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ENHANCING COLLEGE ENGLISH LEARNING WITH VIRTUAL REALITY AND AI TECHNOLOGIES

Afaq Zaman[1*], Amada[2], Abdul Rehman[3], Aftab Ali[4], Maimoona Majeed[5], Dr. Shabnam Razaq Khan[6], Husnain Saleem[7]

[1*]Teaching Assistant, Department of English, Sub Campus Gomal University, Tank, KPK, Pakistan. Email: afaqzamanbt@gmail.com.
[2]Lecturer, Department of English Language & Literature, Gomal University, D.I. Khan, KPK, Pakistan.
[3]PhD Scholar, Institute of Education and Research, Gomal University, D.I. Khan, KPK, Pakistan.
[4]PhD Scholar, Institute of computing and information technology (ICIT), Gomal University, D.I. Khan, KPK, Pakistan.
[5]PhD Scholar, Institute of Education and Research, Gomal University, D.I. Khan, KPK, Pakistan.
[6]Assistant Professor, Institute of Education and Research, Gomal University, D.I. Khan, KPK, Pakistan.
[7]Lecturer, Department of Computer Science, Sub Campus Gomal University, Tank, KPK, Pakistan.

***Corresponding Author:** Afaq Zaman
*Teaching Assistant, Department of English, Sub Campus Gomal University, Tank, KPK, Pakistan. Email: afaqzamanbt@gmail.com

Abstract:
Regarding international trade, English is among the most significant languages. Several tools are available to help with language learning in this area. Academics and businesses alike are warming up to the idea of using technology in corporate communication skills. Immersive platforms, such as virtual reality, are becoming increasingly available as a means for non-native speakers of English to learn the language. Those who are serious about making it in the business world need to work on their fluency and competence. It could be helpful for learners to think about business-specific English in this context. According to the study, virtual reality (VR) provides an immersive, interactive environment where students may practice real-world business skills. Additionally, it covers situations when students can make the most of their career opportunities. The potential of virtual reality technologies to improve English language skills is demonstrated in a mixed-methodology study. There are several methods for bettering one's Business English, and it details how various VR apps may captivate and excite students.

Keywords: English Learning, Virtual Reality, AI Technologies**.**

Introduction

This emerging area is making strides. In many cases, the worth of a digital file or reproduction of an artwork is lower than that of the original. Ready to go right out of the box with endless room for growth and development. Art is inherently subjective; its purpose is to provoke an emotional and intellectual reaction from the observer that is consistent with the artist's worldview. You will always

be left dumbfounded by a great work of art. Ads with eye-catching visuals have the potential to increase sales by strengthening consumers' association with the advertised brand. This makes it easier for creatives to understand the possibilities of electronic art. A wide range of imaginative skills and materials will be required to pull this off. It employs design tools and computer-related software to create artwork, providing the essential training—technical talents with a comprehensive knowledge of art and science.

When applied to digital media art, in the realm of virtual reality, art can be expressed, communicated, and experienced in an interactive medium style. Individuals can complete this interactive type of art through virtual reality technology by utilizing digital media art. Combining these elements thus narrows the distance between the viewer's perception of an artwork and the meaning the artist intended to convey. Artists working in digital media frequently base their work on dynamic images. With the help of high-tech sensors, the user can actively participate by responding to data signals such as head movements and even ocular rotations. Artists working in digital media frequently base their work on dynamic images. With the help of high-tech sensors, the user can actively engage by responding to data signals such as head movements and even ocular rotations.

The proposed system classifies certain gestures after defining and tracking them. Using these approaches makes linguistic information more accessible to understand. Using them, we may highlight our point of view and control the conversation.

In his early attempts at making a flying model simulator, Devin Link made many people's dreams of flying a reality through his modeling of physical reality. Rider Morton Heyliger could experience what it was like to cruise about Manhattan on two wheels thanks to a simulator he constructed. This is a metaphorical expression at its purest. In 1968, Ivan Suzelan developed a head-mounted display to track the user's head movement and display three-dimensional computer images. The Sword of Damocles is what we call it. Although it is vast, the operator has made contact with the grip. The United States achieved phenomenal success in the 1980s by deploying VR technology in the aviation sector. In the 1990s, large companies began developing virtual reality technology, mainly hardware. Companies have also developed virtual reality headsets, which has led to a boom in the technology's commercialization. The technology behind virtual reality has advanced dramatically since its start in the '90s. Hardware rendering effects, screen resolutions, and the human-computer interaction system have all seen steady improvements thanks to technological breakthroughs. This led to a better user experience and more versatile virtual reality hardware. Several fields have already reaped the benefits of virtual reality devices, such as the arts, culture, education, and business.

