AMERICAN UNIVERSITY OF ARMENIA

Department of English Programs

The Effect of Using Online Language Games on EFL Learners' English

A thesis submitted in

partial fulfillment of the requirements for the degree

Master of Arts in Teaching English as a Foreign Language

By

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We hereby approve that this thesis

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Entitled

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Be accepted in partial fulfillment for the requirements of the degree

Master of Arts in Teaching English as a Foreign Language

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DEDICATION

To my Mother

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ABSTRACT

This paper reports a research study on the effectiveness of online language games on EFL (English as a Foreign Language) learners' English. This paper also investigated the question, if the integration of computer games affects Armenian EFL learners' level of engagement. Twenty two Armenian EFL students and one teacher, also the researcher, participated in this quasi-experimental study. The study lasted for approximately ten weeks. The experimental group learnt a set of vocabulary and grammar items from a number of selected online language games, while the comparison group learnt the same words and structures through paper-based activities. Both groups took pre and post achievement tests in the second and tenth weeks respectively. Checklists were distributed among the parents of the students in the experimental group throughout the treatment and following the treatment (after students completed the post-test) the student questionnaire was administered. The findings indicate that the experimental group statistically outperformed the comparison group in the post-test. The experimental group students generally expressed their preferences for online language games to traditional paper-based activities. Lastly, the parent checklist results revealed that educational digital games motivated the Armenian elementary level students and engaged them in their English learning.

CHAPTER ONE: INTRODUCTION

Researchers and educators believe that the new generation of students is essentially different from former generations. Contemporary students – often times called as 'digital natives' (Prensky, 2001, p. 1) differ from the pre-digital and past generations a lot. They were born and raised in the digital world of computer games, social networks and hypertexts. These students have different styles and needs, they require different educational approach (Prensky, 2001).

With education moving towards the new computer teaching and learning mode, the use of digital media and technologies has recently become prominent and popular. English teaching and learning is getting easier with available multimedia materials. Online language games are among the new multimedia approaches utilized for English teaching and learning.

Language learning depends largely on the amount of exposure and engagement in the target language. Computer games seem to have the capacity to sustain the players' interest and keep them engaged, hence exposed to the target language.

Computer games have recently become popular in education and are often considered as potential tools in language teaching and learning. They are claimed to provide contextualized learning; enable students to control their learning and become autonomous learners; develop critical thinking and problem solving skills, improve and practice technical as well as language skills (Barab et al, 2010; Salen & Zimmerman, 2004; Prensky, 2001; Gee, 2003; Ito, 2010; Squire, 2006; Papert & Harel, 1991; Rieber,

1996; Watson, 2007). Researchers believe that due to their motivating feature computer games are appealing to contemporary students; they can change students' attitude towards their learning and promote effective learning process (Baltra, 1990; Fengfeng, 2008). Online language games appear to change English learning mode and educators have recently become interested in the matter.

Nevertheless, there are few research studies of computer games' impact on foreign language learning (Turgut & Irgin, 2009) and the above mentioned claims need to be tested and empirical evidence is still needed to investigate computer games' potential in EFL environment.

Weather such projects can be applicable to Armenian students is a matter of investigation since there is no similar research conducted in the area and no strong empirical evidence shows Armenian EFL students' preference for computer games. However, Wood's study and many other studies indicate that carefully chosen and appropriately used computer games can be beneficial to language learning. Thus, based on the findings reported by different studies on the topic this study is designed to examine if online games can facilitate Armenian EFL students' English learning.

Thus, this research paper aimed to investigate language games' effects on Armenian EFL students' English language development as well as learners' attitudes towards and perceptions about the use of online games to learn English.

It is hypothesized that online language games can better facilitate target language learning than paper-based activities. Thus, the study seeks to examine the usefulness of online language games as opposed to paper-based activities. This ten week quasi-experimental study focused on 22 elementary level Armenian EFL learners.

1.1 Significance of the Study

Different authors have documented different research projects on online language games in education and in language learning. However, there is a need to understand to what extent online language games can better promote EFL learning process in Armenian environment. Online language games seem to provide more exposure to learners' target language as well as interesting and free time learning. In this regard, this research study aims to discover if online language games can facilitate English learning at home in learners' own free time. More importantly, the study seeks to compare the effectiveness of online games and paper-based activities. In addition, the findings may also shed light on the extent to which online language games can engage Armenian EFL learners in their English learning. Moreover, the results of this study may be useful in identifying Armenian learners' attitudes towards and perceptions on the use of online games to learn English. Finally, since online learning is a relatively new approach to language teaching and many Armenian schools are not yet aware of this new method, the study may provide an introduction and initial guidance to language instructors who want to use digital games in their classrooms.

1.2 Research Questions

The research questions of this study are as follows:

1. *Is there a relationship between online language games and EFL achievement?*
2. *Does the use of online language games affect students' level of engagement?*
3. *What are students' perceptions about online language games as homework activities?*

1.3 The Structure of the Thesis

The thesis comprises five chapters:

Chapter 1 introduces related background to the current study, present research questions as well as the significance of this study. *Chapter 2* reviews relevant literature related to the current study. *Chapter 3* describes the methodology that was used for this research project. It introduces research design, the participants of the study, instrumentation as well as data collection procedures. *Chapter 4* presents statistical analysis of the data of this study. *Chapter 5* summarizes the findings of the study, presents several limitations of this study, offers a number of pedagogical implications and finally suggests implications for future research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Defining Computer Games

What Is a Game?

Language games do not aim to merely break the ice between students but rather help learners to learn and have fun and use the target language in the course of the play. Games should be enjoyed and fun. Schell (2008) describes a game as a set of rules that define a goal and adds that a game is a problem-solving activity, approached with a playful attitude. Vygotsky's (1978) theory on play and learning proposes that play creates a zone of proximal development of the child. In play a child always behaves beyond his average age, above his daily behavior; in play it is as though he were a head taller than himself. Sorensen & Meyer (2007) define educational games as digital games and tools with an agenda of educational design and beyond entertainment and they have learning as a distinct key word.

There are several different definitions of games proposed by many other authors.

A game is a closed, formal system that engages players in structured conflict, and resolves in an unequal outcome.

