Augmented Reality in Foreign Language Learning

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Abstract

Introduction and Aim: Enormous transformations are currently taking place in learning paradigms and practices. Today, the giant Internet upheaval combined with the capabilities of mobile telephone services is leading to a new form of learning based on the rapture of space and time in the use of knowledge, now free from the hard copies. Every teacher wants to use the appropriate mix of innovative training technologies and methodologies to attract today's students and to enhance the effectiveness of teaching. For that reason blended learning or "Augmented Learning" has appeared. Augmented learning describes learning that 'augments' or extends the traditional formal education, blending into it and using the new digital media based on the internet and social Media.
The aim of the paper is to present augmented reality for the future blended education and discuss its efficiency. Advantages and disadvantages of different innovative trainings have been discussed in many papers and reports. But the important questions that still haven't found easy answers are: Is augmented reality valid option for learning? Is the quality of experience higher than in traditional learning? The paper also presents augmented educational resources that have been developed and implemented in recent years in language teaching.
Research Methodology: To gain deeper understanding of the problem and to better answer the research questions about Augmented Reality descriptive and explanatory research methods are used. The paper also uses qualitative method to show the pedagogical effectiveness of ESL mobile apps.
Results and Implications: As a cognitive tool or pedagogical approach, augmented reality aligns well with situated and constructivist learning theory as it positions the learner within a real-world physical and social context, while guiding, scaffolding and facilitating participatory and metacognitive learning processes. Another benefit with augmented reality learning is there are no costs for making mistakes and errors, as they are not real. In addition, the contents in Augmented Reality can be designed in advance and change according to the human's input into the augmented reality system.
Conclusion: Augmented Reality has great potentials in education, more specifically in language learning. It can create a new era for situated learning by integrating itself with mobile learning and other concepts and technologies. With augmented reality, there would be no need to define the learning contexts and environments, as the real-world circumstances define them.
Key Words: Augmented learning, augmented reality, mobile-learning, context-aware, location-based

Enormous transformations are currently taking place in learning paradigms and practices. Today, the giant Internet upheaval combined with the capabilities of mobile telephone services is leading to a new hype in forms of learning based on the rapture of space and time in the use of knowledge, now free from the hard copies. Every teacher wants to use the appropriate mix of innovative training technologies and methodologies to attract today's students, and more important - to enhance the effectiveness of his training. Advantages and disadvantages of different innovative trainings as e-learning, mobile learning, virtual learning, etc., have been discussed in many papers and reports. But the important questions that still haven't found easy answers are: Which is the most effective training technology? How to reach and teach the new generation students more effectively? The best decision is to use effective combination solutions. For that reason blended learning has appeared. Blended education, hybrid learning - there are different names for this method. Blended learning combines different types of training technologies. Some of the most popular definitions are: "the combination of traditional learning and e-learning …",[1] "the combination of media and tools for training …", "the combination of a number of pedagogics approaches…".[2] M. Peris-Ortiz propose the term "Augmented Learning" to describe

learning that 'augments' or extends the traditional formal education, blending into it and using the new digital media, both computers and digital devices to this aim, with ubiquitous connection tools that offer different possibilities based on the internet and social Media. [3]

Practices and learning outcomes obtained with the above ubiquitous connection means and not tied to a physical location or a formalized schedule could also be called "connected learning", its main constraint being the possibility of access to interaction and content in digital format and distributed in the cloud (Clod Computing). The access takes place via the Internet through a broadband connection having sufficient bandwidth. Therefore, it can be said that it can occur "any time, any place".

Foreign language educators are also beginning to incorporate augmented learning techniques to traditional paper-and-pen-based exercises. For example, augmented information is presented near the primary subject matter, allowing the learner to learn how to write glyphs while understanding the meaning of the underlying characters.

The aim of the paper is to present augmented reality for the future blended education and discuss its efficiency. Advantages and disadvantages of different innovative trainings have been discussed in many papers and reports. But the important questions that still haven't found easy answers are: Is augmented reality valid option for learning? Is the quality of experience higher than in traditional learning? Does the usage of augmented reality for language learning yield better results than traditional methods? What are the benefits of using augmented language learning?

The paper also presents augmented educational resources that have been developed and implemented in recent years in language teaching.

To gain deeper understanding of the problem and to better answer the research questions about Augmented Reality descriptive and explanatory research methods are used. The paper also uses qualitative method to show the pedagogical effectiveness of ESL mobile apps.

There are two forms of AR currently available to educators: 1) location-aware; and 2) vision-based. Location-aware AR presents digital media to learners as they move through a physical area with a GPS-enabled smartphone or similar mobile device. The media (i.e., text, graphics, audio, video, 3D models) augment the physical environment with narrative, navigation, and/or academic information relevant to the location. In contrast, vision-based AR presents digital media to learners after they point the camera in their mobile device at an object (e.g., QR code, 2D target). [4]

The potential power of AR as a learning tool is its ability "to enable students to see the world around them in new ways and engage with realistic issues in a context with which the students are already connected" (Klopfer & Sheldon, 2010, p. 86). These two forms of AR (i.e., location-aware and vision-based) leverage several smartphone capabilities (i.e., GPS, camera, object recognition and tracking) to create "immersive" learning experiences within the physical environment, providing educators with a novel and potentially transformative tool for teaching and learning (Azuma, Baillot, Behringer, Feiner, Julier, & MacIntyre, 2001; Dede, 2009; Johnson, Smith, Willis, Levine, & Haywood, 2011). [5]

The assertion that AR could provide enhanced learning experiences is grounded in two interdependent theoretical frameworks: 1. situated learning theory; and 2. constructivist learning theory. Situated learning theory posits that all learning takes place within a specific context and the quality of the learning is a result of interactions among the people, places, objects, processes, and culture within and relative to that given context (Brown, Collins, & Duguid, 1989). Situated learning builds upon and extends other learning theories such as social learning theory and social development theory, which posit that the level of learning is dependent upon the quality of the social interaction within the learning context (Bandura, 1977; Vygotsky, 1978). The potential advantage of immersive interfaces for situated learning is that their simulation of real-world problems and contexts means that students must attain only near-transfer to achieve preparation for future learning.

