17. AUGMENTED REALITY TECHNOLOGIES FOR FOREIGN LANGUAGE LEARNING IN HIGHER EDUCATION

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This paper deals with AR advantages in language learning. The benefits of using AR in studying foreign languages are highlighted. The potential and effectiveness of using this technology are discussed.

The demand for learning new languages in various sectors has led to a significant increase in the number of persons who study foreign languages. As a result, higher education institutions have witnessed an unprecedented surge in enrollment for foreign language learning. However, there are multiple challenges associated with learning a new language, such as a lack of motivation, negative attitudes, and limited resources. To overcome these problems, experts have proposed the integration of new technologies, including Augmented Reality (AR), into language learning. By usage AR technologies, virtual environments can be created to facilitate interactive learning and peer-to-peer communication, thereby improving a person's language skills. Despite the potential of AR to provide an immersive experience and address the challenges of language learning, its adoption rate remains relatively slow. Consequently, this study aims at analyzing and summarizing the educational benefits of usage AR technologies in foreign language learning.[1]

One of the significant advantages frequently attributed to AR in language learning is its ability to increase motivation, enjoyment, and reduce anxiety. Traditional learning approaches often lead to a decline in students' interest and motivation due to monotonous instructional methods [2]. However, AR introduces variety into the learning process, preventing monotony and boredom. The literature review reveals that learners perceive AR applications as motivating, engaging, and enjoyable, particularly when integrated with instructional materials. Additionally, AR applications further seem to influence students' emotional states, reducing stress and anxiety associated with language learning. Researchers suggests that AR can create a relaxed and enjoyable studying environment, making the language learning process more accessible.

Another advantage of AR is its ability to create immersive educational environments. Numerous studies have highlighted the positive effects of AR-enhanced modules on a student's engagement and attitudes. The interactive and visually appealing nature of AR applications enriches the overall learning experience. Compared to traditional and similar digital environments, AR environments have demonstrated best outcomes in terms of fostering positive studying attitudes and sustained focus on these activities. Some researchers found out that learners should be actively involved in the learning process rather than assuming a passive role with teacher-led instructions. AR applications enable personalized learning experiences and involve students in educational activities. When designers create AR-enhanced, student-centered instructional materials, they can offer students the freedom to choose from various exercises tailored to their individual needs. This approach allows students to study at their own pace.[3]

In terms of understanding, retention, and studying performance, several studies have reported positive outcomes associated with the use of AR in language learning. Researchers have observed significant improvements in students' learning performance and academic success when they are engaged with AR-enhanced language learning materials. Additionally, students have expressed the benefits of using AR applications for language learning. Nevertheless, not all studies claim that AR is superior to traditional teaching methods in terms of learning gains, researchers consider both approaches to be equally effective for language learning, and some even suggest that AR-based learning environments can exceed the success of traditional materials.

The research highlights the role of AR in facilitating understanding and retention, particularly in vocabulary learning. Studies underline that when combined with vocabulary training, AR can deepen students' understanding of words, moving beyond rote memorization. By providing multiple access points to learning content and offering real-life contexts, AR-based materials assist learners in understanding and memorizing the meanings of vocabulary and idioms. Researchers observed that the use of AR content, such as 3D objects, reduced the time required for students to comprehend words. Moreover, AR enables intuitive and interactive representations of 3D information. While many studies focused on visualizing concrete vocabulary, such as animal names, using AR, AR can also aid learners in understanding words describing emotions, spatial relationships, and other abstract concepts. Researchers highlighted the ability of AR to make the invisible visible as a significant advantage of this technology.[4]

Affordability is another advantage of AR that should be considered. To create affordable and engaging AR applications for language learning, mobile devices such as smartphones are perspective tools that enable mobile and creative AR learning environments. However, it is important to note that learning with AR by means

of smartphones or similar devices depends on a students' possibility of using this technology and supported platforms, or universities being able to provide them.

Since individuals have different learning preferences, cognitive styles, and needs, a single teaching method cannot be suitable for everyone. Depending on the learning context and content, some learners may prefer innovative instructional media like AR, while others may be more comfortable with traditional approaches. Additionally, not all teaching materials are suitable for every learning domain. For example, traditional methods are more effective than AR for studying word orthography. The combined use of traditional and innovative teaching materials will bring the greatest benefits to language learning. Therefore, instead of replacing traditional teaching approaches with AR, it is important to consider how AR can complement or enhance existing methods. Using traditional learning materials enhanced with AR, learners can feel more comfortable as they gradually adapt to the technology.[5]

The primary problems and limitations associated with AR technology primarily pertain to the effectiveness of student learning. The presence of moving images and animations has the potential to divert users' attention of users and hinder their focus. Additionally, AR systems, being relatively new, may require more time for learners to become accustomed to them in comparison with familiar tools. Moreover, similar to other instructional methods, AR technology can be influenced by limitations based on individual preferences. Non-visual learners may not benefit from AR technologies as visual learners, because it could potentially serve as a distraction and impede effective language acquisition. Furthermore, the physical limitations of users must be taken into account by developers of educational AR applications. The utilization of AR in learning settings has the potential to strain the eyes and create a discomforting learning experience.

Tracking and design issues are among technical concerns observed in AR applications. These issues can have a direct impact on learning experience. Students' anxiety levels can be influenced by technical problems encountered in AR applications, which can disrupt their focus and hinder their engagement with the material. Moreover, the quality of images, sounds, animations, and other AR content plays a crucial role in user satisfaction. Insufficient quality of AR content can lead to decreased user satisfaction and hinder learning efficiency. It is also important for developers of language learning applications enhanced with AR to consider the potential for cognitive overload caused by an excessive amount of information presented through AR. To avoid overwhelming learners and ensure optimal learning outcomes, it is important to balance the amount of information provided.

Introducing AR in the classroom requires meticulous attention to infrastructure, the availability of technology, required resources, and various other factors. This is crucial because the successful implementation of AR depends on a solid foundation. Additionally, developing AR applications that cater to the specific needs of universities can involve substantial financial investments. The cost of designing, creating, and maintaining such specialized applications can be significant. Moreover, for AR to be effectively utilized in classrooms, universities need to be equipped with the necessary hardware. The full potential of AR in educational institutions may not be realized without them. Therefore, careful planning and consideration are vital to ensure that the integration of AR technologies is both feasible and sustainable.[6]

In conclusion, the integration of augmented reality technologies with traditional methods of learning foreign languages has shown promising results. The combination of these approaches can lead to increased motivation, improved efficiency, and enhanced satisfaction with process of language learning. Such significant benefits as increased engagement, personalized learning experiences, and improved understanding and retention are received from using AR. However, there are challenges and limitations associated with AR, including potential distractions, individual preferences, technical issues, and infrastructure requirements. By considering the strengths of both traditional and innovative approaches and finding ways to incorporate AR as a complementary tool, language learners can benefit from the advantages offered by augmented reality technologies. Having considered the advantages of using traditional language learning methods and augmented reality technologies together, it is possible to conclude that the integration of this methodology into the educational system can bring great benefits.

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