Tracy Fullerton, Christopher Swain, and Steven Hoffman

A game is a system in which players engage in an artificial conflict, defined by rules that result in a quantifiable outcome.

Katie Salen and Eric Zimmerman

Salen and Zimmerman (2004) discuss goals and r*ules* as the defining properties of games. Juul (2003) describes a game as "… *a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts an effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable*" (p. 8). The description of a game comprises goals and sets of rules thus goals and rules are the two fundamental properties of games (Franciosi, 2010).

2.2 Computer Games in Language Learning

In a language learning context games are perceived as conceptual models (Gee, 2005) that are applied in learning processes. Games have long been recognized to have critical components that can provide stimulation in language instruction. Games have often been considered as the fun factor of learning and have thus often been used in language teaching practices to stimulate motivation and participation and keep learners inspired and engaged in their learning (Warschauer, 1996).

According to Warschauer (1996) when learners play games in online environments they first of all point the importance of their individual actions as a significant learning practice. While playing in off school environments learners view and use language as a means for gaming not as a final goal as it is the case with their school activities. Hence for learners language learning gains meaning and becomes purposeful.

Warschauer and Kern (2008) discuss paradigmatic shifts in the history of language teaching with technologies. As argued by Kern and Warschauer in the past 40

years language instruction has undergone continues changes: “the focus of instruction has broadened from the teaching of discrete grammatical structures to the fostering of communicative ability” (Warschauer & Kern, 2008, p. 1). According to Warschauer and Kern the role of technology in language learning has changed from practice with extensive language drills, grammatical explanations and translation tests, to more communicative based contexts where task-based, project based and content-based approaches are involved. In continuation of this, Warschauer and Kern add that language teaching has not only become considerably more complex, but also “more exciting”.

Games are considered as a resource with a potential to provide a meaningful environment for language teaching and learning (Gee, 2005; Kossuth, 1985). In addition to this, games should be viewed as critical models for designing educational materials for language teaching and learning.

As argued by Kossuth while playing games users do not think about language they use but only about their actions. Therefore, Kossuth states that games can serve as a base for the transformation of drill-based to context-based learning. By thus learners’ performance and engagement will be increased as they may be more willing to be involved in game-based activities and engage more which in its turn will lead to higher achievement and more comprehension obtained by learners.

Gee (2005) claims that since fruitful thinking involves building simulations in our heads that prepare us for action, thinking is itself somewhat like a video game, given that video games are external simulations. This claim supports the above mentioned theories and ideas about game-based language learning. According to Gee (2005) schools generally focus on testing and competence rather than performance and view the study of

knowledge as factual knowledge and goes on to add that, however, all the facts and information the learner is studying would make a lot more sense if the learner had any opportunities to see how they applied to the world of action and experience. In this sense, as proposed by Gee, games can provide a safe and authentic context for language teaching and learning practice.

2.3 Sustaining Engagement/ Motivation

Motivation is considered as a critical component for the efficiency of foreign language learning process. Motivation and engagement are essential for affective language learning hence EFL learners, especially the digital natives need to be involved in engaging activities in order to gain success and feel motivated (Prensky, 2001).

Games have long been recognized as a fun and powerful source of motivation. Games have often been used in EFL learning and teaching to keep learners motivated and engaged. Educational researchers, game developers, teachers and students pay more attention to games and view them not as a part of a language curriculum but rather an ultimate learning approach. Many studies have been documented that show the potentials of computer games for children as well as adults in terms of encouragement and engagement provision and language skills development.

As Lepper (1988) has observed motivation in learning is influenced by the 4 Cs: curiosity, challenge, confidence, and control. Good game-based learning systems optimize learner motivation via the 4 Cs (Gee, 2003). These principles present learners with game experiences that they are interested in and curious about. They present

activities that are challenging enough not to be boring, but not so challenging as to be frustrating and discouraging. They build learner confidence, as learners master each game level and progress to more advanced levels. Learners are in control throughout, deciding what actions to take during game play.

Squire and Jenkins (2003) conducted research on game-based learning. They observed that learners who played their games were motivated to acquire background knowledge so that they could play the game better.

Wood (2001) investigated the use of learning games as a learning tool and suggested that game-like formats can be more effective at capturing learners' attention than traditional media such as textbooks. Prensky (2001) discussed the potential of educational computer games and listed 12 elements as to why games engage people. To name a few: games motivate players (to achieve goals), gratify the ego (when winning), are fun (through enjoyment and pleasure) and spark the players' creativity (to solve the game problem).

Dickey (2005) cites Schlechty' work in identifying elements of engaged learning and goes on to illustrate how games engage players utilizing these very same engaging elements.

Proponents of engaged learning argue that aspects of game design fit into engaged learning model and that games should be integrated into educational media. Prensky (2001), who indentifies today's learners as Digital Natives, states that they crave engagement and become quickly frustrated when their needs of engagement are not meet. Prensky's idea suggests that learning must be engaging. If learners are involved in engaging activities, they are more likely to seek to understand the value of what they are

learning. The primary purpose of games is entertainment and computer games incorporate elements that help to maximize the learners' fun. Game like formats increase the joy of learning; provide more autonomous, challenging and engaging environment for instruction (Prensky, 2001; Rieber, 2001; Dickey, 2005).

Computer games are a form of entertainment and are designed to engage players, which is why they have become so commercially successful (Dickey, 2005). Game developers and designers incorporate a number of features intended to engage players in game play which instructional designers could employ in new learning methods leading to learner engagement. Engaged learning is necessary for today's learners' education. It promotes students to take active role in their learning which contributes to beneficial knowledge achievement.

2.4 Enhancing Input/ Exposure

Along with other hypotheses relevant for developing multimedia CALL, Chapelle (1998) discusses input saliency as one of the critical components of ideal conditions for target language learning. Krashen's (1982) theory implies that a lot of comprehensible input is what is needed for SLA. The theory of SLA also considers target language input as the starting point of L2 acquisition (Gass, 2003; Pica, 1994) by thus expanding Krashen's (1982) idea. Increased linguistic input helps learners to expand their linguistic knowledge. Thus, according to Chapelle CALL developers should view software role and potentials in oral or written input provision. Multimedia designers should consider how software can expand target language exposed to learners and better facilitate SLA.

