THE POTENTIAL CONTRIBUTION OF E-LEARNING IN THE ENHANCEMENT OF ENGLISH READING COMPREHENSION

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Abstract

The boom of online education occurred in the 2000s with the beginning of the computer age, when instructional design experienced relevant changes that led to the development of models, learning methods and new theories, such as the Learning Theory for the Digital Age, Connectivism. This research deals with e-Learning in the context of enhancing reading comprehension since Reading texts in English is important to Universidad de Cuenca students' careers. The aim of the study was to establish how a formal web-based course enhanced students' English reading comprehension. Quantitative pre and post-tests were administered to determine the participants' level of knowledge before and after immersion in the e-Learning course. Main findings showed a significant increase in the reading skills of the students who took the course using a formal web-based platform. At the end of the treatment an open-ended questionnaire was administered on-line via Google Forms in order to collect students' perceptions of their English learning journey through this innovative approach. Also of note is the fact that in the evaluation of the content in the formal web-based course, especially designed for this study, a large average of participants agreed or strongly agreed that the activities were well organized and stimulated them to participate. It is imperative to amplify and promote the implementation of e-Learning by sharing the beneficial aspects of its use as confirmed in this study.

Keywords: Web-based course, e-learning, connectivism, Moodle, reading.

1 INTRODUCTION

In recent years, educational institutions have been creating active e-Learning courses that include a selection of courseware; assembling, motivating, and rewarding students' participation in their online courses. The specific features are online training, provision of technical expertise, subject matter knowledge database, and interpersonal communication skills. Besides taking these features into account, the use of a web-based course provides both students and instructors with a wide range of educative tools for improving teaching and learning acquisition procedures [1].

Likewise, and in the context of this particular study, the real Ecuadorian setting inevitably makes English teachers feel worried about students' low performance average in their classes because of the lack of interest and motivation towards learning the English language. The lack of motivation in the classroom is evident, being that teachers are under pressure to finish an academic plan and must show evidence of both teaching and learning. It is mandatory to take standardized tests periodically. For this reason, students are stressed, unmotivated, bored and inattentive. The use of traditional teaching methodologies is common since teachers do not take advantage of technology. Teachers use the university's Moodle Learning Management System as a repository of material and not as an accurate educative environment with forums, online activities and visual aids. It is evident that there is a missed opportunity to benefit from the advantages the implementation of an accurate e-Learning model would provide. This situation has a serious effect on the development of English language skills, especially reading skills, which are essential to undergraduate students, since the majority of published research is in English.

Siemens (2005) [2] states today's students are growing up with technology because their lives are inundated by the use of computers, videogames, and various digital devices now necessary to daily life, like cell phones. The pervasive state of technology is very likely to have physically changed students' brains. Connectivism knowledge is a process that occurs within nebulous environments connecting specialized nodes or information sources. It is focused on connecting specialized data sets, and the connections that enable us to get knowledge learning anywhere, anytime and is therefore closely associated with mobile technologies. "The portability of computers and computing devices has blurred the traditional lines between formal and informal learning" [3]. Learning is more critical than what it is generally known, and can be applied by keeping in contact via non-human

applications to facilitate continual learning which is the product of a lot of connections in a huge network with the support of communication and information technologies, building new knowledge which is spread across a data network and can be stored in a variety of digital formats Arshavskiy (2017) [2].

According to [2], [4] with e-Learning, students can access courses anywhere at anytime, learning at their own pace and checking course materials online when needed. It is a great tool when the instructor wants to share information, not only with a group of students with varied time schedules and no specific class time but also with disabled and elderly people with limited mobility. Thanks to connectivism, learning occurs in a chaotic and complex environment. Knowledge and cognition can be found among a network of people and technology; and connectivism-based learning provides a setting in which students can access network nodes, as well as experience contact learning through communicative interaction and curated course content. Considering the Connectivism, instructors can also encourage students to share experiences and allowing them to build on prior knowledge and experience.

