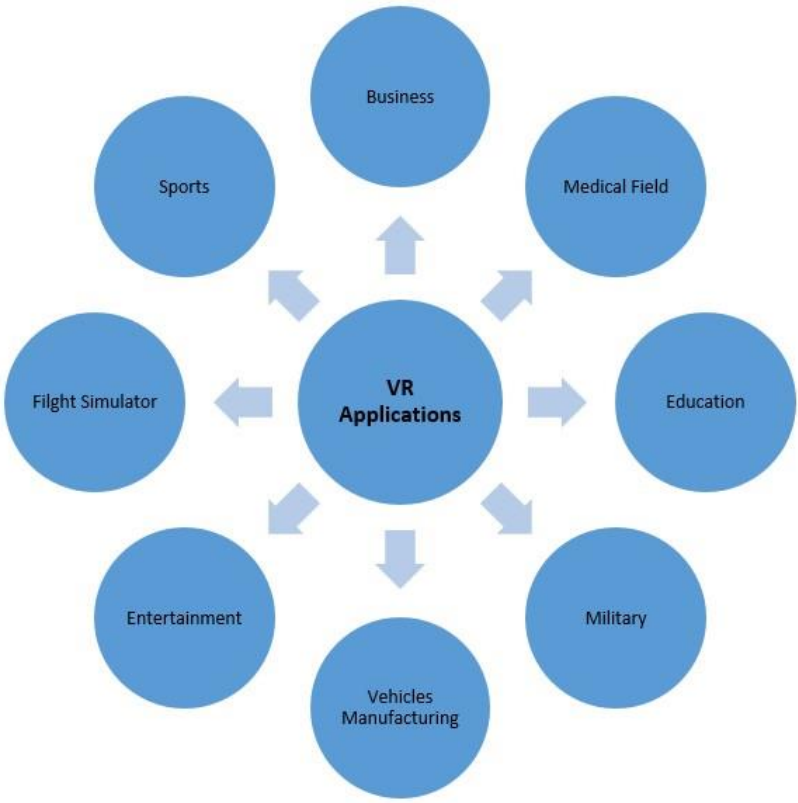
Magnetic trackers: Most of the VR environments use movements or position tracking devices to provide immersive capabilities (Westlund et al., 2015). To fulfil the increasing demand of these tracking devices for VR, many types of technologies are being used to create such devices. In a motion tracking system, the device sends the data to a computer which allows the computer to know the location/position of that system or device.

Haptic Gloves: It can be a pretty life-like experience of undergoing virtual reality. But if haptic gloves are added into the virtual reality environment, this brings things to a different stage because the weight, magnitude, impact and heat of the objects can be felt (Blake & Gurocak, 2009). Motion and micro fluid technologies are used in these gloves to enable observers to feel virtual objects and move their hands around the virtual world.

## VR Applications

Virtual reality technology has many useful applications; some of those applications are described below in Figure 1.

**Figure 1)** Overview of VR applications




Business: In the business industry, virtual reality is being used for virtual tours of business locations. It is also helpful to train new workers with the help of virtual reality technology. Every product can also be viewed at 360 point, so any person may analyse products in a better way with virtual reality (Wexelblat, 2014).

Medical Field: Systems which are used in the health system can be greatly improved and enhanced with VR technology (Kniss et al., 2004). Doctors conduct routine medical duties in distant societies around the world with VR technology. Doctors may use 3D body models created from the data obtained through clinical scanning to improve medical planning and execution. 3D models can also be used to describe the client and his relatives about the problem in an educated way. VR can also aid people with mental illness because it can provide therapy (Välimäki et al., 2014).

Military: For the training purposes militaries have taken advantage of the virtual reality as a way to experience a wide variety of events. A trainee may use the VR to experience combat simulations, medical training and vehicle simulation in a variety of different scenarios, locations and surroundings. The reduction in training costs is a significant benefit of the use of VR in the military. Furthermore, risky preparation conditions can be easily practiced through it (Bhagat et al, 2016).

Vehicles Manufacturing: Ford, a prominent automotive firm, in the production of vehicles has already adopted virtual reality (Lawson et al., 2016). Modules for all proposed vehicles are submitted to a virtual reality platform where different engineers are able to view those modules and make an essential recommendation before the actual auto mobile is built. It saves a great deal of energy, time and money. The engine is only assembled if the virtual prototype is examined and approved by all the engineers. Other companies are also planning to integrate virtual reality for automobile manufacturing.