It has been common practice for language teachers to use old technologies such as satellite TV programs, movies, and other video and audio products to help foreign language learners to enhance target language content. However, computer games have not been considered as potential resources to enhance target language input since there exists a widespread opinion that games are for entertainment but not for education. In fact, games have powerful potentials to provide target language input for language classrooms (Zhao, 2005).

Most game sites provide textual or visual annotations (i.e. images, pictures), translations thus they simplify and make target language input more comprehensible and help language learners to process information more easily and quickly.

Game like formats lower affective filters: game environments make language content more appealing and taps the fun component of learning. Moreover, games provide learner control where students choose content that fits to their interests and learn at their own pace.

Game environments provide interactions with the computer. Interactions between the learner and the computer take place both in written and spoken language. At the simplest level, game applications generate oral or written utterances and the learner is required to respond by selecting an answer with a mouse click or providing simple writing responses (Hanson-Smith, 1999).

Gee (2003) reported a case where a grandfather said that a six-year-old playing a video game named Pikmin was wasting his time since he was not learning any content. However, Gee claims that video games do have content; moreover the content in video games is nearly endless. Gee also discusses a powerful learning principle called

amplification of input principle, where for a little input learners get a lot of output. Games operate according to this principle and offer amplified outputs for a little input, which, is quite appealing for language learners.

2.5 Providing Feedback

Foreman (2003) considers that the ideal learning situation provides students with immediate feedback. Language learners face inevitable problems, confusion and uncertainty in their learning process and to comprehend the new information they need immediate feedback and instant clarification which will lead to the efficiency of learning process.

Either implicit or explicit feedbacks make language learners become aware of their problems in their L2 production. When learners notice their mistakes they try to modify their outputs in the target language and this process of noticing help learners to personalize new forms and information and improve the accuracy of their linguistic knowledge (Nagata, 1993).

Many foreign language educators and researchers consider the feature of instant and individualized feedback provision as one of the most important advantages of technology (Salaberry, 2001). Technology provides immediate and individualized feedback to foreign language learners based on each learner's performance which is almost impossible to enhance in classroom teaching. Older applications assess the learner's performance and provide simplistic feedback in a correct-or-wrong fashion

while more up to date applications are more pedagogically sound and provide more contextualized feedback (Salaberry, 2001).

This capacity of feedback provision as well enables learners to have more control over their learning process, be aware of their own progress and become more autonomous learners.

Technology provides feedback simply with a mouse click. By thus it decreases teacher load in language classrooms and increases the efficiency of language teaching.

Moreover, game environments change the serious nature of feedback provision and add the fun component to the process, offering a great amount of both implicit and explicit feedback by thus engaging learners into learning process (Zhao, 2005).

Texts and textbooks in school do not interact or talk back to language learners whereas games do talk back. They give the players feedback over actions and decisions made by players. Plato in *Phaedrus* complained of the same issue: books are passive and you cannot make them talk back to you as in real interactions between people. Players achieve feedback about their own progress. In fact schools do not give much space for failure whereas in games a failure is a good thing: players explore, try new things. Players are not afraid when they fail since games allow them to start a new game or go on with the last saved game in case they fail. Eventually, games allow players to act and gain competence through performance and trial, error and feedback (Gee, 2005).

However, the feedback type provided by most games is summative: *correct* or *wrong* and no informative feedback is given. For instance, if the player answers a question correctly a message with hand-clapping sound effect congratulates him/her and when the player makes a mistake an *incorrect* massage is presented and the correct

answer is indicated (Fengfeng, 2008). No further discussion or analysis of mistakes is presented which deprives learners from so much beneficial reflective learning experience (Gee, 2003). Educational gaming researchers (Gee, 2003) often indicated that education games should support learners with online help, cues and prompts, informative feedback adjusted for individual performance as well as provide error diagnosis.

2.6 Empirical Research on Computer Games in Language Learning

Different research projects studying computer games' effects on foreign language learning have been documented (Sykes, Oskoz, & Thorne, 2008; Zheng, Young, Brewer & Wagner, 2009; deHaan, 2005; Turgut & İrgin, 2009; Uzun, 2009) still, computer games' impact on foreign language learning as well as potentials in EFL environment need to be explored.

Many famous game designers and game researchers (Prensky, 2001; Gee, 2003; Squire & Jenkins, 2003) argue that computer games can better support intrinsic motivation in learners than non-gaming teaching materials and techniques. Dorney (2003) describes intrinsic motivation as the desire to engage in a behavior for the sake of the pleasure derived from the behavior itself. Recent empirical evidence shows that educational or "serious" games positively influence learners' intrinsic motivation as well as their EFL learning outcomes (Wood, 2001; Sykes, Oskoz, & Thorne, 2008; Zheng, Young, Brewer & Wagner, 2009; deHaan, 2005; Turgut & İrgin, 2009; Uzun, 2009). A research study conducted by Wood (2001) indicated the importance and the usefulness of online games in language learning process. Wood (2001) focused on the effective

features of online games for language learning (specifically for vocabulary building). Wood explored 16 software products and concluded that more exciting modes such as game-like systems can better facilitate learner engagement in learning process than traditional paper-based materials such as textbooks. Turgut and Irgin (2009) investigated young Turkish students' experiences of English learning while playing computer games in internet cafes. The research explores the impact computer games have on students' vocabulary and pronunciation skills development. The results of the study show that integrating computer games into the ELT could facilitate English language learning. According to participants computer games also motivate them to learn unknown words so that they could win the game. Some students' comments suggest computer games can be potential pedagogical devices to teach and learn vocabulary, since words are often repeated in many computer games. Besides, students developed vocabulary learning strategies while playing games: they guess from context, look up unknown words in online dictionaries, ask their friends.

Furthermore, positive attitude towards learning English via video games has been expressed by learners representing different cultural groups involved in different international studies (Anderson, Reynolds, Yeh & Huang, 2008; Sahrir & Alias, 2011; Turgut & İrgin, 2009; Guerrero, 2011). Zheng, Young, Brewer and Wagner (2009) studied the effects of a game-like virtual world, Quest Atlantis (QA) on EFL learners' attitude and self-efficacy change in learning English. According to the study findings EFL learners enhanced confidence in and improved attitude towards learning English via the use of a game-like virtual world.

