Al-Azhar University-Gaza

Deanship of Postgraduate Studies & Scientific Research

Faculty of Education

Department of Curricula and Teaching Methods

The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders in Gaza Governorates

Thesis Submitted by

Dalia Omar Abu Shagga

Supervised by

Dr. Basil S. Skaik

Assistant Professor in TEOSL, Teacher Education &Material Design.
Department of English.
Faculty of Arts & Human Sciences
Al-Azhar University-Gaza.

Dr. Mohammed A. Hamdan

Associate Professor of Curricula & English. Methodology.
Dean of Communication & Languages Faculty
Gaza University-Gaza.

A Thesis Submitted to the Department of Curricula and Teaching Methods in Partial Fulfillment of the Requirement for the Master Degree in Education.

2012

By The Name of Allah

"And do not pursue that of which you have no knowledge. Indeed, the hearing, the sight and the heart – about all those [one] will be questioned."

(Surat Al-'Isrā', Verse [36])

DEDICATION

To my

PARANTS

who are lightening my way,

encouraging me, and

waiting my

success ..

ACKNOLEDGEMENT

My first thanks are for Almighty Allah who helped me and provided me with energy to complete this study despite the difficulties I faced while doing it. It is really a great chance to thank all those who helped me finish this study and get it done in its final appearance.

The most heartfelt acknowledgement must go to the honest my supervisors, Dr. Basil Skaik and Dr. Mohammed Hamdan for their great guidance, considerable patience and understanding.

My special thanks are to Dr. Atta Darweesh who helped me in creating the idea of my study and directed my attention to children with special needs.

My appreciation and gratitude are paid to Dr. Khaled El Mghari who helped me with the statistic part of this study and Mr. Ramzi Mattar for his help in designing the computerized games.

My thanks to all the managers and the teachers of the deaf in the different societies in Gaza governments who contributed their time and effort to much successful end this study.

I deeply thank Mrs. Amany Ramdan for her assistance in conducting the study on her class and my special thanks are also due to my deaf students at Atfaluna Society for Deaf Children where the study was carried out.

I would like to express my deepest and warmest thanks to my family for their patience, meaningful advice and consistent support during this period and special thanks to my brother Mohammed who helped me in printing my study.

Abstract

The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders in Gaza Governorates

This study aimed to investigate the effectiveness of using computerized educational games on developing aspects of English grammar for deaf ninth graders' in Gaza Governorates. To achieve this aim, the researcher adopted a quasi experimental approach. The sample of the study consisted of (16) deaf students;(4) males and (12) females from Atfaluna Society for Deaf Children in Gaza governorate. The computerized educational games were used in teaching aspect of English grammar for the experimental group in the first term of the school year (2011-2012).

A grammar test of six questions with (30) items was designed and validated to be used as a pre and post test to measure any possible differences between the mean scores of the students in the pre and the post test.

The collected data were analyzed and treated statistically using T. test and the Modified Gain Ratio equation was used to measure the effectiveness of using computerized games on developing aspects of grammar for the deaf students .

The study results indicated that there were statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores in the per test and the post test due to the use of the computerized educational games. Also, there were no statistically significant differences at ($\alpha \leq 0.05$)

between the deaf students of the experimental group in the mean scores in the pre test and post test due to the gender factor.

In the light of those results, the study recommended the necessity of implementing computerized games in teaching English grammar to make better outcomes in deaf students' achievement of English language. Also, the researcher suggested that further studies should be conducted on the effectiveness of computerized games on other grammatical lessons and other school subjects as well.

ملخص الدراسة

فاعلية استخدام الألعاب التعليمية المحوسبة في تنمية مفاهيم قواعد اللغة الانجليزية لدى طلبة الصف التاسع الصم في محافظات غزة

هدفت هذه الدراسة إلى التعرف على فاعلية استخدام الألعاب التعليمية المحوسبة في تنمية مفاهيم قواعد اللغة الانجليزية لدى طلبة الصف التاسع الصم في محافظات غزة.

ولتحقيق هذا الهدف ، تم استخدام المنهج شبه التجريبي حيث تكونت عينة الدراسة من (16) طالباً وطالبة من الصم في الصف التاسع بجمعية أطفالنا للصم في محافظة غزة . استخدمت الألعاب التعليمية المحوسبة لتدريس المجموعة التجريبية مفاهيم قواعد اللغة الانجليزية في الفصل الدراسي الأول من العام (2011-2012). وقد تم بناء اختبار في القواعد مكون من (6) أسئلة و يحتوي على (30) فقرة بهدف قياس أي فروق ذات دلالة بين درجات الطلبة الصم في الاختبار القبلي البعدي.