Art created with digital media is unique, just as traditional art differs from algorithms created by computers. It's a hybrid of the two. Consequently, this study employs three separate VR technologies to mobilize students' features in different areas. It then compares these VR teaching approaches to standard ways and conducts exploratory experiments. Scores and subjective assessments from students will be used to analyze the results of our experiment.

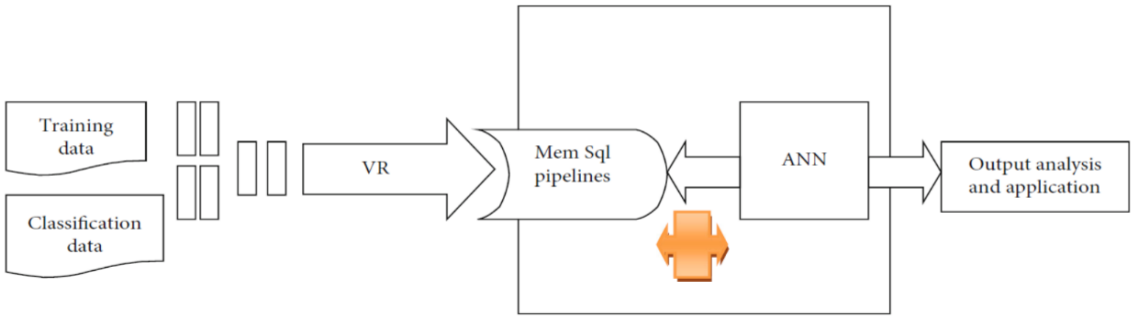

Figure 1: Block Diagram

Literature Survey

In the early days of the discovery of art, people could only perceive it visually. Conversely, virtual reality technology has opened people's eyes to parts of art that were previously invisible to them. It succeeds in making a realistic illusion that is not grounded in reality. Using various forms of artificial intelligence opens up new ways for people to view the world, elevating the human experience.

The development of AI and the creation of artistic works in digital media complement each other well. These methods have led to better outcomes using artificial intelligence in virtual reality technologies [1]. Another suggestion is to make better use of visual saliency to speed up the retrieval process. This strategy makes labeling the graphic pattern and establishing baselines for different situations possible [2]. Lastly, studies in the literature [3] investigate methods for improving system identification by identifying the best image compression ratio to use with fingerprints. Another option is to provide a method of encryption for four photos holistically processed with quaternion algebra. This system would boost security by reducing the chance of correlation vulnerabilities.

Table 1: Sample Data

Man	Woman	Range of Age	Total
2	1	≥20	3
4	3	19	7
15	22	18	37
9	11	≤17	20
30	**37**	**Total**	**67**
$P = 0.623$; $x^2 = 0.591$.			

Commercials using virtual reality technology have been running for quite some time, especially in highly industrialized countries like the US. A digital representation of any real-world item can be displayed to the general public on a computer screen. Regarding technology in MMORPGs, it is practically on par with US international roaming [4]. It has a large number of researchers, which has led to the development of several popular goods that include VR technology.

To see how artificial intelligence (AI) might impact English teaching at the middle school level, a blend of curricular ideas, a literature analysis, and field studies were utilized (Bin et al., 2019). In reaching this strategic goal, artificial intelligence (AI) will teach college English. Given the convenience with which one can learn English and the new life in the English education system, the addition of an English class gives the system a personalized feel. Authors are trying to create an AI-based English language course [5].

In an article written by Pan et al. (2021), a few of these are the following. Virtual reality technology can be used to create immersive learning environments and provide a sense of realism. It is also possible to visualize abstract concepts. We shall examine the relationship between virtual reality and ESL instruction through a four-part approach. If virtual reality (VR) technology were to be introduced into English teaching, the door might be opened for new methods [6].