A similar study that sought to understand students' perceptions about the use of computer games in EFL context was conducted by Guerrero (2011). The study examined military academy (Columbia) students' perceptions of utilizing a computer game named *Grand Theft Auto San Andreas* (GTA SA) in their EFL classes instead of traditional pedagogical methods. Results showed that students were more engaged in their English classes, were motivated and enthusiastic about their learning. Students considered their classes more enjoyable with this new method of playing games rather than with traditional classroom instruction. According to students besides mere linguistic knowledge they also learned about the target language and culture. Moreover, study revealed the importance of introducing technology to students starting from elementary grades so that they have the opportunity to practice playing computer games and became technologically literate and competent before their higher education.

Another study that investigated the effects of a video game on EFL learners' attitude was conducted by Anderson, Reynolds, Yeh and Huang (2008). The study evaluated AA: America's Army, a video game to train military soldiers in English language. The findings showed that the subjects had a favorable attitude towards learning English via video games.

Finally, Sahrir and Alias (2011) described a survey on Malaysian teenage (18 and 19 year old) learners' beliefs and perceptions of using online games in Arabic language learning, their gaming behavior and experience in playing online games in general and in Arabic learning in particular. The survey findings showed that most of the participants (78.3%) were interested in playing games; they (78.3%) considered playing games as an

effective and potential method to enhance their language learning, they (79.1%) also believed games would add their attitude and motivation towards their Arabic learning.

In accordance with the above discussed studies, it is concluded that EFL learners are often interested in playing games; playing games is often perceived as an effective and potential method to enhance their language learning, learners also believed games add engagement and motivation in their English learning. Looking at all these claims there is need to understand how online games may motivate and engage Armenian EFL learners in their English learning.

Thus, taken into consideration the above mentioned previous studies this research study employs a game-based approach in order to promote and maintain learner motivation and engagement. Many language learners have low self-confidence in their ability to learn a foreign language, particularly languages that are very much unlike their native language. They also find traditional drill-and-practice exercises to be boring. Therefore the first priority for language learners is to overcome motivational barriers to language learning. Finally, different studies focus on discrete language skills and domains development, therefore this research study aimed to address several language skills: listening, reading, writing (speaking skill is beyond the scope of the current study).

CHAPTER THREE: METHODOLOGY

This chapter presents an overview of the methodology used to conduct this study. It describes the research design, the participants and the procedures of the study.

3.1 Research Design

The study investigated the impact of computer games on participants' English language building. The data for this quasi-experimental research study were gathered via pre and post achievement tests, student questionnaires and parent checklists.

The research questions of this study are as follows:

1. *Is there a relationship between online language games and EFL achievement?*
2. *Does the use of online language games affect students' level of engagement?*
3. *What are students' perceptions about online language games as homework activities?*

3.2 Setting and Participants

The participants in this study were elementary level Armenian EFL students from Experimental English classes (EEC) by the Department of English Programs (DEP) at the American university of Armenia (AUA). A total of 22 participants from two classes (Construction Level 3 A & B), taught by one teacher, were engaged in this study. The 22

elementary level students were chosen to be the participants of this study since progress at elementary levels is more observable over a short period of time.

In this study the participants were divided into two groups. One of the groups was selected as the experimental group and the other group formed the comparison group. There were equal numbers of participants in the experimental group and in the comparison group: 13 students in each of the groups. The experimental group learnt a set of vocabulary and structure items via online language games while the comparison group learnt the same words and grammar items via paper-based activities. The participants in this study were asked to play selected online language games at home in their own free time to save their valuable classroom time for other effective activities.

One teacher (also the researcher) involved in this study was responsible for teaching the two classes in the comparison group and in the experimental group.

The age of all the participants ranged from 7 to 10. The mean age of the participants was 9. Among these 22 participants, 45% (n=10) were male and 55% (n=12) were female:

Table 1

Distribution of Participants by Gender

	Gender	***Number of students***
Experimental group	*Male*	*5*
	Female	*6*
Comparison group	*Male*	*5*
	Female	*6*
Total		*22*

English Proficiency Level

The 26 participants are considered as identical in terms of level of English mastery. Their level of English language proficiency is elementary which is determined due to an EFL placement test all the participants took before being admitted to the AUA EEC program.

Classes

Construction Level 3 A & B

The 22 participants were from two classes: Construction 3 A and B. The AUA EEC program comprises 6 levels: Pre-Preparation, Preparation, Construction, Communication, Pre-Information and Information. Pre-Preparation, Preparation levels match the CEFR Global Scale basic/beginner user A1 level (basic); Construction level match the Global Scale A2 level (basic); Communication 1 to 5 levels match independent user B1 (intermediate); Communication 5 to 10 levels match B2 (intermediate), Communication 11 to 14 match C1 (advanced) level and Pre-Information and Information match C2 level (advanced). Construction level includes 8 sublevels where Construction 3 match basic/beginner level established by the CEFR (Common European Framework of References). The number of students in each class was equal: 11 students in each class (total of 22 students). Class A was the experimental group whereas class B was the comparison group.

3.3 Materials

The current study mainly integrated **Learnenglishkids.britishcouncil.org** game site to engage the Armenian elementary learners in their English learning more. **Learnenglishkids.britishcouncil.org** was selected to be used for this study since it is a popular site, moreover it is considered as a more reliable and safe site. A few other game sites were as well integrated in the study (see Appendix D).

Learn English Kids is the British Council's website intended for children who are learning English as a second or foreign language. The site provides free engaging resources (*games, reading, writing and listening*) for children. The resources have been created by professionals who work with children. They have been designed to help children learn English while having fun. This site has ***games, listen and watch***, ***read and write***, ***make*** and ***explore*** sections. However, for the purposes of the current study learners were assigned to use only **games** section. The **games** section provides online games and activities about topics presented in many textbooks and syllabi.

The textbook used for the classes A & B was "*English Adventure*" by Anne Worrall (2005) published by Pearson Longman Inc. The textbook comprises 8 units covering a number of topics. During the research period the first 4 Units (***Two worlds, I'm dancing; It's snowing and I'm scared***) were covered (see Appendix E for the scope and sequence). Both the experimental and the comparison group treatment material were aligned with the topics covered in the textbook, i.e. vocabulary items as well as grammar structures covered in the textbook were identical with those in online games as well as paper-pencil activities.