Constructivist/Interpretivist theories of learning assume that meaning is imposed by the individual rather than existing in the world independently (Dede, 2008). People construct new knowledge and understandings based on what they already know and believe, which is shaped by their developmental level, their prior experiences, and their sociocultural background and context (Bruner, 1966; Vygotsky, 1978). Knowledge is embedded in the setting in which it is used; learning involves mastering authentic tasks in meaningful, realistic situations (Lave & Wenger, 1991). Learners build personal interpretations of reality based on experiences and interactions with others, creating novel and situation specific understandings.

As a cognitive tool or pedagogical approach, AR aligns well with situated and constructivist learning theory as it positions the learner within a real-world physical and social context, while guiding, scaffolding and facilitating participatory and metacognitive learning processes such as authentic inquiry, active observation, peer coaching, reciprocal teaching and legitimate peripheral participation with multiple modes of representation (Palincsar, 1998; Dunleavy, Dede, & Mitchell, 2009; Klopfer & Sheldon, 2010; Squire, 2010).

As AR advances, there could be significant benefits from the perspective of pedagogical effectiveness of experiential and collaborative learning processes. Pedagogical principles that are addressed by AR include physicality, embodied cognition, situated learning, and mental action.

Another benefit with AR learning is there are no costs for making mistakes and errors, as they are not real. In addition, the contents in Augmented Reality can be designed in advance and change according to the human's input into the AR system. Augmented Reality applications can also make textbooks "alive," which is thus defined as AR books. They are normally accessed in front of your computer's webcam, with digital information appearing.

Busy Teacher suggests the 9 best ESL mobile Apps for your students. [6]

1. Bussu - This language-learning app features more than 3,000 words and expressions and covers a wide range of topics through comprehensive vocabulary sections and interactive tests. Levels include beginner to advanced, and it is available for download on iPhone and Android (20 units are free and remaining content is available upon purchase).
2. **SpeakingPal English Tutor** - A very entertaining and highly-interactive app, it features a series of mini-lessons of approximately 5 minutes, so students have no excuses when it comes to making the most of idle time. The student interacts with the app through speech recognition software that recreates a real video call. It's available for download on iPhone or Android for free.
3. **Voxy** - This is a tremendously popular app, particularly in the Spanish-speaking market. It features news and stories on a variety of topics, and provides games for language practice, plus short quizzes to test comprehension. It can be downloaded for free on iPhone and Android
4. **MyWordBook** - This app was developed by the British Council in conjunction with Cambridge University Press and offers a wonderful, engaging way to learn new words through sets of interactive flashcards. Additional vocabulary packs may be downloaded from Cambridge dictionaries. Available for free on iPhone and Android
5. **Conversation English** - This app features 20 lessons, each with a video dialogue. The app gives learners the option to read the conversation and then answer questions and complete a variety of exercises. It's a great app for those who wish to practice more conversational English. It's available for download on iTunes.
6. **English Grammar in Use Tests** - Developed by Cambridge University Press and based on the successful Grammar in Use series, this app allows students to practice English grammar as a series of "tests" that are more akin to games. It's not free, but it's one of the best apps for students who want some grammar practice on the go. There is also a complete series of apps based on the Grammar in Use books available for iPhone.
7. **IELTS Master Vocabulary Guide** - This is the perfect app for students who want to take the Cambridge IELTS examination. It is the perfect complement to the book and helps students prepare for the test by providing plenty of vocabulary practice. It's available for download on iTunes as well as its other versions for TOEIC, TOEFL, etc…
8. **Cambridge Advanced Learners' Dictionary** - There is a large variety of dictionary apps available, most of them more affordable than this one (lots are even free!), but this dictionary is certainly more affordable than its print version. Definitely worth the price.
9. **Oxford Deluxe Dictionary and Thesaurus of English** - It is probably one of the most expensive apps available for English learners, but there are none more comprehensive than this one. This app basically contains the complete Oxford Dictionary, plus the thesaurus, with the added audio feature. It's ideal for students who have the money to spend and don't want to carry a big, bulky dictionary around.

Traditional ways of educating students have well-proven advantages, but there are problems with keeping students involved and engaged without innovative technologies. Today students are new generation learners and the education must be relevant to their needs. They are born with technologies and prefer learning in the digital world. Thus, Augmented Reality has great potentials in education, more specifically in eLearning. It

expands the definition and scope of augmented learning, which is brought into a next level. Augmented Reality can create a new era for situated learning by integrating itself with mobile learning and other concepts and technologies. With AR, there would be no need to define the learning contexts and environments, as the real-world circumstances we are grounded define them. A comprehensive one-suit-all learning materials would no longer be useful as each individuals can be the teacher and learner for themselves.

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