

Use of Immersive Technology in Skill Development: A Review

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ABSTRACT

Traditional methods related to the present day teaching and learning techniques have been replaced with the latest techniques of today. The use of information technology has been adopted by almost all educational sectors, whether at home or school. Currently, technology and the Internet play an important role in the use of immersive technology in skill development. The immersive environment has been highly redirected as a powerful tool for teaching and learning. Nowadays online articles, magazines, forums and other commercial publications are available online worldwide. This online or distance learning system is leading us to a more global system. Technology has been used effectively and efficiently in reducing administrative costs. Along with this, it provides increased access to education, expanding revenue opportunities and a new market for universities. Keeping all these developments in mind, a review using immersive technology in skill development is presented in this paper.

Keywords: Immersive Technology, Augmented Reality, Virtual Reality, Skill Development

1. Introduction to Augmented and virtual Reality

Teaching and learning techniques have been improved to replace traditional methods of progress in innovation. All activities related to education and all parts of technology were manualized. The use of information technology was included as a standard for innovation in technology for development in the educational sector. Innovation has been adopted in the development of all technology related activities. Whether it is a professional foundation, at home, junior college, college and school, innovation has greatly influenced everything. Innovation has greatly influenced development such as delivering on web application structures, being PC, providing web instructional support, offering web courses. At present, students can take advanced mobile phones, laptops and tablets instead of books [1].

In today's times, overriding traditional / traditional methods[2] have been initiated by improving teaching methods, in which technology has been developed significantly. Education and e-learning methods have made things much easier to understand by replacing live tutor and classrooms in understanding the clarity of concepts[3] and enhancing the educational experience. Technology and the Internet have played a very important role in the education system leading to a global system where advancement has contributed to development in the education system. Play-focused or game-based tools have been highly recommended as powerful tools in immersive environments for teaching [4].

Over the past decade, PC and Internet connections have been widely used for educative or personal use. In today's time, the Internet has played its own role, making huge measures of data (books, sound, images, videos, simulations) readily available. Along with this, major achievements have been achieved worldwide through MOOCs, digital recordings, and traditional online degree projects. Hard-copy editions of commercial publications are quite expensive, so the availability of online or distance learning systems, online articles, magazines and forums is leading us to a more global system.

There are various blessings of technological advancement inside the training region which include the newcomers of preceding generations used pens, notebooks, and other materials which have now been, but nowadays newbie's come to elegance armed with smart phones, drugs, and laptops. The cutting-edge era is full of technological implications in education. Technological innovation is truly converting the way that scholars analyze and educational establishments train such as schools and universities. If the generation has been used efficaciously and efficiently so it can reduce nearly the complete cost of the instructional region such as reducing administrative charges. Moreover, it's increasing access to education, increasing sales possibilities, and presenting a brand new market for universities.

Technology has additionally all started to alternate the roles of teachers and learners. In the traditional schoolroom, the teacher is the number one supply of facts, and the learners passively acquire it. However, due to the access to statistics and training opportunity that era has enabled, in lots of lecture rooms today we see the teacher's position transferring to the "manual on the side" as students take extra duty for his or her personal learning the use of generation to accumulate applicable statistics. Schools and universities across us are beginning to redecorate learning spaces to allow this new

model of education, foster more interplay and small institution paintings, and use technology as an enabler. Advances inside the technology are very useful in transforming the manner humans are knowledgeable.

Body paragraphs

2. Technology Intervention in Education

Technology is a powerful tool that can guide and rework education in lots of approaches, from making it for teachers to create new ways for humans to research and paintings collectively. Opportunities for verbal exchange and collaboration have additionally been increased by using era. Traditionally, classrooms were noticeably remote, and collaboration has been restrained to other college students in the same school room. Today, technology allows sorts of verbal exchange and collaborations.