3.4 Treatment

3.4.1 Experimental group

The experimental group participants were asked to play a number of selected online language games (comprising a set of selected vocabulary items and grammatical structures relevant to their textbook) at home as part of their homework assignment in their own time. The teacher would first familiarize the students with the games in class. For each lesson students would play a variety of games (on their preference) on the same topic. Most games had audio and provided pronunciation, visuals and word forms. Instant feedback was also provided. Games comprised identical words and structures in the pre-test and the post-test, as well as some unknown words in addition to the ones that they covered in their lesson materials. The topics and the items covered in the games were related to what participants were studying in their English classes. Both groups had two lessons each week and each class took 60 minutes. See Appendix D for the list of online games.

3.4.2 Comparison group

A variety of engaging paper-based activities and classroom games were selected for the comparison group. To ensure equal conditions for both groups the comparison group was assigned a number of additional paper-based activities as part of their homework. To control identity of items included in online games and in paper-based activities, most activities for the comparison group were created by the teacher, also the researcher. For more detailed description of their homework activities see Appendix D.

Engaging homework activates were selected to make homework exercises as appealing as the online games hence to increase the reliability of the study. Both groups were provided with an identical list of words and structures. Both the experimental and the comparison group learnt vocabulary items and grammar structures appearing in the selected online games, pre-test and the post-test.

3.5 Instrumentation

3.5.1 Pre & Post Achievement Tests

Both the experimental group and the comparison group completed the same pre and post-tests under similar conditions: the classroom, the time to complete the test, the teacher who supervised them during the test (see Appendix A). The pre and post-tests comprise identical vocabulary and grammatical items from the educational online games selected for the study. However, to enhance validity and reliability and to avoid the participants to recall the questions from the pre-test the identical items in the post-test appear in different sequence, tasks and contexts. The pre and post-tests comprise three sections (listening, reading, and writing) and the participants had to answer altogether 45 questions. The questions were formed based on the words and structures found in the online games selected for the study as well as in the textbook students would cover during their English classes. The pre and post-tests were designed to test the participants' receptive (reading and listening) and productive (writing) performance. Test items were of the following types: multiple choice, scrambled sentence, answer the question and fill in the blank. The participants took the pre and post-tests in week 2 and 10 respectively.

The total score for the tests was 45. The tests lasted for 60 minutes. See Appendix A for the pre and post achievement tests.

Chronbach's Alpha reliability (see Table 2) was also evaluated for the pre and post-tests with 9 participants. The results revealed a high level of the pre and post-tests reliability. In other words, the scores of the two administrations were consistent. Chronbach's Alpha correlation coefficient for the pre and post-tests was 0.929, which was considered as very strong. Thus, the positive association between these two tests proved to be high.

Table 2

Cronbach's Aplha Reliability for the Pre & Post-Tests

Reliability Statistics

Cronbach's Alpha	N of Items
,929	2

3.5.2 Student Questionnaire

After completing the post-test all the experimental group participants were distributed questionnaires (see Appendix B) to express their attitudes towards learning via online games and the effectiveness of online games in their English building process. The questionnaires were anonymous so that the participants feel free in expressing their opinions and attitudes towards the new method. The student questionnaire written

originally in English was translated into Armenian since the students' language command was not enough to understand it in the target language.

3.5.3 Parent Checklist

The parent checklist (see Appendix C) was constructed to verify if students played and if they enjoyed assigned online English language games, how much time they spent on the games, and ultimately to understand if those games engage them in their English learning. The checklist comprised three close ended items. Checklists were distributed among the parents on a weekly basis (a total of 8 weeks).

3.6 Data Collection Procedures

The six steps involved in the study are as follows:

1. Both the experimental and the comparison groups took a pre-test in the second week. The pre test aimed to test participants' English proficiency before the treatment.
2. To consider ethical aspects of the research as well as to be aware of possible dropouts from the study because of the parents' preferences before the treatment the parents of the students in both groups were invited to attend a meeting where they were introduced the topics to be covered in their English classes as well as the teaching approaches adopted for the two groups. The parents of the students in the experimental group were also introduced and distributed with the checklists to secure their support.

3. Two treatment designs: online and paper-based learning methods were used in this research study. The experimental group learnt a set of vocabulary and grammar items from a number of selected online language games, while the comparison group learnt the same words and structures through paper-based activities.
4. Checklists were distributed among the parents of the students in the experimental group throughout the treatment to control and make sure if the students really played the assigned games. In addition checklists also aimed to find out how much time students spent on playing those games and hence to understand if online games engaged learners in their English learning.
5. At the end of the treatment, in week 10, the two groups completed a post-test which aimed to find out the extent to which both groups improved from the pre test to post test.
6. On the last day of the classes a close-ended questionnaire was distributed among the experimental group students only. The student questionnaire sought to understand students' perceptions on the use of digital games. The questionnaire was translated into Armenian for the students to better understand the survey items and give appropriate answers. The students completed the questionnaire in class time.

3.7 Data Analysis

Quantitative research methods were employed to gather data for this research study. The data of the current study were obtained via pre and post-tests, student questionnaire and parent checklist. The first quantitative devices used for the study were pre and post tests. Both the experimental and the comparison groups took the pre and post test in week 2 and 10 respectively. The available sample size was small with a total of 22 students which is why the non-parametric Mann-Whitney U test was used for between group comparisons and Wilcoxon Signed Ranks Test was used for within group comparisons of the two sets of scores from the pre and post tests by the experimental and comparison groups. These calculations were done to find out if there is a significant difference between the experimental group with online games treatment and the comparison group with paper-based activities.

Mann- Whitney U Test is the nonparametric alternative for the T- Test for independent samples. Instead of comparing the means of the two groups, as in T-test is done, Mann- Whitney U Test compares mean ranks. Mean ranks are totally different from mean scores and they should not be compared or regarded as the same. Mann-Whitney U Test converts scores into ranks across two groups. Then the ranks of the two independent groups are compared to see if they differ significantly or not.

Student questionnaire was the second quantitative devise to obtain data of the study. Student questionnaires were distributed among the students in the experimental group only in week 10. The data gained from student questionnaire were analyzed and transferred into percentages. The information collected from student questionnaire was

useful in identifying Armenian EFL learners' perceptions about online games as homework activities.

