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AUGMENTED REALITY: A NEW WAY OF AUGMENTED ENGLISH LEARNING AND TEACHING

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This paper deals with augmented reality (AR) supported ubiquitous learning (u-learning) environment which is geared towards enhancing students' language learning. AR- learning and teaching integrate ubiquitous computing and information technologies. It is composed of two subsystems: an English learning management system and a u-learning tool. Besides, the article highlights the effects of the proposed learning environment on the learning performance of students, the case study of English learning. The learning improves the students' English activities, listening and speaking skills as well.

Keywords: Augmented reality, education, benefits, interactive technologies, eLearning, u-learning tool, a virtual world, learning environment, user interaction.

РОЗШИРЕНА РЕАЛЬНІСТЬ: НОВИЙ МЕТОД РОЗШИРЕНОГО ВИВЧЕННЯ ТА ВИКЛАДАННЯ АНГЛІЙСЬКОЇ МОВИ

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Стаття присвячена проблемі розширеної реальності, яка допомагає посилювати засвоєння мови у середовищі повсюдного вивчення. Методика розширеної реальності вивчення та викладання англійської мови об'єднує повсюдну комп'ютиризацію та інформаційні технології. Така методика складається з двох підсистем: системи управління вивченням мови та всюдисущого вивчення. Крім того, стаття висвітлює вплив запропонованого середовища на діяльність студентів під час вивчення англійської мови. Такий метод вивчення покращує діяльність студентів під час опанування англійської мови, а також аудіювання і говоріння.

Ключові слова: розширена реальність, освіта, переваги, інтерактивні технології, інтернет-навчання, всюдисуще вивчення, вертуальний світ, навчальне середовище, взаємодія користувача.

With the advent of technology, learning has become more manageable, personal, and engaging. It's doubtless that all educational establishments are populated with English language learners, educators to search for high-tech ways of teaching the lessons. Speaking populations have begun to see bilingual education not just as a method of learning or teaching, but as an opportunity to reinforce their cultural and linguistic identity.

Shameena Parveen, co-founder of Educational technology, said "For students to develop the needed skills, educational establishments need to move from a rote learning concepts and an 'I teach-you listen methods to a more active and participatory learning method where learners take responsibility for learning and are engaged participants rather than passive observers. More importantly, the skill we need our students to have is 'learning to learn' as in today's knowledge economy, we are constantly required to learn, unlearn and relearn" [5, 527].

Mobile language learning environments and activities being effectively developed aid listening and speaking, rare studies focus on investigating the use of context-aware ubiquitous and task-based collaborative learning strategies in improving the English speaking and listening skills of high school students in non-English-speaking countries.[1, p.10] An american linguist Alice Omaggio Hadley suggested that effective language teaching should provide more practice opportunities in real situations and should guide students to complete a task collaboratively. Thus, it is worth investigating how a context-aware u-learning environment and effective learning activities benefit listening and speaking skills.

Although the handheld-supported learning environments have been successful in mobile language learning, many issues are worth using, specifically high school students who study English listening and speaking in non-English-speaking countries. Reinforced by smartphones and tablets, self-studying allows students to boost productivity immensely. The ways in which students' listening, speaking, reading and writing abilities are critical issues in non-English-speaking countries. They can be improved by developing an effective language learning environment and learning activities that support English learning. It is an important topic in the computer-assisted language learning field due to Collins and Shih.

Among the most interactive technologies such as multimedia channels, augmented reality (AR), and mobile applications – all of which are designed to master the English language. Mobile learning (m-learning) offers a new way to infuse learning into daily life. M-learning uses mobile computing technologies to enhance the learning experience. Those technologies can be blended together to engage and motivate learners any time and anywhere.

Augmented Reality (AR) is a novel way of superimposing digital contents into the real context, is impacting the mobile communications industry by providing a radical shift in human-computer interaction [4, p.140], AR has been foremost applied in the areas of entertainment, retail, travel, advertising, and social communication.

Augmented Reality has great potentials in education, and more excitingly, opens a novel realm for, and even redefines, eLearning. AR offers an innovative learning space by merging digital learning materials into the format of media with tools or objects, which are direct parts of the physical space, therefore creating

"situated learning." Augmented Reality is well aligned with constructivist notions of education where learners control their own learning, through the active interactions with the real and virtual environments. AR-based eLearning can run on normal mobile devices such as iPhones, iPads, smartphones, PC tablets, etc. using a downloadable application. AR is now revolutionizing the way we teach and learn, making these experiences more entertaining and rewarding.

The contents of a virtual world can be as rich and diverse as human imagination can be. Augmented Reality can provide rich contextual customized learning environment and contents for each single individual. Learning activities vary with a broad diversity of learning processes underneath. These can be basically classified into two categories: constructive and analytical. Augmented Reality is well aligned with constructive learning notions, as learners can control their own learning and manipulate objects that are not real in augmented environment to derive and acquire understanding and knowledge. It has been explored that AR abides by the primary tenets of constructivist learning theory [4, p. 517]. The difference is AR does not trigger any consequence for their actions as would be the case in a behaviorist-learning environment [4,p.520]. There are proven benefits from interleaving theoretical and practical learning, and there is a growing need for innovative eLearning concepts and the associated enabling technologies, which can support such integration. From this specific perspective, AR can bridge this gap between the theoretical and practical, and focus on how the real and virtual can be combined together to fulfill different eLearning objectives, requirements, and even environments. For example, AR can be a link for connecting physical mock-up experience (from constructive activities) and abstract modelling (from analytical activities) in the context of eLearning in design.[5, p.25]

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 physically, embodied cognition, situated learning, and mental action.

Through AR, the textbooks are aimed to bring characters to life, allowing students to listen to them, expand their vocabulary, and polish their pronunciation skills. Augmented Reality applications can also make textbooks "alive," which is thus defined as AR books. They are normally accessed in Internet. The results revealed the learning curve of assembly novices was reduced (learn faster) and task performance relevant to working memory was increased when implementing AR training. Learning curve in this experiment was reflected by the assembly performance. When AR was used, the learning curve of trainees manifested a stark shortening and fewer errors were made. More specifically, AR reduces the time for the successful completion of an assembly and the number of errors relevant to working memory. AR also helps trainees to achieve higher performance with fewer trials and time, compared with traditional assembly.[6,p.801]

It should be concluded from above mentioned that 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 situation 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 suitable learning materials would no longer be useful as each individuals can be the teacher and learner for themselves. 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 situation 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-able learning materials would no longer be useful as each individuals can be the teacher and learner for themselves.

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