Entertainment: VR's entertainment prospects are obvious and immense as the entertainment sector is multi-billion dollars, and consumers are always interested in innovation. In 1982, the Disney film Tron was released, and it made the VR gaming world famous (Silverman, 2017). Video games are being developed today with an avatar in a vast and interactive environment. With the help of virtual reality, players can look in every direction and move through places. Movie makers are trying their best to bring realism to movie acts so that it may look like an actual scene (Serrano et al., 2017).

Flight Simulator: Now a days, pilots are trained through virtual reality flight simulator. Flight simulator gives flying experience to the trainee, and he feels that he is flying the real plane. Pilots have to pass many tests in a flight simulator before they are allowed to fly on a real plane. In this way, any chance of disaster is avoided. Flying simulation is the first-born use of virtual reality (Oberhauser & Dreyer 2017).

Sports: Both players and the enthusiasts are enjoying the revolutions in VR technology. VR is used in many sports as training support and to assess performance and ability of athletes in athletics. As sporting events

are broadcast on media screens, the viewer's experience is being enhanced through VR. Some media companies are now broadcasting live games through VR, and the tickets are sold to watch games virtually (Munson, 2017).

Education: The educational system can be greatly improved by using virtual reality (Elmqaddem, 2019). By using VR students become able to view a 3D world in which they can communicate with each other. Students can also go on simulated field tours e.g., to parks, visit the solar system and return to various periods of time. In this study paper, virtual reality in Pakistan's education is discussed in detail.

## Research Objectives

Education systems of the world have been transformed with advances in digital technology in the 21st century. Similar to other emerging technologies, the utilization of virtual reality technology in education system has also increased. Developed countries are already using VR in the education systems. Countries like Pakistan need to take major steps towards using VR in education system. Objectives of writing this paper are as follows:

Spreading awareness about virtual reality and describing the benefits of this technology,

Illustrating that how educational systems of the developed countries have emerged with the help of this wonderful technology,

Analyzing the use of virtual reality use in Pakistan's education system,

Explaining that how this technology can help in transforming the education system of Pakistan.

To achieve above four objectives of this research, firstly, virtual reality technology is explained along with its applications. Secondly the use of virtual reality in education is explored and it is explained that how the educational systems of the world have been transformed with the help of this technology. Lastly, it is illustrated that in Pakistan this technology should be used for educational purpose.

## Virtual Reality in Education

Involvement, interactivity, teamwork, experimentation and creating ideas are the basic objectives of education. Achieving all these objectives has been a daunting challenge. Many forms of technologies are being implemented in education systems to meet these objectives in this new era. The VR provides new possibilities to accomplish all these objectives. It gives human beings a shared space to communicate and creates an environment that meets their needs. Totally new environments can be built with this technology, and people can develop and explore ideas.

Kavanagh et. al. (2107) described a systematic review of the use of VR technology in higher studies. It is expected that VR technology utilization in education will increase over the next few years. Like Head Mounted Displays (HMDs), other machinery used in virtual reality is becoming cheaper and improved over time. That is why now there are increasing possibilities for virtual reality to be integrated into education. We will discuss the world-wide applications of virtual reality in education.

### Engineering Education

Virtual reality is frequently used as a training environment for engineering students. It is very common in this domain because its use in the training of university students for the real industrial scenario is appealing (Horvath, 2016). It helps the students to take budget-effective early decisions. It also gives engineers a deeper design concept and makes improvements easier where appropriate. In addition, it reduces the time and expense factor that plagues other industrial design methods. Virtual reality has a lot of applications in engineering training, but here we're going to look at two instances. Dinis et al., (2017) built a VR framework through which university students could implement civil engineering through a virtual game. The findings showed that VR is a valuable advantage in civil engineering education as it enables individuals to engage with the system properly. A VR framework for training of electrical engineering was proposed by Valdez et al., (2015).

They created and installed online labs that students could access through VR from afar.

**Nursing Education**

This is very beneficial to use the immersive and non-immersive virtual reality in medical and nursing education. A wide number of surgical operations trainers can be found in the domain of medical education, including simulators for robotic operation and colonoscopy (Sun et al., 2007). Many of the instruments used for such procedures are made accessible by vendors. Freeman et al., (2001) defined a training program using virtual reality to train Navy health professionals for emergency response. In preparation for dynamic scenarios that are difficult to recreate, scientists begin to integrate virtual reality with many other visualization methods.