Besides, examining the contributions of e-Learning in the context of teaching English, Navidinia et al (2016) [5] conducted a qualitative-action research study in Birjand University of Medical Sciences in Iran. 60 medical students were allowed to use tools and multimedia facilities such as a tube channel, e-dictionaries, educational films, and e-textbooks to enhance their learning. The results showed that when English students were allowed to use tools and multimedia amenities such as a YouTube channel, e-dictionaries, educational films, and e-textbooks to enhance their learning, they became more independent, increasing their knowledge about their major and to be more motivated to learn English by reading and watching relevant materials on their field of study. Also, Qian (2018) [6] explored the application effect of E-learning in college students' English reading courses. A web-based E-learning system was designed in order to provide various learning and communication platforms for 230 college students, including knowledge presentation, online communication, and online testing. According to the findings it was stablished that a web-based e-Learning system stimulated students' interest in learning English. It gave play to the initiative and creativity of college students to improve their English reading ability in a short period of time. And from the point of view of most students, teaching Reading using a model based on e-Learning network teaching platform is modern and captivating, saving them from facing boring book knowledge every day. Because students are more interested in novelty, this teaching modality can stimulate students' interest in learning and enhance the interest in Reading, which is beneficial to students' active participation in activities and improves learning efficiency.

Likewise, Gluchmanova (2016) [7] designed an on-line course in Moodle platform in order to develop autonomous English learners. The material was unloaded to the platform. Students performed simple exercises that included listening, reading, vocabulary and grammar in part by typing in various specialized topics and assigned tasks in three languages. At the end of the course most students reported greater satisfaction from, engagement in and motivation for learning. Thanks to the innovative format, outdated and existing language training materials and resources could be linked to new online content, stimulating great interest in the students in foreign professional issues. The students recognized that the application of the latest technological achievements in a learning environment was very attractive and practical, because everyday language and form converge and simulate how they are used in everyday life [7].

Rice (2015) [8] defines Moodle is "a free, open source learning management system that enables you to create powerful, flexible, and engaging online learning experiences". Brandl (2005) [9] states that "the design of Moodle is based on socio-constructivist pedagogy. This means its goal is to provide a set of tools that support an inquiry- and discovery-based approach to online learning it purports to create an environment that allows for collaborative interaction among students as a standalone or in addition to conventional classroom instruction"; instructors have to take in mind that the so-called Net Generation students are characterized by the ability to perform several tasks at the same time and who prefer to learn through visual cues and interactive cooperation [7].

In [4], [10] an e-Learning course has to be designed based on John Keller's ARCS Model of motivational design which is a systematic approach to designing motivational learning. It consists of four steps for promoting motivation in the learning process: 1. Attention: Elicit learners' interest and curiosity; 2. Relevance: Show the importance and usefulness of the content; 3. Confidence: Include challenging but doable activities; 4. Satisfaction: Make the overall experience positive and worthwhile. Intrinsic motivation was also taken into consideration to activate the internal ambitions of developing a specific skill, in this case, reading. Extrinsic motivation was an important key to accomplish activities in

order to get something in exchange for good grades. In fact, building courses that allow students to scaffold their knowledge with experiential and prior learning can give rise to a very solid approach. Students will be able to do more with the knowledge, particularly if the course has to do with applied knowledge and skills.

This study is focused on encouraging English as Foreign Language (EFL) teachers to take advantage of the technological instruments available to them, since both computers and the Internet have come to play an important role in the acquisition of a foreign language. They are considered effective resources in the promotion of English learning through the use of different tools and activities such as forums, chat-rooms, guided tasks and e-reading.