Step: 1 start the process.
Step: 2 Assign the VR English dialogue samples.

$$s(x) = 1/1 + e^{-x} = e^{x}/1 + e^{x}.$$

Step: 3 estimate College English

$$h^1 = S(V^{(0)T} W + a)$$

Step: 4 find Dialogue scene

$$V^{(1)} = S(h^{(1)} W^T + a)$$
$$p(h^{(1)} | V^{(0)} ; W)$$
$$p(V^{(1)} | h^{(1)} ; W)$$
$$p(v, h)$$

Step: 5 filter the statements

$$E(v, h) = -\sum_{i \in \text{visible}} a_i v_i - \sum_{j \in \text{hidden}} b_j h_j - \sum_{ij} v_i h_j w_{ij}$$
$$\Delta w_{ij} = \alpha(\langle v_i h_j \rangle_{\text{data}} - \langle v_i h_j \rangle_{\text{model}})$$

Step: 6 ANN-based VR analysis

$$CD_k(W, v^{(0)}) = -\sum_h p(h|v_k)(\partial E(v_k, h)/\partial W) + \sum_h p(h|v_k)(\partial E(v_k, h)/\partial W)$$

Step: 7 stop the process

Algorithm 1: Virtual Reality ANN.

Old methods of instructing foreign languages have to change so that it can meet the peculiar learning needs of students, especially in cultural communication, assessment and course materials as pointed out by Luo et al. (2020). Cumbersome and time-consuming evaluation procedures are one major problem with conventional language teaching approaches. Nonetheless, artificial intelligence has the capacity to significantly mitigate these problems [7]. Researchers have designed and evaluated virtual patients (VPs) who can be interacted with by student nurses in preparation for their practical settings (Shorey et al., 2019). Creating virtual classrooms with a specific purpose of teaching nursing students communication skills may lead to real learning environment that improves the student's self-esteem as well as ability to communicate themselves [8].

This research paper explores the pros and cons of using virtual reality learning environment for graduate students who work as teaching assistants in colleges. In their study, the authors concluded that interesting activities with interactive and catching presentations can make students be more interested in subject (Ke et al., 2020). Merge student's post-evaluation to a VR learning platform [9]. The objective of this action research is to develop a system for English tour guides using robotics, artificial intelligence and virtual reality technology so as to have necessary training materials for enhancing their skills (Chen et al., 2021). For teachers to effectively handle the challenges and prospects brought about by technological advancements, it will be necessary for them to undergo adequate preparation [10].

However, some areas of academia have sailed smoothly through the ever-changing tempests of educational technology while others have fluctuated in their successes. According to Guan et al. (2020), this research aims to spark a dialogue on pros and cons of adopting artificial intelligence and deep learning into the classroom [11].

They suggest that if you would like to improve your linguistic and cultural knowledge, you can use the Tactical Language and Culture Training System as a resource (Johnson et al., 2009). Over forty thousand students around the world have already taken TLCTS courses. In addition to providing an overview of the TLCTS model and its AI components, various evaluation tests that confirm the benefits of this method in teaching different languages and cultures are included [12].

As per Kim et al. (2019), robots have enhanced their performance greatly in assisting human beings. Educators are now commonly using chatbots as part of teaching, hence, academicians are looking for ways to use this technology interactively in schools. This study presents its results and from that arrives at new research directions and educational implications for language acquisition through chatbots [13].

Johnson et al. (2005) postulate that modern video games could be a source of fun but educate as well. Game designers employ a multitude of strategies to maintain player engagement and motivation. Intelligent coaching adds to the experience, and AI controls non-player characters in the game [14].
Based on Ma's research (2021), this article delves into the VRT college English immersive context teaching approach that utilizes AI and ML. Improving students' command of the English language is the primary objective. The experimental group used VR technology to teach from a constructivist perspective compared to two first-year university classes; the control group relied on multimedia tools and conventional teaching methods. According to this study, integrating virtual reality (VR) and constructivist theory (CT) into university Students' proficiency in the English language can be improved by immersion context education [15].

