Benefits and Challenges of Internet - Based Virtual Presentations

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Abstract

Educational platforms offer learning opportunities, training and programs using electronic means. This paper focuses on the way e-learning platforms make their way into the education system because they implement new technologies and allow more efficient use of material and human resources. The aim of the paper is to present virtual reality and augmented reality as a form of teaching because they are tools that provide a faster learning experience. The paper will also discuss the factors that limit the development of VR and AR although it is considered that the use of virtual reality adds value to traditional methods of presentation and learning. Participants are placed in specific learning situations, the ultimate goal being to improve learning, training and education methods, but also to encourage and develop creativity and interconnect study disciplines to strengthen students' involvement in education.

Key words: E-learning**,** multidisciplinarity, augmented reality**,** synchronous learning, asynchronous learning
J.E.L. classification: I29

1. Introduction

The introduction of the computer into the teaching process and computer-assisted learning foreshadow only qualitative changes in the teaching technology, an area that ensures the shortening of the time of objective evaluation of the qualities of the educational means and methods. Human existence itself is conditioned by learning and the newest trend in education, known and appreciated as the most effective and desirable so far, is e-learning. Known as e-learning or, more recently, as e-education, the concept of e-learning (or virtual) is represented by the interaction between the teaching-learning process and information technologies. Nowadays, the choice of the ideal teaching methodology is one that teachers have to think about, especially if they choose to use an applied methodology, flexible enough to be adapted to different learning contexts. A virtual learning environment (VLE) is a computer-simulated space where people can meet and interact to work together. This type of system is based on a virtual environment (digital classroom) that provides users (students and teachers) with a series of tools that serve the teaching-learning acts; moreover, through the use of computers and the internet, these tools have the role of adding value to the learning process of students.

2. Theoretical background

A programme of distance education studies may be offered entirely remotely or may be a combination of distance and face-to-face educational activities carried out in the schools. Remotely organised courses can use a wide range of training and communication methods, technologies and resources, such as video, audio conferencing or internet-mediated web techniques. Connecting to the Internet greatly increases the possibilities of cooperation between people located geographically apart. "Cooperative Learning is a structured and systematic training strategy in which small groups work together to achieve a common goal". (Oprea, Crenguța-Lăcrămioara, 2003). Online learning platforms are complex systems that offer educational institutions the chance to create and transmit

practical and easy-to-follow multimedia content. Thus, students can learn more easily, using more practical examples and enjoy a pleasant and interactive learning environment. Online learning can be done synchronously – in real time and asynchronously – during the time that each has at its disposal.

Synchronous instruction involves a structured learning strategy, in which teaching activities are scheduled at announced times, address study groups called virtual classes, and students benefit from real-time interactions. These courses can be offered by video conference, web conference, audio conference. Asynchronous online courses are courses in which students do not participate in teaching activities at the same time as teachers, and the content of learning is provided through study resources to which they have access. The training is based on materials dedicated to individual study, in print or digital format, implemented on specialized teaching, learning and elearning management platforms. Asynchronous online courses do not involve real-time interactions between participants.

Both synchronous and asynchronous learning require the use of tools and each has advantages and disadvantages.

Synchronous learning, virtual presentations made through virtual classes, involve the use of tools such as Zoom, Google Teams, Webex, Microsoft Teams. In this type of learning the teacher and students meet in a virtual classroom via computer or mobile devices. Students can see the teacher's presentation on the screen and communicate with the teacher using the microphone or writing in the chat area. If the presentation, teaching and learning take place through such a virtual classroom it is important to have an online space where the teacher posts all the study materials and activities in an organized way, such as a file from Google Drive. It is also important to establish a means by which students submit their homework. Divided applications (Whiteboards) are also a way of synchronous interaction, in which students participate by working as a team on the software application. There are two ways to use the application: as a means of learning how to use the application itself but also for learning concepts and skills. The advantages of this mode of interaction are the simulation of reality and the encouragement of group learning. In the case of asynchronous learning, through the eLearning platform, each teacher and student has an account in that platform. Each discipline is assigned a course, a space to which only the teacher and students in a class have access. In this course the teacher posts the studio materials, often in the form of presentations organized on lessons.

It is also important to have practical activities and exercises, interactive exercises and examples of solutions for each lesson. The teacher posts the homework and the students will upload their solution in response to that topic. In addition to homework, there may be assessment and self-assessment tests. Communication in an eLearning platform is done through discussion forums or direct messages. But, an eLearning platform can also allow the use / integration of virtual classes.