To carry out this research, a free on-line English course was designed based on John Keller's ARCS Model of motivational design and the assumptions stated previously. This course was developed in the virtual platform of Universidad de Cuenca called E-Virtual, which is powered by Moodle. This web-based course was focused on helping students improve reading comprehension. In view of the study purpose, the following research questions were posed:

1   How does the implementation of the formal web-based course influence students' reading performance?

2   What is the level of students' reading proficiency before and after their immersion in the formal web-based course?

3   What are students' reactions to the content and interface of the designed platform?

2   METHODOLOGY

2.1   Participants

Regarding the participants, the study was carried out with 57 people: 11 men (19.3%) and 46 women (80.7%), students of the Universidad de Cuenca who studied English Level 3 during the period September 2017 through February 2018. 49.1% (n = 22) of the participants were medical student improving their preparation. The rest (n = 35) were divided among 14 other fields of study. Students ranged in age from 20-30 years old, and their English level proficiency was B1 CEFR level. The participants took the web-based course for eight weeks, for two hours per week.

2.2   Data collection procedure

The intact group received a treatment for a period of 16 hours by means of interactive reading activities on Moodle. The researchers and the intact group worked synchronously, asynchronously and in cohort.

Learners who acquire knowledge through e-Learning have to be tested in a classroom or work setting by a peer, supervisor, or instructor. The post-test was administered at the end of each lesson, module or course; according to the testing objectives, the tester will decide when the post-test is given and how it will be scored.

The reading tests contain three sections and they take 60 minutes to complete (approximately 20 minutes per section). The maximum score of each test is 18 points. Each section contains different question types such as table completion, matching headings to paragraphs, identifying information, true/false/not given, and choose the correct word.

These tests were piloted and validated before being administered. Each test had the same structure but with different content.

The researchers as well as the students actively gathered relevant information throughout the course. A formal web-based course questionnaire was administered to the students in order to determine weaknesses and strengths of the course and the students' feelings and motivations using it. This questionnaire was administered online through Google Forms. The questionnaire was validated by two colleagues who are involved in researching about Reading. The questions were previously applied to some people and were then edited for greater clarity.

3   RESULTS

The results are presented in three phases. The first phase corresponds to the analysis of the students' reading scores. The second phase is the analysis of the improvement of the students' reading skills before and after the use of the virtual platform. This is expressed through measures of central tendency and dispersion. The statistical test of normality Kolmogorov Smirnov test revealed a non-normal behavior in the data, so the non-parametric Wilcoxon test of signed ranges was used, which allows the existing changes in related samples to be determined. Moreover, in the third phase, the final reaction of the students to the treated content, the platform and characteristics of experiences are shown. The data are expressed by absolute and percentage frequencies. For a better understanding and visualization, cakes and boxes, and whiskers diagrams were used. The data processing was done in the SPSS 23 statistical program and the edition of tables and graphs was completed in Excel 2016. The decisions were made with a significance of 0.05.

3.1   Students' reading scores

Before the treatment, the reading proficiency scores were between 4.50 and 19 points, with an average of 11.57 (Standard Deviation = 3.4). After the treatment, web-based course reading proficiency scores were between 9.97 and 18.58 points, with an average of 14.45 (SD = 2.18). Nine students (15.8%) decreased in scores, 45 students increased in scores, and 3 students maintained the same scores before and after the web-based course. These changes were found to be significant (p = 0.000), reflecting an increase in the average score by 2.88 points. (See Figure 1.)
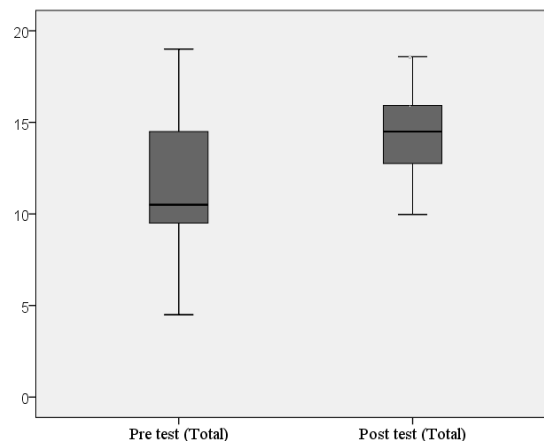

Figure 1. Total pre- and post-test median scores.