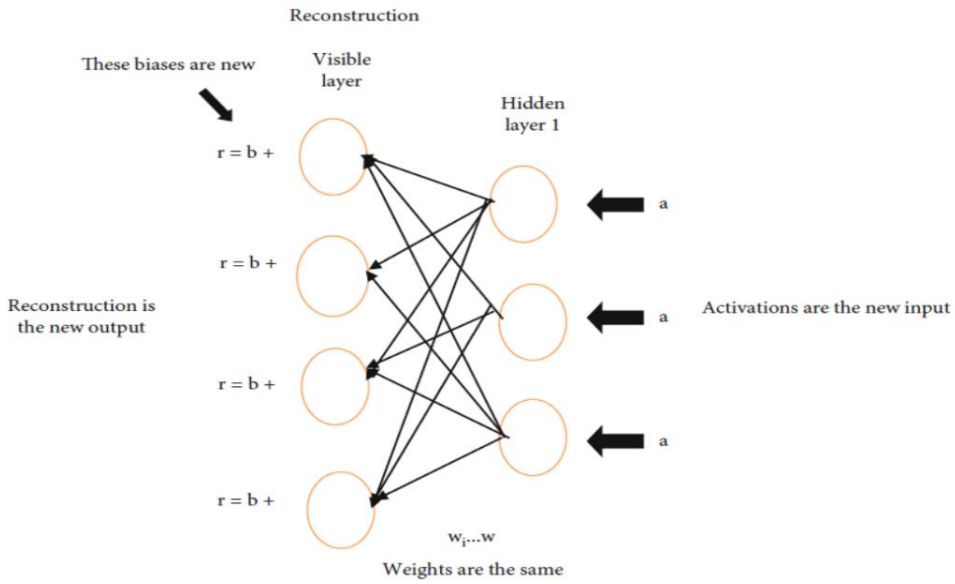

Figure 2: Virtual Reality ANN-Based

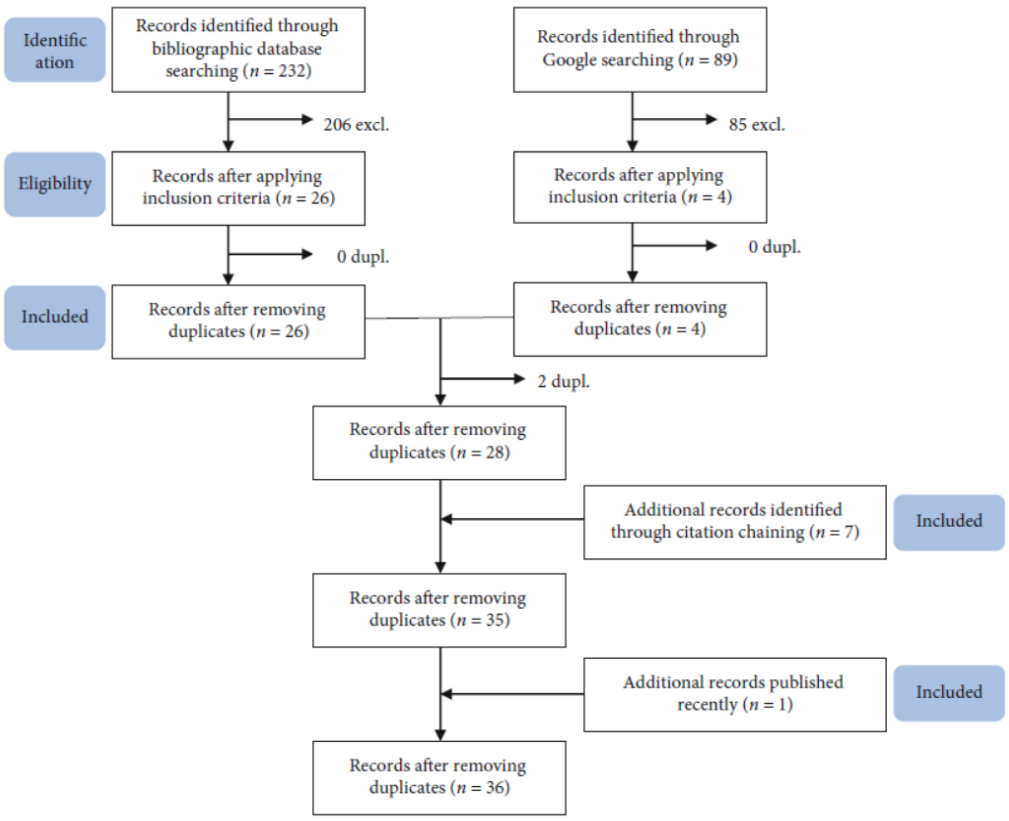

Figure 3: Virtual Reality Flow Chart

Table 2: Test Cases

Set	**Row**
(Virtual reality QR Augmented reality QR Mixed reality QR Extended reality)	Test Set 1
(Artificial intelligence QR Machine learning QR Deep learning QR Neural networks)	Test Set 2
#1 AND #2	Search 1
(Interactive simulation QR Virtual environment)	Test Set 3
#3 AND #2	Search 2

Table 3: Evaluation by comparison

Serial No.	Method	Accuracy	Score VR	Training Gain	Score of Detection
1	ANN	96.37	97.37	98.34	85.47
2	ResNet	94.28	94.2018	96.35	81.45
3	GB	93.54	91.36	89.45	69.34
4	DT	91.36	95.25	92.56	87.54
5	RFO	90.12	93.24	90.27	76.23

Research by Huang et al. [2021] indicates that introducing new technology influences pedagogical practices. There are numerous examples of how AI could enhance the educational system and AI applications in education [16].

Virtual reality has emerged as a new medium for digital media art, and its popularity has steadily risen over the past several years, says Qian [2022]. The outcomes demonstrated that the effectiveness was far higher than traditional methods, independent of the virtual reality technology used. Consequently, we found that students responded better to visuals than to text alone [17].

Online teaching chances have increased due to education and teaching changes, according to Ban et al. [2021]. Applying introduction analysis to brief text messages produced by e-learning platforms is one approach to improving lessons, enhancing creativity, and fostering cooperation. This method allows for exploring and ultimately realizing the characters' traits [18].

Artificial intelligence and virtual reality in various language learning applications have made experimental learning methods more accessible, similar to virtual reality, as stated by Divekar et al. [2021]. By combining AI with XR, we can simulate natural conversations to help students learn a new language [13].