ولقد تم تحليل البيانات ومعالجتها إحصائيا باستخدام اختبار" ت" , وكذلك معادلة نسبة الكسب المعدلة لحساب فاعلية استخدام الألعاب المحوسبة , أظهرت النتائج وجود فروق ذات دلالة إحصائية عند مستوى دلالة (≤ 0.05) بين درجات الطلبة في الاختبار القبلي والبعدي تعزى إلى استخدام الألعاب التعليمية المحوسبة. كما أظهرت النتائج عدم وجود فروق ذات دلالة إحصائية عند مستوى دلالة (≤ 0.05) بين درجات الطلبة في الاختبار القبلي والبعدي تعزى إلى متغير الجنس.

وفي ضوء النتائج السابقة, أوصت الدراسة بضرورة تطبيق الألعاب التعليمية المحوسبة في تدريس قواعد اللغة الانجليزية لتحقيق نتائج أفضل في تحصيل الطلبة الصم في مادة اللغة الانجليزية, واقترحت الباحثة إجراء المزيد من الدراسات؛ للتعرف إلى فاعلية الألعاب التعليمية المحوسبة في دروس القواعد الأخرى وكذلك في المواد الدراسية الأخرى.

Table of Content

List of Abbreviations

Abbreviation	Stands for
AGBALSL	**A**lexander **G**raham **B**ell **A**cademy for **L**istening & **S**poken Language
AHC	**A**ustralian **H**earing **C**entre
ASDC	**A**tfaluna **S**ociety for **D**eaf **C**hildren
CAF	**C**anadian **A**bilities **F**oundation
dB	**d**ecibels (the unit of measurement the intensity of hearing)
FS3D	**F**act **S**heet **3** on **D**eafness
Hz	**H**ertz
MMOML	**M**erck **M**anual's **O**nline **M**edical **L**ibrary
NICCHY	**N**ational **I**nformation **C**enter for **C**hildren and **Y**outh- with Deafness
NIDCD	**N**ational **I**nstitute on **D**eafness and other **C**ommunication **D**isorders
SL	**S**ign **L**anguage
WHO	**W**orld **H**ealth **O**rganization
PPP	Teaching grammar through **P**resentation, **P**ractice and **P**roduction
EEE	Teaching grammar based on **E**xploration, **E**xplanation and **E**xpression
OHP	**O**ver **H**ead **P**rojector
NGOs	**N**on-**G**overnmental **O**rganization**s**
FAS	**F**ederation of **A**merican **S**cientists

List of Tables

List of Diagrams

List of Appendices

Chapter 1

Study Background

Chapter 1
Study Background

1.1 Introduction

This chapter was the first one in the current study. The researcher in this chapter focused on the study background which was connected with statement of the problem, the study questions and hypotheses. Finally, significance of this study, purposes and definitions of the terms.

1.2 Study Background

Language is one of the most important things that we can give to our children. Almost all human beings acquire a language and sometimes more than one, to the level of native competency, before the age of five. The human brain is wired for language. It does not matter whether the language is spoken, signed, or otherwise.

Li & Gleiman (2002:90) confirm that children come equipped at birth with the ability to learn language. Easterbrook (1999:5) comments that children acquire language through interplay of biology and environmental factors. A challenge for linguists is to figure out how nature and nurture come together to influence language learning.

The researcher thinks that it is difficult to say how and when a child acquire language. This is because their language acquisition depends upon their auditory perception of speech. Mayberry (1993:65) confirms that children who are at the beginning stages of language acquisition, auditory perception of words and phrases is dependent upon the their knowledge of phonology, vocabulary and syntax.

Al-Sofi (2008:13) points out that English is regarded one of the major subjects at schools of Palestine. English also is used as a second official language. This gives the language its importance in Palestine.

In fact, grammar represents the main base of English language acquisition. Without grammar, words hang together without any real meaning or sense. Ur (1988:87) states that a person who knows grammar is one who can express himself or herself in what would be considered as acceptable language forms.

By teaching grammar, we as teachers not only give our students the means to express themselves, but we fulfill their expectations of what learning a foreign language involves. In Gaza, the teachers of English language for the deaf students noticed the low level of their student's achievement in English language and particularly in grammar.

Madylus (2002) comments that grammar is a word which often freezes the hearts of the deaf students as the other hearing students. In the same time, learning grammar is still a hard task which sometimes turns to be frustrating. So, the teachers and the learners need to be provided with a better way for teaching and learning it.

Teachers often ask about the effective method in teaching grammar. Traditionally, many teachers teach grammar seriously, make the lesson dull and uninteresting. Students are not motivated to learn when teachers resort to traditional methods of teaching. Vasilopoulos (2008:3) says that the deaf learners as the other students find grammar boring; SL approach has dominated the teaching in the classes. Baker- Shenk & Cokeley (1991) confirm that the teachers for the deaf students use the SL in teaching grammar which depend on giving exercises and practice drills that often have little or no meaning. However, the deaf students learn better when their learning based on the visual input.