Recent technological advances have catapulted immersive digital environments (IVEs) for eg. Massive Open Online Courses (MOOCs) are loose on-line publications to be had for all people to sign up. MOOCs offer an low cost and flexible way to study new abilities, enhance your career, and supply nice educational studies at scale. Unlike physical college instructions, which have enrollment capacities, MOOCs are open to all users with an internet connection and a willingness to no longer necessary complete the direction, however to have interaction in as little or as plenty getting to know as they like. Through diverse measures, the MOOC version has already proved extremely a new theoretical hybrid lecture room model referred to as the massive open online virtual surroundings (MOOVE) that capitalizes at the existing research on IVEs and applies them to the MOOC to provide answers for its current issues of assessment, responsibility, and personalization. Many faculties and universities have begun providing distance mastering applications earlier than the discovery of internet where these applications have been tough to find at that point. Due to this purpose, many individuals who lived in villages and cities lack get entry to those universities and schools. There is no doubt that era has substantially worried in our each day lives and specifically whilst we are speak me about education field. Education has been broadly laid low with the combination of technologies as its miles a fast manner to attain mass variety of college students.

The use of technology for academic or academic purposes has modified the entire scenario of the teaching-learning manner. Several standards were introduced with the assist of generation in educations which include Active engagement with the studying materials, interactive software along with Google Maps or Google Earth helps in the active engagement of map study instead of looking at a photo.

Teaching is all approximately introducing college students to a whole global of concepts that they didn't know about but. Technology within the school room is sort of a foray into contemporary invention – and also you get to be the expedition leader. Rather than viewing virtual devices and Internet areas as a risk on your responsibilities, view them as unexplored regions of growth for both you and the young minds trusting you to show them what's available.

The paradigm of training shifted to include new innovative coaching techniques, such that conventional textbooks became e-books, blackboards turned into YouTube movies, new course management, and dashboards got here into lifestyles to relatively customize the consumer studying manner, and lecture hall monologues became MOOCs (Massive Open Online Courses) at the same time as turning into greater mobile and reachable as at the pass lecture rooms. But if we take a more in-depth have a look at it, the coaching method in colleges remained nearly the equal with out a real innovation[5].

Immersive learning offers rookies an environment that is tremendously interactive each honestly and bodily. This enables in replicating viable eventualities and in coaching specific techniques or abilities to the students. Immersive Learning acts as a game-changer in the coaching-learning procedure as it blessings the person by complete immersion and engagement. Engagement of newcomers may be accomplished via video games, mixed studying, or mixed getting to know environments had been as immersive getting to know is completely digital learning with entire immersion together with in digital fact in modern day scenario, HMD headsets of Oculus Rift and the HTC Vive. Game-like environments, to help students develop fantastic mastering behaviors within the studying manner[6].

Virtual Reality (VR). Virtual Reality (VR is a pc-produced situation that reproduces a genuine satisfaction. The vivid condition might be like the genuine globe with the end goal of making a genuine glancing appreciate grounded as a general rule or science fiction. THE current VR age most ordinarily utilizes computerized truth headsets or multi-anticipated situations, now and then in blend with physical conditions or props, to create practical photos, sounds, and various vibes that reproduce an individual's substantial nearness in advanced or nonexistent environmental factors. Google Expeditions which use a Cardboard viewer and a VR geared up cellular, permits students to take discipline journeys proper from their classroom. The instructor can manual the mastering experience and lead school room-sized organizations of "explorers" via collections of 360° and 3D photographs at the same time as pointing out exciting sights along the way.

Augmented Reality (AR). Augmented Reality turns the environment around you right into a virtual interface by means of putting digital objects inside the real global, in actual-time. The quality example of Augmented Reality to-date is Pokémon Go, a recreation that lets in customers to trap digital Pokémon who're hidden in the course of a map of the

actual international. Mixed Reality (MR) Mixed Reality (every now and then called Hybrid Reality or MR) combines the excellent factors of each virtual fact and augmented reality. It also refers to the complete spectrum of situations that span the continuum between virtual truth and actual fact. Mixed truth can encompass augmented reality, augmented virtuality, and other blended configurations. In mixed truth environments, customers navigate thru both the real and digital environments at the same time. Instead of living in an entirely virtual global (as in virtual fact), virtual items are anchored into a consumer's actual-international area and increase their real-world surroundings, making virtual interactions seem like "real".

Gamification. Gamification is using a layer of game over a actual-life environment. It is the idea of applying game mechanics and game design techniques to have interaction and motivate college students to achieve their goals. Eg. Brainscape, Duolingo. According to Albert Einstein, games are the most multiplied form of investigation. Games have many elements that cause them to powerful motors for human learning. Many games sell conversation, cooperation, or even competition among players.