3.2   Skills developed

In order to identify the most developed skill post treatment, the ratings were weighted so that the criteria were evaluated on 6 points. The least developed sub skill pre-treatment was "Understanding Details", with an average of 3.14 points (Standard Deviation = 1.32), while the most developed sub skill was "Understanding Main Ideas" (Mean = 3.63, SD = 1.31). After the use of the electronic platform, the skill with the lowest rating was "Understanding Details" with an average of 4.01 (SD = 1.32) and the skill with the highest rating was "Understanding Main Ideas" (M = 4.56; SD = 0.93). Although, the strongest and weakest skills remained the same pre and post-treatment, there were significant increases in student scores after taking the web-based course. The skill with the greatest change in score was "Understanding Main Ideas", with an average increase of 0.93 points. Details in Table 1.

Table 1. Reading Skill levels pre- and post-treatment.

Skill	Pre test				Post test				P
	Min	Max	Mean	SD	Min	Max	Mean	SD	
Making inference (/6)	0.00	6.00	3.58	1.54	2.25	6.00	4.38	0.98	.000*
Understanding details (/6)	0.50	5.50	3.14	1.32	0.88	6.00	4.01	1.32	.000*
Understanding main ideas (/6)	1.13	6.00	3.63	1.31	1.50	6.00	4.56	0.93	.000*

3.3 Students' reactions to the web-based platform

Regarding their experience rating, 39.5% of the students rated their user experience as 'Excellent', while 34.9% rated it as 'Very Good', 23.3% as 'Good' and 2.3% as 'Poor'. (See Figure 2.)
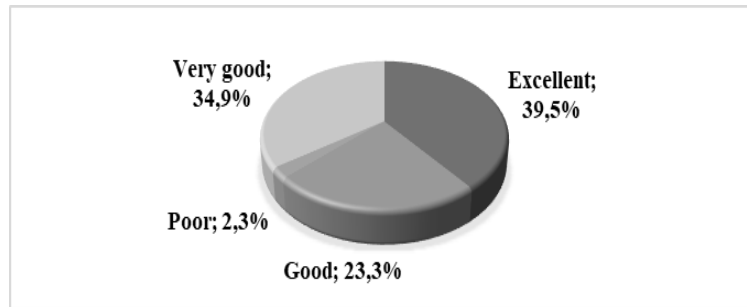

Figure 2. Experience rating

With reference to the evaluation of the content of the online platform, 90.7% of the students (n = 52) agreed or strongly agreed that the test and quizzes accurately measured what they learned in this course and that the methods used reached course objectives. Regarding the activities used in the forum, 74.4% (n = 42) of participants agreed that they motivated discussion. In addition, 76.6% (n = 44) agreed that the instructions given were clear and easy to follow.

The time chosen for exams and tests was considered sufficient for 79.1% (n = 45) of the students; 18.6% considered it neutral and 2.3% insufficient.

