AUGMENTED REALITY IN SECOND LANGUAGE TEACHING AND LEARNING?

Panagiotis Arvanitis
Aristotle University of Thessaloniki (GREECE)
arva@frl.auth.gr

Abstract

In recent years, the use of information and communication technologies (ICT) has become widespread in second language teaching and learning contexts. The language teaching and learning processes encompasses and requires the use of authentic language multimedia and multimodal materials such as text, audio, video and images.

The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (abbreviated as CEFR) is widely adopted and accepted as the European standard for teaching and learning foreign languages. It’s implementation promotes the linguistic diversity within the European Union and additionally support the use of ICT as networks and digital tools at the service of teaching/learning foreign languages. In this context, the use of new technologies has become a key factor. The expansion of augmented reality (AR) meets the recent advances in mobile devices (iPhone and Android phone, tablets) and technologies that merge real world with augmented information leading to a new series of applications. Within this context, in this paper we first illustrate the current needs in teaching and learning second languages, according to CEFR, and then we discuss AR applications for second language teaching and learning.

Keywords: Augmented reality, mixed reality, second language teaching and learning, mobile language learning.

1 INTRODUCTION

The effort of teaching a foreign language and through language, culture and civilisation of others, still occupy all those involved in the linguistic educational process. In recent decades, the main principles of second language teaching, focuses on teaching language and culture as a whole, with a great concern about the means of communication in specific social based situations. Language is not anymore a set of a morphosyntactic rules or a vast and complex lexical system anymore, but a vehicle of numerous social and cultural indicators that cannot be transmitted only through a single teaching method, a basic computer application, or a scripted or simplified teaching material.

These communicative situations are imposed by the way the learner “react” with the taught language. Learners are now interacting with a variety of semiotic modes - through image, video, sound, new forms of written and spoken texts - in a complex multilingual communicative universe. The written and oral text performs a social act which is characterized by linguistic and textual diversity. Various textual types, single-mode, conventional, digital, or multimodal obey a set of specific building rules which allow a basic understanding of how social reality is organised.

1.1 The contribution of Web 2.0 in language learning

In the above context, the use of information and communication technologies (ICT) has become the recent years widespread in second language learning and teaching environments [9, 10]. More than ever, the language teaching process, encompasses and requires the use of authentic language materials such as text, video and images. We know already that in language teaching, the teaching materials should be tailored to trainees’ specific learning needs (sex, age, interests, etc.). Both teachers and trainees are often difficult to come into contact with sources of authentic speech, written or oral, that with native speakers.

A fundamental principle of language teaching is the maximization of the learner’s exposure to the authentic target language. Therefore, it is obvious that any facility which might enable users to come into contact with native speakers of the target language should be considered of significant value. The maximization of learner’s exposure to the authentic target language has been partially achieved,
recent years, through the use of ‘social software’ and new tools provided by web 2.0. [10]. The same tools also changing the traditional teacher’s role.

Expansion of web 2.0 possibilities offer both teachers and learners a vast, multilingual, intercultural corpus of sociolinguistic information. In the current teaching and learning processes, the use of theses authentic multimedia and multimodal materials is crucial. The modern tools offer access to multimedia material through media sharing mechanisms and websites, data storage services, podcasts, webcasts and screencasts. They also aim at using collaborative tools, wikis and real-time communication software. Digital presence through personal blogs, as well as participation in virtual classrooms, social networks and virtual 3D worlds are also encouraged [1].

All the software tools mentioned above that are described by the generic term ‘Social Software’ are used on a daily basis by millions of internet users of all ages, but especially by the generation of ‘digital natives’ [21]. From this viewpoint they offer a great potential as they provide solutions for two basic demands in language teaching; that is, access to authentic rather than scripted or simplified teaching material, and exposure to real, communicative situations [1].

But could we take a step further and integrate new technologies such as augmented reality in a daily process of mobile language learning? For this development we need a framework which specifying the general language notions and language functions in relation to certain themes and communicative tasks.

2 THE COMMON EUROPEAN FRAMEWORK OF REFERENCE FOR LANGUAGES (CEFR)

In late 90’s, the Common European Framework of Reference for Languages: Learning, teaching, assessment (abbreviated as CEFR) was launched by the Council of Europe. The appearance of CEFR marked a crucial turning point in describing specifications of language-learning targets. The framework, as a result of a decade of research, was designed to provide a “coherent and comprehensive basis for the elaboration of language syllabuses and curriculum guidelines, the design of teaching and learning materials, and the assessment of foreign language proficiency.” [4]. Vastly translated, in over 38 languages, today has become a common reference instrument for organising language teaching and certification in many European member States [4].