The third quantitative devise used in this research study was parent checklist. Parent checklists were distributed among parents of the students in the experimental group on a weekly basis for a total of 8 weeks. The data gained from student questionnaire were analyzed and transferred into percentages. The data gathered from parent checklist shed light on the extent to which online games affect students' level of engagement.

The data obtained via pre and post-tests, as well as student questionnaire and parent checklist were useful in getting answers to the research questions of this study.

CHAPTER FOUR: RESULTS

This study aimed to investigate if online language games can better facilitate English learning than paper-based activities. The study also aimed to understand if online language games have any impact on EFL learners. Data for this study were gathered via pre and post achievement tests, survey questionnaire and checklist to answer the research questions guiding this study. This chapter presents the results of the statistical analysis of the data from current research study.

4.1 Pre and Post Achievement Tests' Analysis

To give an answer to research question 1 that seeks to find out if it is more effective to learn English using online language games or paper-based activities, a number of statistical comparisons were completed which are as follows: Mann- Whitney U Test for between group comparisons; Wilcoxon Signed Ranks Test for within group comparisons as well as Effect Size for both Wilcoxon and Mann- Whitney U Tests.

To understand if the pre and post test results differ significantly within groups, Wilcoxon Signed Ranks Test was applied: first, pre & post tests' results of the experimental group and next, pre & post tests' results by the comparison group were analyzed to see to what extent the two groups improved their language proficiency.

Table 3 introduces the results of the comparison of the pre test with the post test within the experimental group. This calculation is done to understand if the experimental group significantly improved English proficiency from the pre test to the post.

Table 3

Wilcoxon Signed Ranks Test for Comparison of Pre & Post Tests' Results in the Experimental Group

	Listening	Reading	Writing	Total
Z	-2.950	-2.677	-2.956	-2.934
Asymp. Sig. (2-tailed)	.003	.007	.003	.003

Table 3 shows that the experimental group, with the significant values obtained in all the subtests (listening, reading and writing) less than 0.05, did significantly improve from the pre test to the post test in favor of the post test. Thus, it can be claimed that the instruction adopted in the experimental had large effect and positive impact on the learners' English proficiency.

Table 4 illustrates the results of the experimental group Effect Size (**r**) calculation where **r** is greater than 0.05 for listening, reading and writing performances. This once more depicts large effect and positive impact of the instruction employed in the experimental group.

Table 4

Effect Size of the Experimental Group

	Listening	Reading	Writing	Total
r	0.89	0.81	0.89	0.88

Table 5 illustrates the results of the comparison of the pre test with the post test within the comparison group.

Table 5

Wilcoxon Signed Ranks Test for Comparison of Pre & Post Tests' Results in the Comparison Group

	Listening	Reading	Writing	Total
Z	-2.858	-2.546	-2.944	-2.937
Asymp. Sig. (2-tailed)	.004	.011	.003	.003

The probability values (p) in all the subtests are significantly less than the selected alpha 0.05; which indicates that the comparison group also did significantly improve from the pre test to the post test in favor of the post test in all the skills: listening, reading and writing. This implies that the instruction applied in the comparison group was beneficial for learners as well and had a positive impact on their English proficiency.

Table 6 illustrates the results of the Effect Size (**r**) calculation within the comparison group where **r** is greater than 0.05 for listening, reading and writing performances. This once more depicts large effect and positive impact of the instruction employed in the comparison group.

Table 6

Effect Size of the Comparison Group

	Listening	Reading	Writing	Total
r	0.86	0.77	0.88	0.88

Table 7 and 8 present the results of the comparison of the pre test with pre test and post test with post test of both groups.

Table 7
Mann- Whitney U Test for Between Group Comparisons: Mean Ranks

	group	N	Mean Rank	Sum of Ranks
Pre-listening	experimental	11	13.00	143.00
	comparison	11	10.00	110.00
	Total	22		
Pre-reading	experimental	11	12.05	132.50
	comparison	11	10.95	120.50
	Total	22		
Pre-writing	experimental	11	12.82	141.00
	comparison	11	10.18	112.00
	Total	22		
Pre-total	experimental	11	12.60	133.65
	comparison	11	9.95	109.50
	Total	22		
Post-listening	experimental	11	14.36	158.00
	comparison	11	8.64	95.00
	Total	22		
Post-reading	experimental	11	14.00	154.00
	comparison	11	9.00	99.00
	Total	22		
Post-writing	experimental	11	14.55	160.00
	comparison	11	8.45	93.00
	Total	22		
Post-total	experimental	11	15.86	174.50
	comparison	11	7.14	78.50

Table 8

Mann- Whitney U Test for Between Group Comparisons: Significance Statistics

	Pre-listening	Pre-reading	Pre-writing	Pre-total	Post-listening	Post-reading	Post-writing	Post-total
Z	-1.094	-.398	-.964	-.812	-2.203	-2.462	-2.410	-3.240
Asymp. Sig. (2-tailed)	.274	.691	.335	.417	.028	.014	.016	.001

In Table 8, when comparing the pre test of the experimental group with the pre test by the comparison group for listening, reading and writing performances it becomes clear that the probability value between the pre tests of both groups for all the three skills is greater than 0.05; which indicates that there is no statistically significant difference between the experimental and comparison groups' listening, reading and writing performances in their pre tests. This means that before the treatment the two groups were at the same level and had similar listening, reading, and writing performances. Table 8 presents the comparison of the post test of the experimental group with the post test of the comparison group as well in order to understand if the two groups differ significantly after the treatment. Between the post tests from the two groups the probability value for listening, reading and writing performances is less than 0.05. Thus, it can be implied that the experimental group statistically outperformed the comparison group in the post test.

Table 9 illustrates the results of Effect Size (**r**) calculation between the experimental and comparison groups where **r** is greater than 0.05 for listening, reading and writing performances. This once more depicts that the instruction employed in the

experimental group had larger effect than the instruction applied in the comparison group.

Table 9

Effect Size for Between Group Comparisons

	Listening	Reading	Writing	Total
r	0.66	0.74	0.73	0.98

The results of above introduced analysis are summarized below.