3. Scenario of education after immersive and augmented technology

Augmented Reality (AR) is one such age that has seen numerous projects in training. Vivid Reality with Augmented Reality is a ground-breaking method of upgrading the client's capability to inquire about on the grounds that a considerable lot of their faculties canvases by and large to secure a subject. Vivid Augmented Reality (IAR) application related to a digital book, can go about as another astute considering technique by connecting as a portion of the individual's faculties and human highlights as could be expected under the circumstances[2].

Immersive Learning can possibly reclassify training, consolidating ordinary and current showing gifts, encouraging acing through key assignments and questions [7]. Immersive Reality strategy, in total with AR innovation, might be utilized to upgrade ordinary instructive techniques [2]. Immersive Reality with Augmented Reality is an amazing method of improving the purchaser's ability to look at in light of the fact that a large number of their faculties work all in all to capture a subject. Vivid Reality approach, in total with AR age, can be utilized to upgrade customary academic procedures. Vivid Augmented Reality (IAR) utility along the edge of a digital book, can go about as another shrewd contemplating strategy with the guide of connecting as a portion of the individual's faculties and human highlights as possible[2].

This gadget offers the phantasm that members experience as though they're in overseas surroundings by synthesizing photographs of individuals, digital environments, overseas-language speakers in real-time. Commenced this project in order to create a new opportunity that makes a specialty of real reports in language training the usage of the era, which easily combines digital reality and a real-global setting[8].

Immersive Augmented Reality (IAR) application in conjunction with an ebook, can act as a brand new clever getting to know the method by way of attractive as most of the person's senses and human capabilities as feasible[2].

A digital mastering environment offers youngsters the liberty to make their very own decisions and study from their own failures, but on an equal time protective them from risk via maintaining them in a controlled state of affairs.

Students aren't the simplest ones who advantage from Immersive Learning - instructors also can use a new era to enhance their skills and increase their teaching. For teachers who're simply beginning out of their careers, an Immersive Learning environment can be used as a complement to instructions, supporting more recent teachers to develop their teaching capabilities in an environment a good way to still be educationally green for the kids involved.

Some may also fear that Immersive Learning eliminates the want for physical instructors, yet, on the contrary, Immersive Learning permits teachers to connect with their class in a manner that wouldn't be viable through traditional gaining knowledge of techniques.

Issues and questions about the viability of the usage of virtual worlds and immersive environments within the lecture room can't override the ability to master blessings of immersive environments. Immersive Learning has been demonstrated to be optimized for a way the mind learns. It is not a substitute for current methodologies and pedagogy; however, it will improve beginners' revel in and boom the efficiency of lecture rooms.

Immersive Learning is said to assist increase diffusion of transferrable competencies that are difficult to nurture via traditional sorts of learning. An immersive mastering environment allows children to take part in complicated conditions wherein they will want to empathize with others. Missions, puzzle-fixing, and strategy development are simply a number of the many methods that the software can task and engage young minds all from the protection of the study room.

4. Interrelation between Education - Immersive, Augmented learning and Virtual Reality

Immersive Learning is the process of mastering the use of a simulated or artificial environment. The environment enables the novices to absolutely get immersed inside the mastering and in a manner that appears like experiencing a real gaining knowledge of surroundings. Learning is at its only while the scholar can see himself in the narrative or situation that's taking vicinity.

In an immersive mastering enjoy, a pupil can receive individualized coaching as he/she progresses consistently at their own pace and through simulation. This can be created in simulation as well as in the digital world surroundings. Using immersive environments (e.G. Games and virtual worlds), particularly digital-based totally, can improve mastering (i.E. Problem-solving and deep studying) of college students[4].

Different elements impact the gaining knowledge of outcomes in Educational Virtual Environments (EVEs) along with Presence, motivational, cognitive, and emotional factors[9]. By using a pedagogical framework for the rationale of immersive mastering, a theoretical model that can be used for formulating and trying out hypotheses. Educational framework for immersive getting to know (EFIL), which gives an academic knowledge of immersive studying as "gaining knowledge of sports initiated by using a mediated or medially enriched environment that conjures up a feeling of presence"[9].