**Biology Education**

Virtual reality can have a very positive impact on biology education (Shim et al., 2003). VR apps can allow students to engage effectively and to immerse themselves in study. VR can be very useful in explaining any biological organ's shape and function. It helps to clarify theoretical principles and events. The virtual world allows for safe and simple guided experimentation. This also ensures that students can carry out experiments that would otherwise be considered too risky or costly for the school environment. At the end of the day, learners can engage in their own learning experiences and at their own convenience and speed.

**Legal Education**

In many regions, simulator training has been used for many years in teaching of the rule of law (Dobrova et al., 2017). For instance, practical law education in Germany is as necessary as conceptual education. German training includes a simulation: individuals are asked to act like prosecutors and judges. This situation is established by the use of virtual reality. To achieve this goal, we assume that the architecture of the virtual education framework requires scenario simulation, event simulation as well as simulation of processes.

### Physical Education

In conjunction to motor abilities and physical work, virtual reality helps people to learn anatomical concepts (Kang et al., 2016). Three examples are worth mentioning here. In the first example, users try to control virtual balls and make predictions by using their virtual environment by including or excluding tension and gravitation. This qualitative method explains kinematics to students. This knowledge is very useful in understanding physics and physical training. In the second case, the user forecasts result and carry out physical experiments with objects such as a virtual tennis ball. In the last example, the user analyses sports motions like pitching by putting the data glove in his hand.

### Space Education

A new method of explaining astrophysics and space technology was introduced using virtual reality (Yair, 2003). A virtual immersive world that uses the interactive solar system has been suggested (Mintz et al., 2001). The student could enter a virtual real-world environment. This could be zoom in or out, and its point of view and perception could be adjusted, while the created virtual world appears to work naturally. A real benefit of this teaching resource is the freedom to move in space and create better educational experiences. Other equipment to show astronomical objects as spaceship sees them has also been developed by astronomers. Tools are designed to maintain the proper observable scale of objects.

### Museum Education

A virtual museum is a realistic or simulated museum environment in which tourists can explore easily, without the need to be in a physical museum, but it gives the illusion of being "inside" (Zouboula et al., 2008). This could be a major benefit for students who do not have the chance to visit these locations due to lack of resources. Learners who "tour" virtual museums can touch objects directly and can choose, focus and control objects of interest. At the end of the day, this experience allows students to engage, explore, challenge and finally learn about displays. In recent years, more and more museums have used VR applications to display their materials.

### Special Education

Much evidence indicates that virtual reality is playing a vital role in developing cognitive, communicative and behavioral skills in children with autism spectrum disorder (Schultheis and Rizzo, 2001). Recently, VR has been recognized as the easiest way to track ASD activity by means of everyday human computing activities based on VR. For example, Ip et al. (2018) have introduced a virtual communication framework that allows children with ASD to improve their social and emotional integration skills. Six specific learning scenarios were the part of this application: cognitive management and stimulation, a combination of social contexts, convergence facilitation and generalization. The software is planned and developed with the appropriate therapeutic guidelines and procedures. VR can create an enjoyable social experience for patients as they can be driven by high quality and intense physiotherapy. Even though their costs are high, some of the existing models seen in physiotherapy are very efficient. This adds to the need for cheap alternatives.

## Current Role of VR in Pakistan's Education System

Many developed countries adopted virtual reality in the field of education. But in the developing world this technology is seldom used. Only a few companies in Pakistan provide their services to implement this technology in educational institutions. NED University has established the first virtual reality lab of Pakistan named as 'The Grid' (Rizwan, 2016). EduServ is a multi-national company that is providing its services for setting up virtual reality laboratories in Pakistan (EduServ, 2018). Haptica is another Pakistani company which is going to focus on implementing virtual reality technology in many fields i.e., education, instead of focusing just on gaming like other companies which are providing virtual reality services in Pakistan (Ignite, n.d.).

STYLY, a renowned virtual reality company visited 15 universities in Pakistan for conducting workshops (Lab, 2018). The purpose of those workshops was to provide awareness and information about advantages of using virtual reality technology. Another research has been done in which a framework is proposed for student friendly virtual learning

environment. This research is published in the research repository of the Higher Education Commission of Pakistan (Alam, 2018).

