



IMMERSIVE LEARNING: AN INNOVATIVE APPROACH TO EDUCATION

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Abstract:

Immersive Learning is a new approach to learning that engages learners in a simulated, interactive environment that mimics real-world experiences. Cutting-edge technologies like Virtual Reality (VR), Augmented Reality (AR) and mixed Reality being used in this approach create immersive experiences for the learners that stimulate their senses facilitating better engagement, deeper understanding and retention of knowledge. This paper explores the concept of immersive learning, its application, benefits and challenges also highlighting its potential to transform the educational landscape, if used judiciously.

Key Words: *Immersive Learning, Virtual Reality, Augmented Reality*

Introduction

The traditional classroom-based learning approach has been the basis of education for centuries. But with the rapid progression of technology, the way we communicate, learn and acquire information is undergoing a significant change. Immersive learning, a revolutionary approach to education is setting a new trend in teaching and learning by changing the way we learn and gain knowledge. Immersive learning is an educational approach that enhances learners' engagement with the help of simulated environment that gives real-world like experience in which learners feel totally immersed. This approach makes use of innovative technologies such as Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) to create immersive and interactive environments that simulate real-world experiences.

Theoretical Foundations

Immersive learning can be anchored to theories that emphasize the importance of direct experience, context and community in learning. David Kolb in his theory of Experiential Learning (ELT) posits that learning is the result of direct experience and reflection (Kolb, 1984). Jean Lave and Etienne Wenger in their theory of Situated Learning (SLT) takes into account the role of context and community in learning and stated that learners acquire knowledge and skills when they take part in community activities (Lave & Wenger, 1991). John Sweller in his Cognitive Load Theory (CLT) delineates that immersive learning can reduce cognitive overload and enhance learning by providing a more engaging and interactive learning environment (Sweller, 1988).

Immersion stands for a perception of being physically present in a non-physical world with the help of Virtual Reality and Augmented Reality which can be explained as:



Virtual Reality –



Virtual Reality (VR) is a computer-generated simulation of a three-dimensional environment that can be experienced and interacted with in a seemingly real or physical way. Virtual Reality technology immerses learners in a virtual world taking them away from physical environment by creating an immersive and interactive environment. Its of various types:

1. PC-based Virtual Reality – A computer with latest configurations is required to create high-end Virtual Reality experiences
2. Console-based Virtual Reality – Some VR experiences are designed for gaming consoles like PlayStation or Xbox.
3. Mobile VR – Students/users can have Virtual Reality experiences on their mobile devices such as smartphones or tablets with the help of VR headsets.
4. Standalone Virtual Reality – Self-sufficient VR headsets are also available that don't require a computer or console.

Virtual Reality (VR) can be used in Education, Gaming, Training, Healthcare and Architecture.

Augmented Reality –

Augmented Reality (AR) is a technology that overlays/adds digital information and images onto the real world using a device camera to capture the real world and display. Unlike Virtual Reality which creates a completely artificial environment, Augmented Reality enhances or augments the real-world experience by adding virtual objects, sounds or other sensory inputs. Users can interact with virtual objects and information in real-time. Augmented Reality enhances/augments the user's experience and interaction with their surroundings.

Augmented Reality (AR) can be used in Education, Gaming, Healthcare, Navigation, Architecture and Industries.



Key Differences between Virtual Reality and Augmented Reality -

1. Environment:

Virtual Reality creates a completely artificial environment, while Augmented Reality enhances the real world.

2. Immersiveness:

Virtual Reality is more immersive, shutting out the physical world while Augmented Reality blends digital and physical elements.

3. Devices:

Virtual Reality requires a headset or device, while Augmented Reality can be experienced on a variety of devices including smartphones and tablets.

4. Interactivity:

Both Virtual Reality and Augmented Reality are interactive but VR interactions are often more complex and immersive.

5. Purpose:

Virtual Reality is often used for education, entertainment and training while Augmented Reality is used for a wider range of applications including retail, healthcare and industrial uses.