It was investigated whether there was any difference in English proficiency between the experimental and comparison groups before and after the treatment. Before the treatment in their pre test results the experimental and the comparison groups had the same level of English proficiency. After the treatment the experimental group statistically outperformed the comparison group. The results appear to suggest that learning with online games is more effective that paper-based learning. Thus, there is evidence that online computer games can better facilitate English learning than paper-based activities.

4.2 Student Questionnaire Analysis

The student questionnaire comprised 11 close ended questions (See Appendix B). After completing the post- test 11 experimental group students were distributed with questionnaires in week 10. Table 10 presents students' attitude towards online language games.

Table 10

The Results of Student Questionnaire in Percentages

	Very much	Much	Average	Not so much	Not at all
1. How much did you enjoy the online language games assigned as part of your homework?	55%	18%	27%	0%	0%
2. How much did online games engage you in English learning?	36.4%	54.5%	9.1%	0%	0%
3. Did you often play the take-home online games?	27.3%	45.4%	27.3%	0%	0%

	Half an hour	One	Two	Three or more	Not sure
4. How many hours did you spend on playing the take-home online games per week?	0%	18.2%	0%	54.5%	27.3%
5. How many hours do you usually spend on playing other online games per week?	18.2%	27.3%	9.1%	36.4%	0%

	Never	Once	Twice	3 times or more	Not sure
6. On average, how many times did you play each of the take-home online games?	0%	9.1%	18.2%	72.7%	0%

	Yes	No
7. Do you think you will play the take-home online games again in the future?	90.9%	9.1%
8. Do you think the take-home online games helped you learn English?	100%	0%
9. Is there anything you did not like about the games?	0%	100%
11. Would you like to be provided online games in your coming sessions?	100%	0%

	Online Games	Paper-pencil
10. Which of the following is more engaging and effective in your English learning process?	82%	18%

Student questionnaire responses show that the majority of the students did enjoy (more than 70%- Question 1) and did play (more than 70%- Question 3) assigned online language games. Student responses also indicate that again the majority of the students (82%_ Question 10) considered online games more engaging and interesting to learn English than paper-pencil activities.

4.3 Parent Checklist Analysis

The parent checklist (See Appendix C) was constructed to verify if students played and if they enjoyed assigned online English language games, how much time they spent on the games, and finally understand if those games engaged students in their English learning more. The checklist comprised 3 close ended items. Checklists were distributed among the 13 parents of the students in the experimental group on a weekly basis (a total of 8 weeks). On average 10 parents would regularly respond and return the checklists. Table 11 checklist illustrates the results obtained through weekly responses by parents.

Table 11

The Results of Parent Checklist in Percentages

Checklist item 1

Did your child enjoy the online language games assigned for homework?	***Yes***	***Not so much***	***No***
Week 1			
	80%	20%	0%

Week 2			
	80%	20%	*0%*
Week 3			
	70%	30%	*0%*
Week 4			
	70%	30%	*0%*
Week 5			
	83%	*17%*	*0%*
Week 6			
	70%	*30%*	*0%*
Week 7			
	70%	*30%*	*0%*
Week 8			
	100%	*0%*	*0%*

Checklist item 2

How many times did your child play each of the assigned games?	***Never***	***Once***	***Twice***	***3 times or more***	***Not sure***
Week 1					
	0%	*10%*	*40%*	*50%*	*0%*
Week 2					
	0%	*10%*	*40%*	*50%*	*0%*
Week 3					
	0%	*10%*	*40%*	*50%*	*0%*
Week 4					
	0%	*10%*	*40%*	*50%*	*0%*
Week 5					
	0%	*17%*	*33%*	*33%*	*17%*
Week 6					
	0%	*20%*	*30%*	*40%*	*10%*
Week 7					
	0%	*20%*	*30%*	*40%*	*10%*
Week 8					
	0%	*14%*	*29%*	*43%*	*14%*

Checklist item 3

How much time did your child spend on playing the assigned games for the previous week?	***Half an hour***	***One***	***Two***	***Three or more***	***Not sure***
Week 1					
	0%	*30%*	*30%*	*40%*	*0%*
Week 2					
	0%	*30%*	*30%*	*40%*	*0%*
Week 3					

	0%	*30%*	*30%*	*40%*	*0%*
Week 4	*0%*	*30%*	*30%*	*40%*	*0%*
Week 5	*0%*	*50%*	*0%*	*50%*	*0%*
Week 6	*0%*	*40%*	*30%*	*20%*	*10%*
Week 7	*0%*	*40%*	*30%*	*20%*	*10%*
Week 8	*0%*	*57%*	*29%*	*14%*	*0%*

The parent checklist results show that the majority of the students (more than 70%) did play and enjoy the assigned online games (Question 1). According to the data illustrated above, approximately 40-50% (depends on a certain week) of the students did play each of the assigned games twice or three or more times (Question 2) and did spend 3 and more hours playing those online language games (Question 3).

CHAPTER FIVE: DISCUSSION AND CONCLUSION

The discussion in this chapter is based on the prior results of the pre and post achievement tests, questionnaires and checklists. It attempts to summarize all the discussions and more importantly, identifies the relevant and important points which can give answers to the research questions of this paper. Following this a number of pedagogical implications are suggested. Finally it presents several limitations of the study and offers recommendations for future research.

5.1 Discussion of Findings

Discussion of findings in relation to the first research question, that is, "*Is there a relationship between online language games and EFL achievement?"*

Both comparison and experimental groups have shown improvement in the posttest; however the rate at which the experimental group has improved is greater than that of the comparison group. This reveals that learners playing online language games tend to learn better, and have a relatively higher performance of the receptive and productive skills. This, however, does not deny the value of paper-pencil lessons, since most of the students in the comparison group have also shown improvement in the post-test. In this case it might be mentioned that traditional paper medium learning is also effective. However, the effectiveness of traditional paper-pencil lessons to a great extent

depends on many other factors like the approach adopted, and the teaching strategies employed.

Effect Size for Between Group Comparisons (see, Table 10: with **r** greater than 0.05 for listening (0.66), reading (0.74) and writing (0.73) performances) also depicted large effect and positive impact on EFL learning in favor of the instruction applied in the experimental group. Generally speaking, the students in the experimental group performed better than those who attended paper medium lessons without accessing the online games. It seems to suggest that online learning mode is more effective.