Xiaohong et al. [2021] state that as globalization advances, there is ample opportunity to utilize AI technologies in foreign language acquisition. This study delves into the effectiveness of an AI-driven system for learning a foreign language. Learn a new language and use it to manufacture your bedding—that's the kind of practical AI that could be included in multilingual language learning systems in the future [19].
Most of the existing virtual classrooms make it challenging to build realistic teaching environments (Liu et al., 2021). Therefore, this paper describes the core architecture of a system that uses the Internet to facilitate virtual learning and analyses its aims and principles. The scenario's high degree of accuracy and involvement makes it a valuable teaching tool in practice [20].

Wang et al. [2021] lists five advantages of this system: (1) Users can learn a language at their own pace and from anywhere, which is a significant plus. The system is accessible to learners from diverse backgrounds because it supports multiple languages [21].

Virtual reality has emerged as a new paradigm for digital media art and has been increasingly popular in recent years (Qian, 2022). Consequently, we found that students responded better to visuals than to text alone [22].
This study aimed to test the hypothesis that AI will impact the classroom, as stated by Lameras et al. [2022]. The ethical considerations and recommendations for implementing AI-assisted learning are very obvious [23]. Sepasgozar (2022) asserts that case-based storytelling was used to build and execute new virtual tour models for on-the-job training. To gauge the adoption of educational technology, this study sought to analyze student behavior in order to develop a novel virtual teaching acceptance model. The combination of technology and learning components in VTAM includes perceptions of utility, engagement, social presence, contextual learning, and immersion, among other things [24].