## Comparison Between Pakistan and World-Wide Practices

Virtual reality technology is revolutionising the world educational systems. Teacher can now more easily teach complex concepts, and students can learn in advanced ways. There is very little role of virtual reality in Pakistan's educational institutions at present. The following figure-2 shows a comparison of virtual reality use in Pakistan and all around the world.

**Figure 2)** Comparison of virtual reality use in education

## Limitation and Constraints of VR Application in Pakistan Education System

It has been demonstrated over and over that VR has enormous potential for successful educational outcomes by creating a more enjoyable and perceived climate (Slavova & Mu, 2018). A lot of more detailed work is still being done, as the implementation of VR in educational systems is fairly new and modern both in Pakistan as in the rest of the world. Most of the current solutions for virtual reality are based on Head Mounted Displays (Jensen & Konradsen, 2018). These HMDs enable overall immersion in the virtual world by creating a virtual 3D environment. The lack of visual clarity and artificiality in the simulated environment is one of the major problems that need to be addressed soon. Current methods for generating and presenting virtual reality graphics are very constrained. It should be noted that the psycho-visual architecture of the human mind helps to identify even s few unrealistic details that can quickly disrupt the feeling of immersion (Diemer et al., 2015). So the virtual environment needs to be optimized in such a way that it looks completely natural, after that it can be properly implemented in Pakistan and in the rest of the world.

Genuine virtual reality environments require high-performance rendering systems (Matsas & Vosniakos, 2017). Such high-performance systems are very costly, so buying a virtual reality device for the institutions of developing countries like Pakistan is a major challenge. Oculus Rift and HTC Vive are the two most widely used devices for creating a virtual reality environment, costing about 400–600 dollars each (ValueWalk, 2016). In addition, a powerful PC, which is still quite expensive, should be used to support both of these devices. Education in the virtual environment is therefore relatively costly compared to traditional teaching approaches. Other issues of virtual reality include psychological and physical side effects (Kim et al., 2018). The use of virtual reality systems may cause undesirable effects, including depression, discomfort, addiction and emotional changes. Simulated movements can also affect our perception of space and time, triggering nausea and dizziness, also known as VR or cyber illness. For example, 150 participants were examined in a simulated world for 20 minutes;

61% people reported problems in 20 minutes of immersion time and 10 minutes after immersion; 5% had to withdraw because of extreme ailments from the procedure (Regan, 1995).

Class formulated with VR technology is less flexible as compared to actual class. During typical classes, students may ask as many questions as they want, obtain responses and engage in conversations. However, in virtual reality, students must obey the guidelines of a virtual reality simulator, and they cannot do something more than what they are expected to do (Cooper et al., 2019). Some educators are inherently hesitant to reforms, and their engagement and constructive involvement are critical to effective technology adoption in the classroom. While using technology, there may be little contact between teachers and students. A human instructor is often a perfect buffer and knowledge moderator, which is entirely important for determining the quality and importance of the knowledge received. Moreover, so much emphasis on digital learning approaches may misrepresent the balance between soft and hard education.

## VR Transforming the Education System of Pakistan

In spite of the above limitations and constraints, VR technology is constantly advancing in pursuit of portable low-cost options for the consumer market. Thanks to the improvements, HMDs is now cheaper than earlier models of VR devices, and bring bright virtual VR experiences into homes and schools. Competent technology firms sell virtual reality devices which require a cell phone instead of a PC. For instance, Gear VR of Samsung and Google Daydream require no additional device in contrast to the HTC Vive or Oculus (Hou et al., 2017).

These devices need only a headset and a phone. In many educational systems of the world, including the Pakistani education system, these devices can be used. However, smartphone interactions or projections may not match those produced on an immersion computer. In fact, in contrast to the expensive solutions available, mobile solutions have limited collaborative power (Schwebel et al., 2017). However, for countries like Pakistan, the trade-off between ease of access and cost

could be a crucial factor for the wider public to use mobile solutions. Educational simulations consisted of mobile may not provide the highest possible quality, but they provide valuable simulation experience. They also create the opportunity to include a large number of headsets for the full class of students at a slightly cheaper cost than the high-end Head Mounted Displays.