Experiential, constructivist, collaborative mastering, which contributes to using immersive studying as critical gaining knowledge of fashion for destiny.

Virtual realities create an interactive nature that allows information to unfold fast, correctly, and globally. Through the 4 dimensions of the coaching manner (context placing, magnificence preparation, class delivery, and continuous improvement) and the 3 types of learning (Experiential, Constructivist, Collaborative), these elements all make a contribution into the usage of digital realities as equipment to make use of immersive getting to know as an upcoming, important studying fashion[10].

There are unique methods to put in force Immersive Learning strategies in any study room such as learning through virtual fact, position play, simulations, augmented fact, and blended truth. Gamification, AR, VR, and MR technologies permit the advent of effective getting to know reports while specializing in generating general hobby, attracting novices' full attention and motivation, together with facilitating a secure trial and error putting.

Empirical studies including all postulated factors, causal relationships, and associations with the objective to prove (or disprove) the claimed members of the family between the factors are wanted in similar paintings[9].

The capability of AR may be further multiplied by way of designing and enforcing it for one-of-a-kind educational functions (e.G., tests and tutoring) with various populations inclusive of students with special wishes and lifetime newcomers. Moreover, due to the gap among the traditional coaching methods in classrooms and the exploratory nature of studying engendered by means of AR systems, researchers want to discover the possibilities and solutions of integrating AR into regular school curricula. One solution may be presenting significant assistance for instructors to tailor AR technology, to create custom-designed gaining knowledge of activities, and to reveal students' learning progress in AR[11].

5. Tools to Motivate Immersive Learning

To create motivational studying surroundings tools including video games to have interaction rookies, a virtual fact to make STEM education greater thrilling with whole immersion. To engage novices a coaching version MAL (Motivational Active Learning) became delivered that builds on engagement methods and makes use of techniques based on the sport design principle[1]. Maroon is an academic digital physics laboratory integrating one of a kind experiments, visualizations, and simulations. It helps different interactive engagement and immersion techniques. Maroon is stimulated by using TEALsim and extends it with new interaction forms supporting engagement, such as digital collaboration functions, and immersion together with digital truth setups in an extensible and bendy digital laboratory setup. TEALsim is a standalone open-supply Java-based simulation framework developed at MIT. It provides different electromagnetic physics simulations and visualization to aid students in studying the underlying principles. Maroon can be correctly used with tools that include a head-established display to reinforce the sensation of immersion[2]. Experiencing a virtual dwelling museum, might be described. This situation locations participants in a virtual museum where its well-known shows are alive and feature their personal roles. Exploring the complete museum, every scholar will have chat with digital retailers – the gatekeeper, Mummy –, plays the game, and manipulate surrounding gadgets. In doing so, they can analyze a foreign language, mainly in time-associated English expressions. The secret's to immerse students in an overseas environment and provide a danger to research and practice English expression[8]. Students can efficiently examine foreign language seeing themselves present in virtual 3-D surroundings on a large screen.

6. BACKGROUND

To develop more effective and outcome-based learning various studies were conducted which are discussed below:

There is a sudden change in the teaching-learning process over the last few decades as the traditional method of teaching-learning is now shifting towards recent, more entertaining, and a visual environment, immersive virtual environments (Ives)[12]. With the technological advancements in education, technology plays an important role in the improvement of the teaching-learning process. Learning has shifted from conventional methods of books towards immersive methods such as blended learning, mixed reality, AR, and VR. Blended learning is perceived as useful, enjoyable, supportive, flexible and motivator for learners[13]. Blended learning is an approach to education that combines online educational materials and opportunities for interaction online with traditional place-based classroom methods. MOOCs are one such learning example. From blended learning, new learning methods are evolved which are more effective for learners, one such method is Augmented Reality.

Increased Reality is an innovation that superimposes a PC created picture over a client's perspective on this present reality, therefore giving a composite view. AR can possibly connect with understudies in a superior learning experience that could make an increasingly far reaching educating and learning process[14]. Utilizing an enlarged reality versatile application expanded the learning inspiration, consideration, fulfillment, and certainty of students [15]. AR can possibly connect with understudies in a superior learning experience that could make a progressively far reaching educating and learning process. a few models Hunting and shooting virtual game characters, for example, the well known Pokémon GO in genuine builds level of fulfillment and commitment in gaming. Studies have demonstrated that Augmented Reality can enhance instructing and learning practice in the instructive segment. Incorporating AR in instruction may prompt a more promising time to come for the instructive division. AR can possibly connect with understudies in a superior learning experience that could make an increasingly far reaching educating and learning process[14]. AR is a progressively powerful mechanism for passing on sound-related data.