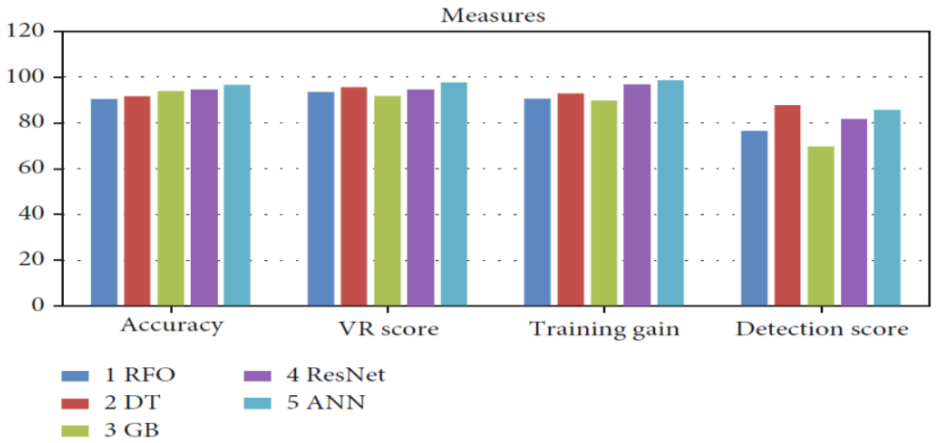

Figure 4: Evaluation Comparison

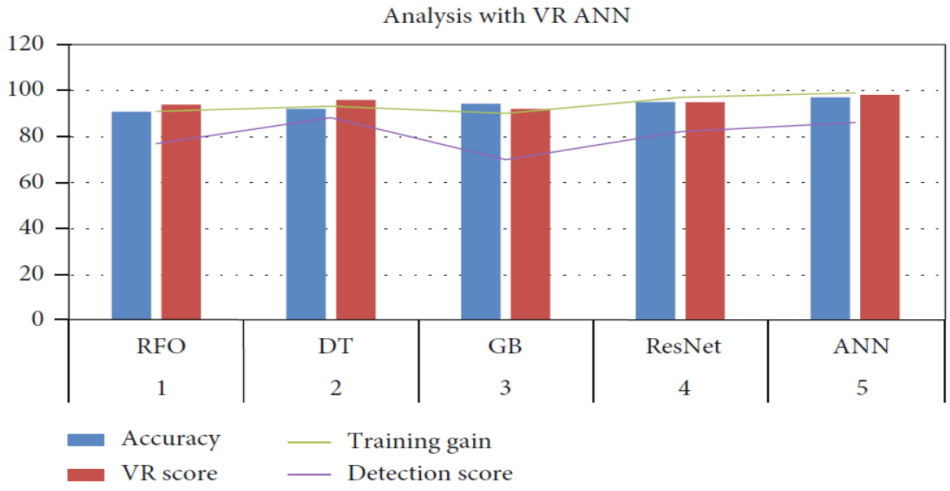

Figure 5: Analysis of Testing

Methodology

Two equal groups of followers, Group A and Group B, were made up of fifty students each. "Developing corporate communication skills with a specific emphasis on speaking" was the core theme of the weeklong programming for both groups of participants. Group B students practiced using augmented and virtual reality tools in a variety of settings, such as in-class discussions, spontaneous presentations, and public speaking. Students in Group A, on the other hand, got the hang of giving lectures orally even without the aid of VR or AR. After five weeks of continuous training with VR and AR gear, data was collected and student perspectives were analyzed.

They were exposed to a wide range of contexts during their learning time, such as conducting meetings or business networking events, dealing with coworkers, answering interview questions, giving presentations or keynote speeches, and providing feedback to peers. Students were invited to submit feedback on an exam administered during the last week of the course. The prescribed speaking practice showed that students in Group B could confidently reach 60% of their potential, while Group A could only manage 30%. Approximately 70% of students thought the class was helpful and enjoyable based on their responses. They may gain self-assurance and hone their communication skills using VR/AR-powered activities. The theory is thus accepted. Depending on the results of the ongoing studies, VR and AR will likely become very influential technologies in the not-too-distant future. The game industry may be the most visible user of virtual and augmented reality technologies, but that is far from the only one. A few business schools are currently using virtual and augmented reality, which will surely increase in the future, which is excellent news for most students.