Competition and collaboration are practices that meet the modern school and are both necessary. Teachers need to balance the two forms of organization of educational work, creating learning opportunities focused on group activities that encourage competition and maintain constructive cooperation. "These two ways are by no means antithetical activity: actually, both involving at least a certain degree of interaction within the group, as opposed to individual behavior which takes place with little reference to other activities. Moreover, increased competition between groups occurs in the context of an intensive cooperation and momentum within the group affiliation." (Ausubel, David P, 1981).

The advantage of an eLearning platform is that it has all the tools for school activity management, student management and reports on who and when was present on the platform, who went through the study materials and activities, catalog of grades, various means of communication. E-learning platforms also have a number of other advantages, such as access to knowledge, at any time and from any location: students can collaborate and learn together, fosters creativity and the discovery of new interpretations, it allows access to new skills required by modern life, the teacher can address a much larger number of students than in traditional education. Materials can be customized, possibility to change the information disseminated, the interaction with the teacher is free, without constraints, the student can learn at his own pace, online education is organized by subjects, not by age groups.

3. Research methodology

The act of learning is no longer considered to be the effect of the teacher's actions, but the fruit of the student's interactions with the person who conducts the learning, with the computer, with the mobile phone, with the information sources made available (Internet, online collaborative learning environments). Education is going through massive changes and at an unprecedented pace. Technology has made its way to classrooms, enhancing the interactive elements and involvement that many students benefit from. Today's students are already familiar with various technologies, so computer tools and applications make sense in the educational environment. Technologies such as augmented reality (AR), virtual reality (VR) and mixed reality (MR), robotics and artificial intelligence (AI) are already changing the face of education. The combination of real and virtual can be designed to allow people to process information more easily. Classical methods are outdated and do not emphasize creativity. In the age of technology, imagination is the only limit. Our attention is divided in all directions, being increasingly difficult to channel. VR is the tool that helps to involve students in the learning process.

Education is an area that has adopted virtual reality for teaching and learning situations. Virtual reality is not only a fun and immersive activity for children and adults, but it has many benefits in education. Virtual reality in education can enable experiential learning by simulating real-world environments. Students can test their skills, record their work and interact with VR mentors. The advantage is that VR allows large groups of users to interact with each other within the same three-dimensional environment. VR can present users with complex data in an accessible way to make learning enjoyable and easy. Moreover, users can interact with these objects in the given environment to discover more information about them. Virtual presentations can also take place through the fascinating concept of virtual reality and augmented reality that questions the objective perception of time and space; students experience the learning process while in an incredibly real virtual world that they can explore.

The advantages of using virtual reality include overcoming the barriers imposed by time and distance, by focusing on the student and the possibility of bringing new methods of instruction into the teaching act. The virtual reality learning experience offers many advantages: it makes it easier for students to communicate between them wherever they are and facilitates global learning that promotes not only the acquisition of digital knowledge and skills, but also the understanding of different cultural and social perspectives through the international learning environment.

Virtual reality used in an educational context can also help students develop different perspectives on the environment. Virtual reality stimulates students' imagination, allows them to travel through time and space and enjoy unimaginable experiences. Students will become more involved in the educational act and find inspiration in landscapes around the world; following exposure to 3D content, they will better understand the theoretical concepts within the subjects studied – physics (balloon flight), biology (the surrounding world, the human body) etc. Immersion in a virtual world is one of the best ways to learn a foreign language. VR simulations are used by a large number of language learning applications. The virtual environments of some applications have been developed so well that the user's mind considers it to be plausible. Some applications allow students to connect with students around the world and communicate while playing games in a virtual universe.

The two approaches, in tandem, can facilitate multidisciplinary learning and enrich teamwork in a multidisciplinary context. All of these make use of the learning experience through virtual reality and increased interest for those who find social interaction difficult.

Moreover, adapting experiential learning to the online environment offers the opportunity to use new methods that, when incorporated into a clear digital education strategy, offer benefits to both students and those who teach them. Virtual reality is becoming more and more present in our daily lives, and today we are talking about how it and augmented reality are already revolutionizing education. Augmented reality technology extends to the real world by adding elements of digital information over what we can see with the naked eye, improving the environment by adding sound, video and graphics. Augmented reality has also been categorized as one of the most interesting

technologies that can be used in education because it brings into the current reality virtual elements and provokes the senses of participants.

In education, augmented reality applications offer new methods of learning, with virtual presentations forming a link between the real and digital worlds. The researchers reported the positive impact of learning with AR as opposed to the classical one, namely a better understanding of matter, learning the three-dimensional structure and its function, learning the association of language, longer-term learning, improved physical performance, improved collaboration, increased motivation from the students.

Researchers have also reported negative impacts of this type of teaching, all of which are easy to avoid with limited attention to one thing, difficulties in use, inefficient integration in the classroom, differences in learning between students. Augmented virtuality (AR) is a concept created by Milgram in 1994 to designate those systems that are largely virtual but contain image inserts from the real environment. AR is an imaginary layer superimposed over the real world, visible with the help of devices such as computers, smartphones, tablets, glasses and other devices that allow users to recognize this media that can consist of images, videos, sounds.