Immersive learning provides learners an environment that is highly interactive both virtually and physically. This helps in replicating possible scenarios and in teaching specific techniques or skills to the students. Immersive Learning acts as a game-changer in the teaching-learning process as it benefits the user by complete immersion and engagement. Engagement of learners can be achieved through games, blended learning, or mixed learning environments were as immersive learning is fully digital learning with complete immersion such as in virtual reality in today's scenario, HMD headsets of Oculus Rift and the HTC Vive. Game-like environments, to help students develop positive learning behaviors in the learning process[6]. Presence plays an important role in Ives and contributes to positive learning outcomes[2]. Presence as the subjective feeling of "being there" is emphasized as the central criterion influenced by objective and subjective factors in immersive learning[2].

Immersive Learning has the ability to redefine teaching, incorporating traditional and contemporary teaching skills, facilitating learning through key projects and questions[7]. Blended learning can be effectively implemented with institutional commitment, User Satisfaction, and availability of proper facility and access[16].

Vivid Reality strategy, in mix with AR innovation, can be utilized to upgrade customary academic methods [2]. Vivid Reality with Augmented Reality is a viable method of improving the client's capacity to learn on the grounds that a considerable lot of their faculties cooperate to comprehend a subject. Vivid Reality procedure, in mix with AR innovation, can be utilized to upgrade conventional instructive strategies. Vivid Augmented Reality (IAR) application related to a book, can go about as another keen learning strategy by connecting the same number of the client's faculties and human capacities as possible[2].

To increase greater effective and outcome-based totally learning diverse studies had been conducted that are discussed below:

There is a sudden change in teaching mastering manner over a previous couple of many years as the conventional approach of teaching-learning is now shifting in the direction of current, extra unique, and a visual environment, immersive virtual environments (IVEs)[12]. With the technological advancements in schooling, era plays an essential position in the development of coaching gaining knowledge of the process. Learning has shifted from traditional methods of books towards immersive techniques which include blended learning, combined truth, AR, and VR. Blended mastering is perceived as beneficial, fun, supportive, bendy, and motivator for freshmen[13]. Blended gaining knowledge is a method to education that combines online educational substances and possibilities for interaction on-line with conventional region-based totally lecture room strategies. MOOC's is one in every of such studying example. From mixed mastering, new mastering methods are evolved which might be greater effective for beginners, one among such approach is Augmented Reality.

Augmented Reality is a generation that superimposes a pc-generated image over a consumer's view of the actual international, accordingly presenting a composite view. AR has the ability to interact with students in a higher mastering experience that would create a more complete coaching and studying method[14]. Using an augmented truth cell utility increased the getting to know motivation, attention, pleasure, and confidence of students[15]. AR has the

capability to have interaction students in a better mastering level in that might create greater complete teaching and studying technique. Some examples hunting and shooting digital sportsman or woman along with the well-known Pokémon GO in real global will increase the stage of pleasure and engagement in gaming. Studies have shown that Augmented Reality can enrich teaching and gaining knowledge of exercise in the educational quarter. Integrating AR in schooling may also cause a brighter destiny for the educational zone. AR has the capacity to interact students in higher gaining knowledge of enjoy that would create a greater comprehensive coaching and mastering manner[14]. AR is a more effective medium for conveying auditory data.

Immersive gaining knowledge of offers inexperienced persons a surrounding which is relatively interactive each simply and bodily. This allows in replicating feasible eventualities and in coaching particular strategies or competencies to the students. Immersive Learning acts like a sport changer in the teaching-learning process as it benefits consumer through entire immersion and engagement. Engagement of learners can be done through games, mixed getting to know or combined learning environments were as immersive mastering is fully digital studying with complete immersion together with in virtual fact in the cutting-edge scenario, HMD headsets of Oculus Rift and the HTC Vive. Game-like environments, to assist college students increase positive mastering behaviors within the studying process[6]. Presence play an crucial position in IVEs and contributes to high-quality mastering effects[2]. Presence because the subjective feeling of "being there" is emphasized because the important criterion stimulated by objective and subjective elements in immersive learning[2].