Discussion of findings in relation to the second research question, *"Does the use of online language games affect on students' level of engagement?"*

From the responses of parent checklist together with the student survey questionnaire, it is obvious that most of the students agreed that online games helped them engage in their English learning more. The responses of both parent checklist and student questionnaire also indicate that most of the students played each of the assigned games approximately twice or three and more times. Moreover, the answers of both parent checklist and student questionnaire show that most of the students did spend two or three and more hours per week playing the online language games. All those responses of parent checklist together with the student survey questionnaire reveals games are likely to keep learners' interest aroused and engaged in their learning. However, Table 8 illustrates patterns of change across time from beginning of the semester to the end, i.e. certain weeks led to less engagement and perhaps satisfaction and/or perception. Since the assigned game sites provide certain similar game formats that are employed to

practice a number of topics, perhaps one reason for less engagement is that learners get used to those assigned game formats and across time lose their interest. To ensure learners' continuous motivation it is suggested to include more advanced, interactive and challenging games, such as simulations and video games.

Discussion of findings in relation to the third research question, "*What are students' perceptions about online language games as homework activities?*"

It was confirmed in the student questionnaires that most of the students preferred online mode to paper medium. Perhaps one reason is that they can have more autonomy in their own learning and they can make more decisions for themselves. Moreover, most of the students agreed that they would play the assigned games again in the future. Finally, the majority of the students expressed willingness to be assigned similar online games in their future English courses.

5.2 Delimitations of the Study

1. The study was delimited to explore casual educational games. More advanced and interactive games, such as simulations, strategy and persistent games were beyond the scope of the current study.
2. Following the above mentioned delimitation, the next delimitation is that the study measures included English vocabulary building, writing for consistency purposes, listening, reading and writing skills and did not include speaking skill.
3. This study engaged EEC students from a certain proficiency level and age group.

5.3 Limitations of the Study

Several limitations of the study are as follows:

1. The participants were not selected and assigned to the two groups randomly.
2. The sample size is small with a total of 22 participants. The study is conducted with a small number of experimental group (n=11). Hence, the study cautions against generalizing the results to a lager EFL population.
3. The study is limited to available short period of only ten weeks.
4. The teacher and the researcher were the same person.

5.4 Pedagogical Implications

According to the findings of this study online language games did result significant better improvement and performance compared to those of paper-based activities, i.e. the experimental group method did better facilitate English learning than paper-pencil activities. The student questionnaire findings showed that most of the participants favor online games as a learning tool when compared with paper-based activities. Moreover, most of the students answered that they would play the assigned educational games again in the future. Thus, to better enhance English learning as well as retain EFL learners' interest and keep them engaged in their English learning more Armenian teachers may consider using online language games. Besides, online games provide extra target language content to language learners and provide with an opportunity to practice target language outside of classroom.

EFL teachers are also suggested to be very cautious and careful while selecting educational games for their learners. The design of online games should be attractive enough to retain learners' interest. Teachers should think about this when choosing appropriate learning games for their classrooms. The online games used for this study were casual educational games which were effective enough to appeal the participants. Besides, those games did not take students a long time to play. However, it is suggested that this kind of games may better serve for short-term learning purposes. While, more advanced games which due to their interactive and challenging features ensure continuous motivation and involvement of learners; are suitable for long-term learning purposes. Finally, when selecting online games for teaching teachers should follow selected online games are embedded in their lessons effectively in terms of vocabulary appropriateness, learners' English mastery level, course objectives, etc.

5.5 Implications for Further Research

This modest study examined how online one-player casual English language games affected foreign language vocabulary building, writing for consistency purposes, reading and listening skills development. Future educational game studies could examine the impact of other different genres of computer games (i.e. simulation and video games, MMOGs (Massively Multiplayer Online Games) to expose learners to target language in more authentic and challenging environments where learners have active role and are in more control of their actions and decisions, to observe player-player communications, to investigate in-game dialogues and text prompts' influence on learners' communication

and writing skills, cooperative and collaborative, as well as social interaction skills development.

Sample Simulation Game

The sample simulated game design is recommended based on the literature and the experience from this study. The learning objectives of this sample simulated game are as follows:

- ✓ To build English vocabulary
- ✓ To develop learners' listening skills
- ✓ To develop learners' writing skills
- ✓ To develop learners' communication skills
- ✓ To promote learning via collaboration
- ✓ To promote critical thinking

The proposed game is a multiplayer online interactive English learning game, for EFL learners with high elementary and/or intermediate English proficiency. The scene, the title as well as the topic of the game could be decided based on a survey conducted among a number of EFL learners so that learners have knowledge of the topic and it is interesting enough to retain learners' interest. An avatar (a virtual instructor) narrates the game instructions in English as well as gives instructions throughout the game on how to accomplish in game activities and tasks to reach the final destination. On their way to the final destination players will have to solve problems, collaborate and communicate through chat-box. Players are free to choose roles (roles could also be predetermined depend on the topic, the themes) of their preference. The simulated game should be full of colored visuals, sound, music and other game elements that attract the young learners.

The game comprises several missions (final destination could be designed in accordance to learners' preferences which might be enhanced via a survey) with certain destinations. Users the game comprises of entertainment tasks and activities to engage learners in their English learning outside school in their free time.

This study explored online games' impact on EFL learners' level of engagement in their English studies and it is suggested that future research address also online games' impact on the development of autonomous language learning.

Further research studies might engage EFL learners from varied proficiency levels and age groups. Also, the effects of digital games' on two different proficiency level groups might be compared, with at least two treatment groups with random groupings and selection where learners are given both pre and post tests.

This study focused on EFL learning through games at home environment/in the home (i.e. learners were assigned to play a number of online games as part of their homework). Future research in this area could conduct a similar study in a computer lab where teacher's and learners' role in a game-based language learning context could be examined more profoundly (teacher as a facilitator who merely introduces instructions, provides necessary help and guidance & students as active autonomous learners responsible for and in control of their learning).

Digital game-based language learning research generally focuses on one specific game's (or a number of similar games) effects on language learning outcomes. Researchers could thus study and compare results by two different types of games. For instance, a variety of video games (e.g., sports, strategy, role playing, etc.) could be compared to understand how those games affect language learning process.

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