

Supporting Foreign Language Vocabulary Learning Through Kinect-Based Gaming

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ABSTRACT

This study aimed to explore the effectiveness of a Kinect-based game called Tom Clancy's Ghost Recon: Future Soldier to investigate possible contributions of game-based learning in a virtual language classroom at a state university in Ankara, Turkey. A quasi-experimental design where the treatment group ($N=26$) was subjected to kinect-based learning environments, and the control group ($N=26$) continued with traditional learning environments was used. All the participants were administered an achievement test as a pre-test, and a post-test. Moreover, the qualitative part of the study included post-study semi-structured interviews with 10 students. The findings showed that there was significant mean difference in student achievement in post-test scores in favor of the experimental group. In addition, the study explored the opinions of the students toward the use of gesture-based computing systems for instructional purposes. The findings suggested some important points to consider while making use of kinect-based games for educational purposes like interaction and learner motivation.

KEYWORDS

Computer Assisted Language Learning (CALL), Edutainment, Kinect-Based Game, Virtual Reality, Vocabulary Acquisition in English

1. INTRODUCTION

To describe English usage worldwide, Kachru's (1985) model divided it into three circles: Inner Circle, Outer Circle and Expanding Circle. Simply put, English is used as a mother tongue in the countries in the Inner Circle, and is spoken as a second language (L2) in the Outer Circle. Seeing as Turkey is in the Expanding Circle, in which English is regarded as foreign language, English language teaching is in 'unnatural' language learning environments, therefore students need virtual language learning environments more than other learning contexts to facilitate authentic language use. Currently, 'edutainment' provide educators assistance to fulfill educational purposes by creating entertaining virtual learning environments through combining entertainment with education in a general sense, and it definitely stands out as a noteworthy field of study. Virtual Reality (VR) environments have been used extensively in a wide range of fields, such as video games (Zyda, 2005), industrial applications (Dai et al., 1997), medical simulations (Kunkler, 2006), education and training (Zhang & Liu, 2012), and so on. VR environments are generally recognized as computer-based simulations and they enable the users to interact with virtual objects or people that are modeled on the real world (Gedeon, Zhu, & Bersot, 2012). Specifically, edutainment in English language teaching refers to supporting classes with attention-grabbing and motivating materials that are also entertaining. Games are among the edutainment materials that have been widely used recently in English language teaching.

Vocabulary acquisition has a considerable importance in second language learning. Especially, Perfetti and Stafura (2014) maintained that it has "a direct effect" on reading skill. Specifically, Braze, Tabor, Shankweiler and Mencl (2007) found in a study among the adolescents that vocabulary is

taken more into consideration in learning reading rather than learning listening (as cited in Perfetti & Stafura, 2014). With the integration of games into language learning, vocabulary acquisition has come into prominence in studies on game-based learning, and many practitioners have conducted research into fostering vocabulary acquisition through edutainment. New ways of integrating technology into English as a Foreign Language (EFL) contexts have been essential in order to make vocabulary learning more desirable (Basoglu & Akdemir, 2010). One of the leading trends is using multimedia in texts, since the learner is supplied with videos and images to understand the meaning of a word (Chun & Plass, 1996; Kayaoglu, Dag Akbas, & Ozturk, 2011). In addition to multimedia in text, multimedia glosses have been proven to be effective in vocabulary acquisition (Mohsen & Balakumar, 2011). Multimedia glosses have the capacity to add video, pictures and text. This feature makes them more popular than multimedia alone in text. Online environments are also very rich sources for L2 vocabulary acquisition. Massively multiplayer online role-playing games (MMORPGs), where a number of players can play online simultaneously, especially demonstrate evidence of being positive learning environments (Gee, 2007; Prensky, 2006). Moreover, MMORPGs have proven to be effective in vocabulary acquisition (deHaan, 2005; Piirainen-Marsha & Tainiob, 2009) and are successful in enabling a learner to acquire L2 vocabulary, especially via fostering learner engagement (Rankin, Gold, & Gooch, 2006; Rankin, 2008).

Most recently, modern educational games (computer and video games, rather than paper-based) have been incorporated into curricula so as to teach vocabulary in L2 since they are considered to be effective instruments for teaching difficult and complex procedures, as they use action instead of explanation, generate personal motivation and satisfaction, contain different approaches to learning and skills, strengthen mastery skills, and offer interactive contexts (Charles & McAlister, 2004; Holland, Jenkins, & Squire, 2003; Sheffield, 2005). These educational instruments are all functional tools for setting better learning goals.

A new instrument has become popular in this field: Kinect-based learning environments. Aiming to recognize the voice and gestures of a human and reflect those into a computer system (console) in order to control the avatar in the game or application, Kinect enables the gamer to control the game through body movements and voice. Since this system is relatively new to this field, a limited number of researchers have had the chance to try it in educational settings. Specifically, Homer et al. (2014) applied Kinect-based learning in order to enhance student literacy skills and vocabulary knowledge.

1.1. Purpose of the Study

As there is a limited number of research studies on the use of Kinect-based games in language teaching (especially in vocabulary teaching) and it is a relatively a new field of research, this study aims to explore the effectiveness of Kinect-based gaming ('Tom Clancy's Ghost Recon: Future Soldier', henceforward Ghost Recon) in vocabulary learning in an EFL context. With this purpose, instructional materials delivered through gesture-based computing technology in order to improve English language learners acquisition of military vocabulary were utilized. The opinions of students were obtained regarding the use of technological equipment (Kinect) which require body and voice command in English classes, following the application of these materials in a language classroom.

2. LITERATURE REVIEW

2.1. Receptive/Productive Vocabulary Learning

There are several ways of acquiring vocabulary items in a foreign language. Jenkins, Stein and Wysocki (1984) asserted that vocabulary knowledge is gained receptively through reading and

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