Immersive Learning has the potential to redefine coaching, incorporating traditional and modern-day teaching capabilities, facilitating gaining knowledge of thru key initiatives and questions[7]. Blended mastering may be effectively implemented with institutional dedication, User Satisfaction, and availability of proper facility and access[16].

Vivid Reality technique, in blend with AR innovation, might be utilized to improve customary academic strategies [2]. Vivid Reality with Augmented Reality is a ground-breaking way of upgrading the individual's ability to examine on the grounds that a large number of their faculties artistic creations all in all to catch a subject. Vivid Reality approach, in blend with AR age, might be utilized to upgrade conventional educational procedures. Vivid Augmented Reality (iAR) programming alongside a digital book, can go about as another savvy acing procedure through connecting as some of the individual's faculties and human highlights as possible[2].

Mixed or totally advanced acing is charming to depict as roused concentrating in exceptional conditions the utilization of computer games and augmented reality to make STEM preparing more noteworthy interesting[1]. Fulfillment and accessibility of legitimate office and access [16].

Similarly, diverse fashions were proposed for technological development in education as:

1) MAL (Motivational Active Learning) is a learning format assisting different players and learner kinds. It is primarily based on lively and collaborative getting to know techniques and combines it with factors inspired by way of recreation layout theory[1]. Motivational Active Learning (MAL) goals to assist students in information the principles in an engaging manner.

2) Maroon is an educational digital physics laboratory integrating extraordinary experiments, visualizations, and simulations. It supports extraordinary interactive engagement and immersion strategies. Maroon is stimulated by using TEALsim and extends it with new interplay paperwork helping engagement, consisting of digital collaboration features, and immersion consisting of virtual fact setups in an extensible and flexible digital laboratory setup. TEALsim is a standalone open-source Java-based simulation framework developed at MIT. It affords extraordinary electromagnetic physics simulations and visualization to guide students in mastering the underlying principles. Maroon could be correctly used with equipment such as a head-mounted display to enhance the feeling of immersion.

3) A new theoretical hybrid classroom model is known as the large open on-line virtual surroundings (MOOVE) that capitalizes on the prevailing research on IVEs and applies them to the MOOC to give solutions for its cutting-edge troubles of evaluation, responsibility, and personalization.

Four) ARCS (interest, relevance, self-belief, and delight) to recognize the impact of augmented truth on student motivation[15].

The advancement in era and techniques which includes games and immersive programs helps lifelong studying and additionally a greater comprehensive knowledge of the problem remember[3].

An Educational Virtual Environment (EVE) or Virtual Learning Environment (VLE) can be depicted as an advanced domain that depends on a positive academic model, incorporates or infers at least one pedantic destinations, gives clients with reports they might some way or another not appreciate inside the physical world and redounds explicit

picking up information on outcomes. Augmented Reality (VR) innovation appears to have become a ground-breaking and promising gadget in training because of their particular mechanical characteristics. VR might be instructively abused through its specific innovative attributes. Understudies and educators rate a fine outlook toward the utilization of computer generated reality in instructional settings and find that EVEs likewise help community oriented data creation through social exchange, and cultivate intelligent practices[17]. Researches additionally done on the educational packages of Virtual Reality (VR) indicate that presence performs a vital position in EVEs. And VR with EVEs allows in collaborative knowledge production[17].

The virtual truth makes the picking up information on vivid and offers long haul maintenance while upgrading inventiveness through reinforced customization of the recreations [5]. The use of digital reality on a cell platform by personalizing the simulated environments as in line with user actions, the version is more impactful and brings approximately an extra powerful academic version[5]. VR seems to be extra immersive and engaging via the psychological mechanism of spatial presence[18]. The virtual fact as an effective academic tool for motivation in virtual recreation-primarily based learning[19].

P2P studying device is effective in mastering and evaluation at the identical time with immersive learning as an element in design and process[20].