4. Findings

A situation of the use of augmented reality is when images of the surrounding reality are captured using a mobile phone; Subsequently, depending on the delimiters detected inside the first image, digital objects are added; the two sets of images are displayed simultaneously on the mobile phone screen. Augmented reality could have promising implications for the world of education in terms of animated lessons, virtual presentations that could become easier to understand. Interactive technology could also make education more efficient. Augmented reality in education can serve several purposes. It helps students easily obtain, process, and remember information. In addition, AR makes learning more appealing and fun. It is also not limited to a single age group or level of education and can be used just as well at all levels of schooling, from pre-school to college or even at work. Augmented reality apps can complement a standard curriculum by adding a graphic, video, text, or audio file to a student's studio material in real time. The benefits of augmented reality in education are multiple. Augmented reality has the potential to replace printed textbooks, offering portable and less expensive teaching materials. As a result, education becomes more accessible. No special equipment is required. Since most teens currently have a smartphone, AR technologies are immediately available for use by most target audiences. AR learning, which is interactive and marked by the concept of gamification, can have a significant positive impact on students. Keeps them engaged throughout the lesson and makes learning fun and effortless. Augmented reality apps offer enormous opportunities to diversify and eliminate boredom. Interactive lessons, in which all students are involved in the learning process at the same time, help to improve teamwork skills. AR in education helps students achieve better results through complete visualization and immersion in the subject. A picture is worth a thousand words. Therefore, instead of reading a theory on a certain topic, students can see it with their own eyes, in action.

Augmented reality has been applied in all subjects in higher education, including; environmental sciences, ecosystems, grammar, chemistry, geography, history and medicine. Virtual reality and augmented reality are special technologies that bring a new dimension to interactions with the digital world. Both come with a new set of opportunities for various fields, bringing with them the potential to make our lives easier.

Technology comes with its drawbacks. Technology is advancing day by day and not all people are up to date with the news. That is why there are often problems of using and accessing information or carrying out projects or themes. There are also situations of confusion and disorientation, hence the lack of motivation. Devices break down without warning, falling internet connection and freezing platforms can cause disasters for lessons, especially when the teacher covers important information or when students are at a crucial point in their classes. The same can be said when either the teacher or the student has started the course and is not given adequate time to check how the platform works. Without software knowledge, unnecessary delays can be created that have a negative impact on the learning experience. This can be combated by reading the user guides and making sure that the functionality has been tested before the lessons start. In a physical

classroom, it is often easier to encourage students to focus on the task at hand and not distract themselves. When working from their own homes, there may be other things to get their attention from the lesson. Of course, in a physics class, they can distract each other, and this is easy to avoid in a one-on-one lesson. But messages on your computer screen, pets jumping on your keyboard, and children who hear in the background, can lower the student's attention. Students studying online outside the teacher's regular hours may find that they lack guidance when they need it most. For example, addressing a particularly difficult task can best be avoided, as it can lead to confusion and frustration. Everyone has to study both in their time and in class with the teacher, and this should of course be encouraged, but focusing on reading or simpler tasks might be best suited for those for whom taking the course is quite difficult.

5. Conclusions

Virtual reality and augmented reality have proven to be new and evolving technologies applied in increasingly diverse fields that will completely change the real world. They will improve the experience of users in different fields, by developing another way of interaction and socialization. Both online and offline teaching environments offer a number of benefits as well as challenges. With the advent of VR and AR, geographical boundaries were easily exceeded, the decision to create virtual teams being a very simple and easy to adopt, based on lowering the costs of travel between locations and increasing the efficiency and productivity of these teams. The solutions to reduce the distance between these teams were by using VR and AR in organizing meetings so that people could see each other and even feel like they were at the same table in the same room. This reduced the sense of isolation and increased cohesion. Efficiency has increased because working in a virtual team has eliminated the disruptive factors present in interactions within a physical office, and using augmented reality you can work on a task while a colleague can give you live feedback on what you do.

6. References

- Ausubel, David P., Robinson, Floyd G., 1981. *Învăţarea în şcoală: o introducere in psihologia pedagogica* [*Learning in school: an introduction to pedagogical psychology*]. Buchares: Didactic and Pedagogical Publishing House
- Holmes, B. and Gardner, J., 2006. *E-learning: Concepts in practice*. California: SAGE Publications Ltd.
- Oprea, Crenguţa-Lăcrămioara, 2003, *Pedagogie. Alternative metodologice interactive* [*Pedagogy. Interactive methodological alternatives*]. Bucharest: University of Bucharest Publishing House.