In order to minimize the consequences of this technology on mind, the researcher recommends the use of relaxation and anti-motional sickness drugs (Watanabe & Takahashi, 2019). Head Mounted Display may have a detrimental effect on the stabilization of mind, and cardiovascular change may occur. However, there are only a handful of scientific studies showing the side effects of using virtual reality devices. Most of the science experiments have been conducted with very early virtual technologies. More work is required in this area because of technological developments in virtual reality. In addition, each individual is different and unique and may interpret otherwise, so that education-preparation situations for children or people with disabilities should be carefully studied and tested and should be checked by qualified counsellors and educators.

For decades, the technology and students needs have always been balanced and the educational system has now evolved. It is a responsibility of academics, scholars and teachers to take up this development, and plan it. The generation which is now initiating education has been using the internet all the time. The digital world is as important now as the real world is. The children of the new generation are digital natives who have been born into the mobile world. They get instant access to most of the information or data which they need, namely music and videos, with the help of the World Wide Web. It needs a lot of efforts and struggle to educate new generations, and a whole new approach is needed to be formulated to optimize productivity. The usage of virtual reality technologies in education has shown multiple advantages. Firstly, VR provides excellent simulation which in old-fashioned classrooms cannot be accessed (Kilmon et al., 2010). The environment represents the convenience of young generations. The world of virtual reality allows everyone to share and contribute in the

educational cycle, irrespective of age, financial conditions and impairment. It provides completely unlimited access to records, books or posts. Modern classroom technology enhances engagement, encourages co-operation and involvement (Jensen & Konradsen, 2018).

The impact of online education in Pakistan has already been significant. Students from all over Pakistan have taken university courses on cell phones and computers. With the introduction of a low-cost VR headset, this kind of education can be considerably extended. Free access training is provided by educators from leading organizations around the world, namely Harvard and MIT, and they allow any individual to learn virtually any subject anywhere.

VR could become the natural outgrowth of these courses in which students can learn in an online world. According to the World Bank report, inadequate education is directly linked to widespread deprivation in many small-income countries (WRD, 2018). Bad education restricts the skills needed to succeed and overcome deprivation worldwide. The report also points out that the introduction of technologies like virtual reality in education will lead to poverty eradication by enabling quality education for students in developing countries.

Technology in secondary schools in developing countries, including Pakistan, is limited to personal computers only. At schools, there is little or no availability of digital projectors, virtual whiteboards and 3D printers, etc. In Pakistan, the process of teaching and learning is not yet enriched by virtual reality. While technical growth has been rapid and science education has increased dramatically, most education technologies have not been introduced in schools. Many schools are limited to performing conventional activities and oppose being creative and embracing modern technical developments (Siddiqui & Gorard, 2017). There are two main issues with old conventional approaches:

1. Teaching approaches focus on the presentation of data, but the presentation of data does not make students educated. The exposure and processing of a lot of knowledge is not education.
2. A lot of people have trouble learning the details. Too much knowledge can quickly confuse students within a short period of time.

They get bored, disconnected, and usually don't know why certain subjects are taught.

Although virtual reality is massively beneficial for learning, some restrictions need to be addressed in Pakistan before VR is implemented.

Several teachers hesitate to rely on innovations and tend to teach through conventional training methods (Rizvi & Elliott, 2007). When the instructor teaches by making himself the focal point of the learning process, the students get bored. Virtual reality should be integrated into education and learning, and teachers should be seen as a key element in their learning process that facilitates, enjoys and satisfies the teaching process.

In addition, it is argued that teachers should be vigilant and competent in the use of technology in schools. They should use equipment and devices that promote their students' understanding of the teachings. Digital technology has proven to be helpful in overcoming learning disabilities through the development of simulations, task orientation and enjoyable learning environments.

## Conclusion

The idea of virtualization for education facilitation has already been the focal point for many countries. However, it is difficult to understand how innovations, such as virtual reality, would be used to strengthen the field of education (Knezek & Christensen, 2015). It is therefore hard for educational officials to take incremental steps to ensure that resources and qualified staff are available. In our research virtual reality technology is explained along with its enormous benefits. Current practices of using this technology in Pakistan's education, are also examined. Countries like Pakistan should use this technology in education to compete the world because education is primary factor in the progress of any nation. So the current use of VR in Pakistan's education is assessed and challenges of using this technology in Pakistan's educational system are discussed. Comprehensive policy making is required to address these challenges to adopt the modern technologies like VR in the education system.

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