Experiential, Constructivist, and Collaborative studying is a few getting to know patterns used as a tool in digital realities for immersive learning. Also, using pre-education notably improved know-how and transfer inside the immersive VR condition[10]. It has additionally been discovered that by growing VR artifacts college students can acquire virtual capabilities, display their know-how of a complicated task, discovered to pick and use numerous collaboration gear, verbal exchange methods, and remixing content material to perform it[21]. Virtual truth holds the capability to aid in the improvement of nicely-rounded STEM students who have the requisite intercultural leadership abilities to grow to be global business leaders able to solving each the technical and those troubles they'll face in their careers[22]. VR is especially effective in subjects where an interactive surrounding is needed[23]. VR is an active revel in which gives the consumer experience of exploration and involvement[23].

VR presents excellent visualization, it gives honestly unlimited get entry to information, books, or articles, will increase engagement, stimulates cooperation and involvement, extensively utilized for distinctly green blended studying, encouraging self-observe and individual pursuit of understanding[24]. VR is not most effective an ensemble of technological innovations, but also a concept, and suggest models in other domains, such as UX (person revel in) or interaction design[25]. VR era might be used in a spread of tutorial fields like architecture, clinical studies, History, and geography, especially the ones that call for a simulation or three-D presentation[23].

Some of the maximum critical capabilities of virtual reality applications are interactivity, realism (inclusive of immersion), motivation, ease of use, and educational usefulness[26] and also enables developing unusual environmental stimulation to encourage them to explore new ideas[6].

With the advancement in a generation, studying is now transferring toward virtual worlds which affords whole immersion and engagement thru additives which includes Visual, audio, olfactory, and haptic and also gives three-D shows, head installed devices, 3-D sound systems, olfactory presentations, haptic devices, and interplay gadgets[27].

7. Conclusion

Augmented and virtual reality is introduced through this paper using immersive technology in Internet skills development. Technology interventions have been incorporated into education by highly redirecting immersive environments as a powerful tool for teaching and learning. Traditional methods related to current teaching and learning techniques display the landscape of education after immersive and augmented technology.

The relationship between educations in information technology - immersive, augmented learning, and virtual reality is explained in detail. Tools to inspire immersive learning from immersive technology in skill development have also been reviewed through this paper.

References

- [1] D.-I. J. Pirker, "Doctoral Dissertation Immersive and Engaging Forms of Virtual Learning," Department of Physics, Massachusetts Institute of Technology, 2017.
- [2] M. W. Bazzaza, B. Al Delail, M. J. Zemerly, and J. W. Ng, "iARBook: An immersive augmented reality system for education," in 2014 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE), 2014, pp. 495-498: IEEE.
- [3] C. A. Eleftheria, P. Charikleia, C. G. Iason, T. Athanasios, and T. Dimitrios, "An innovative augmented reality educational platform using Gamification to enhance lifelong learning and cultural education," in IISA 2013, 2013, pp. 1-5: IEEE.