On the other hand, with reference to the perception of the use of the platform, it was found that 48.8% (n = 28) of the students agreed that "The course was supported by adequate sources (videos, web pages, charts, and others)". The interface of the platform (connection between two systems, programs, devices or components) was rated as very adequate by 27.9% (n = 16) of the participants, who stated that they strongly agreed with the statement "the interfaces worked flawlessly on my device"; the same number of students strongly agreed that the instructor provided helpful feedback on their work. The organization of the activities was rated highly by 97.6% (n = 56) of the users. Finally, 39.5% (n = 23) strongly agreed that the activities stimulated interest in the subject. (See Figure 3.)
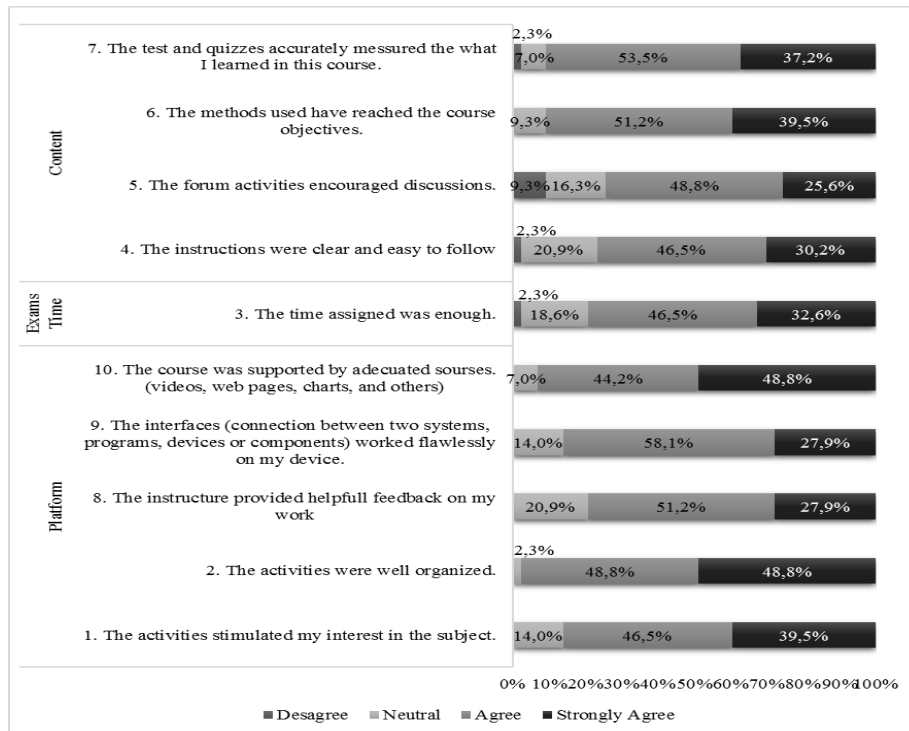

Figure 3. Perception about platform and content

4   CONCLUSIONS

The objective of this investigation was to determine the influence of e-Learning (formal web-based course) on students' English reading performance.

This study is in line with Navidinia *et al* (2016) [5] since it was confirmed that e-Reading stimulated interest in the subject; videos, and web pages motivated participants who really enjoy working online to learn the language. e-Learning can enhance students' language proficiency and facilitate the teaching process, and, moreover, it helped them to learn faster and expand their repertoire of knowledge of the English language. Activities through the Moodle platform became a motivating e-Learning resource that encouraged students to actively get involved in the tasks that improved their reading skills.

The findings from this study are consistent with Gluchmanova's (2016) [7] assumptions that: in e-Learning students can access courses at anytime and anywhere, learning at their own pace and checking course materials online when needed, and that e-Learning is an important option when a busy schedule or other situations prevent learners from attending in-person classes; training is perceived as enhancing cognitive skills; and, creating interactive online content is cheaper than the traditional classroom setting.

The results taken from this study confirm that the students' reading skills increased meaningfully using a formal web-based course. Likewise, it confirms Qian's (2018) [6] Model of motivational design which promotes motivation in the learning process as a good way to design highly effective learning experiences, keeping in mind that students have different goals, desires, and needs; and intrinsic and extrinsic motivation must be considered to ensure the effectiveness of course design.

The use of the electronic platform helped to enhance reading skills, such as making inferences, understanding details and understanding main ideas, in the students who took part in the research, according to the significant increases in student scores after taking the web-based course. The skill with the greatest positive change in score was "Understanding Main Ideas".

Also of note is the fact that in the evaluation of the content of the formal-web based course designed especially for this study, a large average of participants agreed or strongly agreed that the test and quizzes accurately measured what they learned and that the methods used did reach course objectives. Regarding the reading the activities used in the course, participants agreed and strongly agreed that they were well organized and stimulated them to participate. In addition, the participants agreed that the instructions given were clear and easy to follow, and the time chosen for exams and tests was considered sufficient for the majority of the students.

It is suggested that the implementation of e-Learning can provide a solution to students' dilemma when reading in English. It takes away the issue of expensive books, as there are so many free electronic books available. e-Books can be interactive with pictures, audio and video, which can improve the author's message. Currently, e-Books help students read in foreign languages, because students do not have to stop and search the dictionary for a word they do not understand, they just click the word and the meaning of the word displays on the screen, and they can underline and take notes about grammar points as well.

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