Students from different degrees have different ways of thinking logically, but this study only uses students from one profession in its experiments. Consequently, the author will increase the sample size and the variety of analyzed items for the subsequent investigation. Listening is crucial, as shown in Figure 1. The listening and speaking scores of the experimental group were significantly higher than those of the control group (Figure 1). Possibly associated with superior language skills and linguistic awareness, the experimental group generally outperformed the control group on writing assessments.

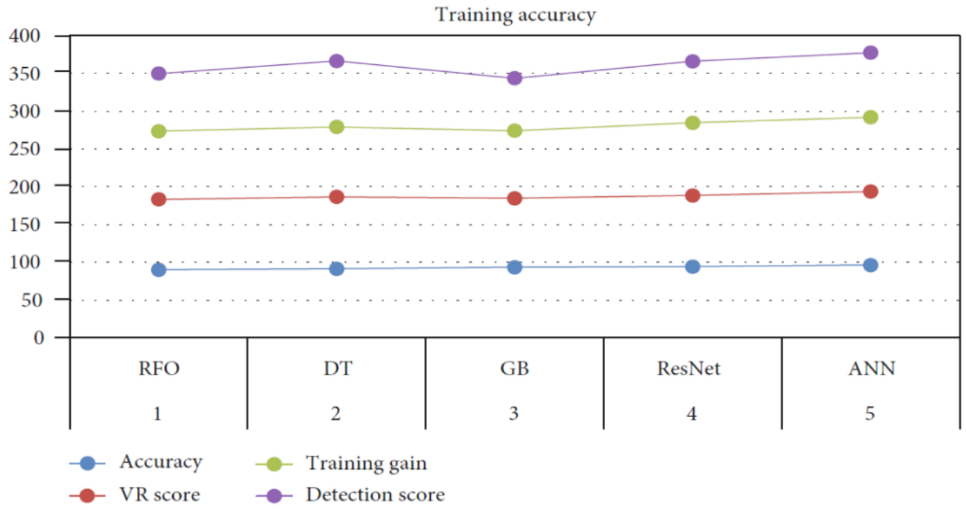

Figure 6: Analysis of Training

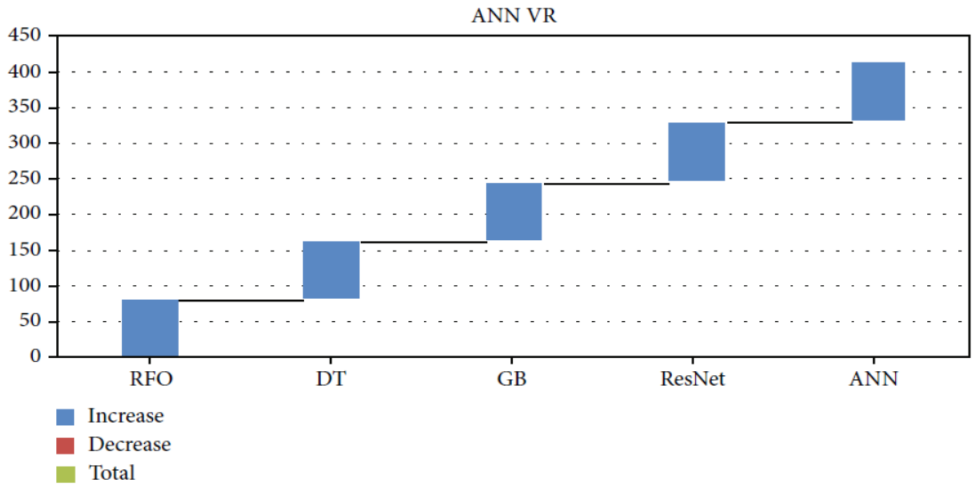

Figure 7: Virtual Reality ANN

The age distribution of the experimental group is shown in Table 1.

$$Z = \frac{\overline{x_a} - \overline{x_b}}{\sqrt{(s_a^2/n_a) + (s_b^2/n_b)}} \quad (1)$$

One area where virtual reality is helping companies out is e-commerce. The corporate world is likewise entering a new age with the advent of VR. A large number of trainers in this field employ this strategy. Virtual reality and augmented reality are so versatile that the learner can do things like look around the room and chat with people who are online. The learner will have an easier and faster time adjusting to the new environment. A vital component in the business world, learners will have a better mental image of the project. The student can save both time and money by using virtual reality to see the buildings in great detail while they develop them.