Application of Immersive Learning

Immersive learning can be widely used in education and various other domains to provide practical knowledge and skills. Some applications of this approach that can be of great significance include the following fields:

- **Education**

Integration of immersive learning experiences in traditional classroom teaching approach can enhance students' engagement and retention resulting in effective teaching and better learning. Virtual tours to places of educational significance can be of great help when visiting such places is not practical or safe. Science students can enrich their knowledge by visiting virtual labs. Teachers can prepare subject-specific content for teaching through immersive learning.

- **Training and development**

Corporate training, military training and health care training can be provided through immersive learning experiences. 21st century skills like team-spirit, problem-solving and leadership skills can be sharpened through immersive learning experiences. Would be leaders can practice their skills in a safe place and can get instant feedback for improvement.



- **Inclusive Learning Environment**

Immersive learning helps in making the learning /working place more inclusive. It lets learners learn at their own pace without being judged. At workplace employees can practice being understanding to others. For instance, in France, Banque Populaire du Sud observed a big rise in feeling of comfort with disability issues after using immersive learning.

- **Therapy and Treatment**

Experiences in immersive learning can be used to provide exposure therapy, rehabilitation therapy and behavior modification skills to patients suffering from mild mental health disorders.

- **Entertainment and Tourism**

Immersive learning experiences can be provided for entertainment and tourism. All the students don't have the facilities and resources for visiting places of historical / educational significance like museums and theme parks. An engaging and interactive virtual visits to such places can be highly useful in such situations.

Benefits of Immersive Learning:

Immersive Learning can have an edge over other learning approaches as it offers a number of benefits that traditional instructional methods cannot match. Some advantages of immersive learning that are of great significance in education include the following:

1. **Enhanced Engagement**

Learners' motivation and participation increases if learning experiences are engaging and interactive. In immersive learning the experiences are so designed that learners feel immersed and engrossed in the experiences. It facilitates enhanced engagement which leads to better learning.

2. **Improved Retention**

Learning experiences provided through immersive learning stimulate learners' senses that helps in providing in-depth understanding and improving retention of knowledge. Learning gets effective as we can retain the attention of the learners throughout the learning experience and learning seems a fun when the learning experiences are presented in a visually appealing manner.

3. **Increased Transfer of Knowledge**

When students learn through immersive learning experiences, they get opportunities to apply theoretical knowledge in practical and real-world situations. This approach provides the learners a learning environment which is visually and physically highly interactive. Such an environment replicates probable situations and proves helpful in teaching specific skills and techniques which the learners can apply in real life scenarios.

4. Development of Soft Skills

Immersive learning boosts skill acquisition and retention. Through immersive learning experiences the learners learn the skills of communication, collaboration, leadership, emotional intelligence and problems-solving which serve as a passport for success in 21st century. Learners can practice and learn to handle difficult situations in a risk-free environment and get feedback at the same time.

Challenges and Limitations

No doubt immersive learning is very helpful for effective teaching and learning but it has some limitations as well. Some of the limitations can be summarized as under:

1. Cost and Accessibility:

Technology required for immersive learning is expensive. Consequently, all the institutions cannot afford to install required technical gadgets in their institutions. Hence access to such technology is limited.

2. Technical Issues:

Immersive learning experiences can be affected by some technical issues such as related to hardware and software. At other times, the learning can be hampered by technical glitches.

3. Development of Content:

Teaching through Immersive Learning requires development of subject specific content by concerned teachers. But preparation of high quality, engaging immersive learning instructional material is a significant challenge.

4. Assessment and Evaluation:

For any learning task to be effective, proper assessment and feedback to the learners is essential. Measuring learning outcomes and effectiveness of immersive learning experiences is not everyone's cup of tea as it is a complex task.

Conclusion

Immersive learning is an innovative approach to education that has the potential to transform educational landscape. If we can provide interactive, engaging and immersive learning experiences to students, it can certainly enhance learners' engagement, their retention and transfer of knowledge. Though there are many challenges and limitations to immersive learning, the benefits far outweigh the challenges. In the present era when technology is constantly improving and encompassing, the technical limitations too can be easily handled and managed. If the institutions can invest in sparing resources for updating their technical gadgets and the teachers are trained to prepare immersive learning instructional material and its assessment through faculty development



programmes, the day is not far off when we can expect to see widespread use of immersive learning in education.

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