The CEFR, is widely adopted and accepted as the European standard for teaching and learning foreign languages. It’s implementation promote the linguistic diversity within the European Union and additionally support the use of ICT as networks and digital tools at the service of teaching / learning foreign languages [5]. Furthermore, the CEFR has developed a description of the process of mastering an unknown language by type of competence and sub-competence, using descriptors for each competence or sub-competence. The descriptors specify progressive mastery of each skill, which is graded on a six-level scale (A1, A2, B1, B2, C1, C2) [5, 6]. Based on the CEFR level descriptors, a new series of reference descriptions appears. These transpositions of the CEFR into a given language are known as Reference Level Descriptions (RLDs), identifying the forms of a given language (words, grammar, etc), mastery of which corresponds to the communicational, sociolinguistic, formal and other competences defined by the CEFR. [6]

2.1 Reference Level Descriptions (RLDs) for languages

Some of the instruments produced by the Council of Europe’s Language Policy Division are playing a decisive role both in language teaching and assessing. The Manual for relating language examinations to the levels of the CEFR [7] accompanied by the Manual for Language test development and examining for use with the CEFR promote methodological innovations and new approaches for the development of language programmes. As seen below, in Fig. 2, in a partial view of CEFR, it will be very useful to combine the interactive activities and strategies, by creating linguistic task based activities for use in augmented reality applications.
3 AUGMENTED REALITY

In this paper, we define Augmented Reality (AR) as a real-time direct or indirect view of the physical real world environment that has been enhanced / augmented by adding virtual computer generated information to it [3]. Kauffmann and Papp (2006) state that, "AR is a variation of VR. VR technology completely immerses a user inside a synthetic environment. While immersed, the user cannot see the surrounding real world. In contrast, AR allows the user to see the real world, with virtual objects superimposed upon or composed with the real world. Therefore, AR supplements reality, rather than completely replacing it." [15]. As seen below, in Fig. 2, Milgram’s Reality-Virtuality Continuum is defined by Paul Milgram and Fumio Kishino as a continuum that spans between the real and the virtual environments. By superimposing a computer-assisted contextual layer comprise Augmented Reality and Augmented Virtuality (AV) in between. AR is closer to the real world and AV is closer to a pure virtual environment [18, 23].
In other words, in the elements of the real world digital information added that provides to the users a spectrum of different types of information. In our case this information may be a set of linguistic task based activities that respond to end-users' inputs.

3.1 AR applications

As of today about a thousand applications [2] for the main platforms of iOS and Android devices exists. These applications have become more portable and widely available on tablets and smartphones. Most of theses devices are equipped with gyro sensors, acceleration sensors, digital compasses, proximity sensors and ambient light sensors. But only recently these devices have the capabilities of real-time video image processing and new display technologies. These capabilities making possible the appearance of a 3D environment that augment user's point of view [11]. New browsers like layar (www.layer.com), junaio (www.junaio.com), and wikitude (www.wikitude.com), allows this type of superimposition of augmented content layers on the surrounding environments.

Although much of the AR applications are produced for Marketing and Commerce purposes, in the educational area [11, 8], this new technology is still searching its role. The recent 2010 and 2011 Horizon Reports (joint report by The New Media Consortium and Educause) predicts that the use of augmented reality in education will be widespread in next years [12, 13]. This is because in Education, augmented reality:

- provides rich contextual learning for individuals learning a skill,
- appeals to constructivist notions of education where students take control of their own learning,
- provides opportunities for more authentic learning and appeals to multiple learning styles,
- has the power to engage a learner in ways that have never been possible,
- can provide each student with his/her own unique discovery path. [24]

Still, for Language Education, especially second language acquisition, a little work has been done. A few and very successfully examples are: Letters alive by Logical Choice Technologies, a flash card-type application with digital 3D animals for kindergarten level [17], and two mobile augmented reality translation Systems; WordLens by questvisual (www.questvisual.com) and translatAR [22].

4 MATURITY IS STILL AHEAD

Today, Computers Assisting Language Learning (CALL) or Technology Assisted Language Learning (TALL) possibilities are part of an everyday learning routine of many second language classrooms. However, CALL techniques cannot simulate real-world situations in the real world, or engage learners to a more communicative way. Is it possible that augmented reality applications, can transfer the language learning process out of the classroom walls? [16, 14]

This paper suggests the use of this new technology in relation with specific linguistic competences described by the CEFR. By adopting the action oriented approach of CEFR it will be very interesting to define which communicative linguistic competences (lexical, grammatical, semantic, phonological, Orthographic, Orthoepic), will be successfully developed with the use of AR. By creating sets of linguistic task based activities and different pedagogical scenarios, it can construct interactive activities that contribute to learning language aspects. Such an implementation will promote further the formal or informal mobile learning of foreign languages through the use of new digital tools.

REFERENCES


2771