Augmented reality allows children to engage with and learn from nature. Virtual and augmented reality can be helpful tools for students studying architecture, engineering, and equivalent subjects. Using this technology, we could virtually visit different locations. Those in the real estate industry profit from what is often considered an essential commercial feature. Homebuyers can save time and effort by using the builder's virtual tour to get a feel for the site's layout and location before committing to a purchase.

The "VR Scenario" app is great for practicing spontaneous speech. By utilizing this program with a variety of business-related presentation slides, students can enhance their ability to think quickly on their feet. The slide is changed every thirty seconds. Students are expected to visualize the presentation and deliver their speech in line with it. While the student is speaking, we check their English proficiency and provide immediate comments to help them understand where they went wrong and how to fix it. Considering these benefits, a sample of one hundred students was surveyed. Algorithm 1 provides ANN for English dialogue samples based on virtual reality.

Though students from a constructivist perspective see teachers as information presenters, they still need to be able to impart their specialized expertise or claim to be the ultimate arbiters of truth. Since knowledge originates in and is a part of each student's unique body of knowledge, educators must pay close attention to how well their students understand and apply their own body of knowledge. Instructors are limited to providing students with guidance on enhancing or broadening their understanding. Students shouldn't just sit back and absorb new knowledge; they should be actively involved in making it their own. Consequently, students need classroom and instructor-led independent study (Figure 2).

Everything in the random access to instruction set has a unique purpose of learning and focuses on critical areas to help students succeed. The following instructions are included in it for their understanding: Connections. It provides students with an applicable situation relevant to the present learning challenge's key content; next, the learning process begins randomly. Cooperation among groups, part of the learning process, involves sharing what you've learned with a group in several settings (see Figure 3).

Table 2 showcases the architecture of the learning environment; online learning should be a space that promotes and supports knowledge; education should be encouraged and supported instead of strictly controlled.

Results and Discussion

Virtual reality has the potential to revolutionize education by creating lifelike simulations of every aspect of a subject. Innovative technology simulations are used to ensure students are safe during practice. Realisticism is the second consideration. Virtual reality (VR) situational education emphasizes the importance of students' practical ability. In routine classroom activities, students focus on a few topics because of space constraints. The training and experience methods differ from what students have learned in the past, and neither are the training methods themselves. In Table 3, you can see a comparison of different strategies.

Hardware, apps, software, virtual reality goggles, and gamepads are the bare minimum for virtual reality situational teaching; teachers should have prior expertise with VR technology and the appropriate hardware and equipment listed in Figure 4 for the best results.

Academic integrity: the course content must be appropriate for the student's current skill level, and the set-up of the scenarios must be plausible and in line with course standards. Some advantages of situational education based on VR technology include a variety of approaches that encourage students to think creatively, authentic information, a more visual educational scenario, and repeated experience to reduce the impact of the teaching environment—figure 5.

Life is the third component. The purpose of incorporating virtual reality into situational education is to provide a realistic learning environment where students may enhance their cognitive capacities. Complete the training objectives and design and manage the programmer to meet the specifications shown in Figure 6.

Learners may have the most excellent chance to enhance their communication abilities through integrated public speaking that uses virtual and augmented reality technologies, as shown clearly in Figure 7.

Conclusion

Virtual reality (VR) and augmented reality (AR) have the potential to enhance students' business language skills, according to recent studies. This study examines potential educational applications and techniques for enhancing communication in various corporate contexts. The potential of virtual reality technologies to improve English communication skills was demonstrated in a mixed-methodology study. In addition to offering numerous methods for enhancing Business English, it delves into the various virtual reality applications that have the potential to captivate and excite learners. Future research may delve further into this topic. To fill the need for virtual and augmented designs in many contexts and to identify the factors that influence collaboration in various activities, the study would involve a larger sample of respondents with varied degrees of English proficiency and education. One last thing: it would be great if AR/VR could be used in the classroom more often. Young postgraduate trainers place a premium on these items due to their motivating features and dependence on mobile smartphones. Through VR and AR technologies, learners can improve their communication skills in corporate public speaking.

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