- [4] R. van Eck and T. Zuva, "Implementing an immersive environment: A critical review of literature," in 2016 International Conference on Advances in Computing and Communication Engineering (ICACCE), 2016, pp. 408-411: IEEE.
- [5] D. Bhattacharjee, A. Paul, J. H. Kim, and P. Karthigaikumar, "An immersive learning model using evolutionary learning," *Computers & Electrical Engineering*, vol. 65, pp. 236-249, 2018.
- [6] K. W. Lau and P. Y. Lee, "The use of virtual reality for creating unusual environmental stimulation to motivate students to explore creative ideas," *Interactive Learning Environments*, vol. 23, no. 1, pp. 3-18, 2015.
- [7] A. Shaw, "A critical reflection on how immersive learning can be used to facilitate high quality teaching and learning in educational settings," *The STeP Journal: Student Teacher Perspectives*, vol. 5, no. 1, pp. 40-49, 2018.
- [8] S. Lee, J.-g. Ko, S. Kang, and J. Lee, "An immersive e-learning system providing virtual experience," in 2010 IEEE International Symposium on Mixed and Augmented Reality, 2010, pp. 249-250: IEEE.
- [9] A. Dengel and J. Mägdefrau, "Immersive learning explored: subjective and objective factors influencing learning outcomes in immersive educational virtual environments," in 2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE), 2018, pp. 608-615: IEEE.
- [10] O. A. Meyer, M. K. Omdahl, and G. Makransky, "Investigating the effect of pre-training when learning through immersive virtual reality and video: A media and methods experiment," *Computers & Education*, vol. 140, p. 103603, 2019.
- [11] H.-K. Wu, S. W.-Y. Lee, H.-Y. Chang, and J.-C. Liang, "Current status, opportunities and challenges of augmented reality in education," *Computers & education*, vol. 62, pp. 41-49, 2013.
- [12] C. O. Karutz and J. N. Bailenson, "Immersive virtual environments and the classrooms of tomorrow," *The handbook of the psychology of communication technology*, vol. 33, p. 290, 2015.
- [13] B. Güzer and H. Caner, "The past, present and future of blended learning: an in depth analysis of literature," *Procedia-social and behavioral sciences*, vol. 116, pp. 4596-4603, 2014.
- [14] C. S. C. Dalim, H. Kolivand, H. Kadhim, M. S. Sunar, and M. Billingham, "Factors influencing the acceptance of augmented reality in education: A review of the literature," *Journal of computer science*, vol. 13, no. 11, pp. 581-589, 2017.
- [15] T. Khan, K. Johnston, and J. Ophoff, "The impact of an Augmented Reality application on learning motivation of students," *Advances in Human-Computer Interaction*, vol. 2019, 2019.
- [16] R. Sari and M. Karsen, "An empirical study on blended learning to improve quality of learning in higher education," in 2016 International Conference on Information Management and Technology (ICIMTech), 2016, pp. 235-240: IEEE.
- [17] T. A. Mikropoulos and A. Natsis, "Educational virtual environments: A ten-year review of empirical research (1999–2009)," *Computers & Education*, vol. 56, no. 3, pp. 769-780, 2011.
- [18] K.-T. Huang, C. Ball, J. Francis, R. Ratan, J. Boumis, and J. Fordham, "Augmented versus virtual reality in education: An exploratory study examining science knowledge retention when using augmented reality/virtual reality Mobile applications," *Cyberpsychology, Behavior, and Social Networking*, vol. 22, no. 2, pp. 105-110, 2019.
- [19] T. de Souza Silva, E. C. R. Marinho, G. R. E. Cabral, and K. S. da Gama, "Motivational impact of virtual reality on game-based learning: Comparative study of immersive and non-immersive approaches," in 2017 19th Symposium on Virtual and Augmented Reality (SVR), 2017, pp. 155-158: IEEE.
- [20] S. L. S. Ly, R. G. Saade, and D. Morin, "Immersive Learning: Using a Web-Based Learning Tool in a PhD Course to Enhance the Learning Experience," *Journal of Information Technology Education: Research*, vol. 16, pp. 227-246, 2017.
- [21] D. Andone, S. Vert, M. Frydenberg, and R. Vasii, "Open Virtual Reality Project to Improve Students' Skills," in 2018 IEEE 18th International Conference on Advanced Learning Technologies (ICALT), 2018, pp. 6-10: IEEE.
- [22] L. Hickman and M. Akdere, "Exploring virtual reality for developing soft-skills in STEM education," in 2017 7th World Engineering Education Forum (WEEF), 2017, pp. 461-465: IEEE.
- [23] M. Hussein and C. Nätterdal, "The benefits of virtual reality in education-A comparison Study," 2015.
- [24] D. Kamińska et al., "Virtual Reality and Its Applications in Education: Survey," *Information*, vol. 10, no. 10, p. 318, 2019.
- [25] J. L. Rubio-Tamayo, M. Gertrudix Barrio, and F. García García, "Immersive environments and virtual reality: Systematic review and advances in communication, interaction and simulation," *Multimodal Technologies and Interaction*, vol. 1, no. 4, p. 21, 2017.
- [26] D. Vergara, M. P. Rubio, and M. Lorenzo, "On the design of virtual reality learning environments in engineering," *Multimodal technologies and interaction*, vol. 1, no. 2, p. 11, 2017.

[27]P. T. Kovács, N. Murray, G. Rozinaj, Y. Sulema, and R. Rybárová, "Application of immersive technologies for education: State of the art," in 2015 International Conference on Interactive Mobile Communication Technologies and Learning (IMCL), 2015, pp. 283-288: IEEE.

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