Many researchers like (Baker-Shenk & Cokeley,1991:65) and (Reistma, 2008:3) ensure that using SL makes the deaf students feel grammar is not meaningful and memorable. Kincaid, et al. (1994:76) indicate that the deaf students usually practice what may be termed the two principles; smile in order to hide embarrassment for not being able to answer any question, sleep because of lack of interest and lack of motivation to learn.

This is one of the reasons which motivated the researcher to think how English language grammar could be taught effectively. So, the researcher's thinking focused on the combination between using educational games and computer to develop aspects of grammar for the deaf learners.

El-Harbi (2009:34) indicates that learning language can be more interesting through using educational games as teaching aids. Langran & Purcell (1994:43) see that the teachers should know that explanations and examples can be enlivened by varieties of educational games.

It is true that the combination between educational games and computer generates what is called Computerized Educational Games which began entering to the classrooms as a hot topic in teaching the deaf students. Li (2007:87) defines the computerized educational games as instructional activities are based on entertainment, competition and reinforcement while presenting a superficial or simulated reality.

There is no a doubt that using computerized games can help the teachers to create contexts in which grammar is useful and meaningful. In addition to the pedagogic value in the process of teaching and learning. Hamzah & Dourad (2009:87) add using computerized games in teaching and reinforcing grammar structures of students is an effective teaching aid. Bennett (1987:79) concludes that using computerized games in the class motivates the deaf students to finish the given tasks, even when the process required long periods of time.

It is clear for the teachers of the deaf students that their students have difficulty in understanding English, particularly grammar. That is from the view of cognitive psychology and psycholinguistics which demonstrated the many ways in which the deaf rely on visual input rather than auditory/ speech input. This processing style suggests that presentations that are visually oriented might be especially effective (Brentari, 2007:40).

The researcher thinks that the formidable difficulties which the deaf learners face in learning English and particularly grammar reflects the lack of using the effective teaching methods which are based on visual input techniques. The researcher agrees with the opinion of Doyle & Dye (2002:10) which focuses on the essential of using the visual input techniques because most of the deaf children are less attentive, easily frustrated and appear less confident in the classroom than their normal hearing peers. Often these children are more fatigued than their hearing peers due to the level of effort needed to pay attention during the day. Increased fatigue levels put these students at risk for irritable behavior in the classroom.

All the previous factors have a negative contribution on the slow rate of English language exhibited on average by the deaf students and a negative impact of low English grammar levels in their learning. In the same time, the researcher agrees with Betz (1995:34) that computerized games, as one of the visual input techniques, may play a basic role in enhancing leaning through visualization, experimentation and creativity of play and these are the main elements in the effective teaching for the deaf students.

Pointed towards highly the visual input techniques, the researcher decided to use computerized games as one of the visual input techniques to help the deaf students develop aspects of English grammar. Building on the visual input of the deaf and SL approach as visualization and directionality ways in teaching the deaf. So, the researcher designed a set of computerized games to develop English grammar for deaf students.

Despite the importance of using computerized games in the classroom of the deaf students, using them is not the main challenge. Nielsen (2006:80) shows that the real challenge for using computerized games in teaching and learning language for the deaf students is where computerized games can give a better learning experience language.

The researcher agrees with Berent, et al. (2007:200) that the roots of the challenge are emanating from the lack of empirical classroom researches in teaching English for the deaf students. In other words, the researcher considers that the real challenge is in the effective use of the computerized games on developing English grammar for the deaf learners.

To enhance the deaf students acquisition of English grammatical rules and to increase the deaf students motivation for learning English grammatical rules, the researcher attempts to examine the use of computerized educational games as one of the reflections of the visual input in the field of teaching the deaf students.

In the current study, the researcher attempts to examine the effectiveness of using computerized games to develop aspects of English grammar for the deaf students.

To sum up, there are many studies that showed the effectiveness of using computerized educational games in teaching English language. So, using computerized educational games may be a suggested solution to develop English grammar for deaf students. In addition to that, there is no study in Gaza that tackled the effectiveness of computerized educational games on developing English grammar for deaf students.

1.3 Statement of the Problem

In the age of globalization, the world of technology and information, English becomes a demand for hearing or deaf who trends to follow up the change in the modern world. The favorite solution to solve the problems of learning English language which face the deaf students, such as the low level of achievement and the lack of motivation, depends on employing the visual input, is using computerized educational games which can be

considered one of the visual input reflections in the process of teaching and learning the deaf .

In brief, the main intent of the current study was to examine the effectiveness of using computerized educational games on developing aspects (present & past simple tense) of English grammar for the deaf ninth graders in Gaza Governorates.

1.4 Study Questions

Accordingly, the problem can be stated in the following major question:

What is the effectiveness of using computerized educational games on developing aspects of English grammar for the deaf ninth graders in Gaza governorates?

From the above major question, the following sub-questions were derived:

1. What are the suitable computerized educational games for developing aspects of English grammar for deaf ninth graders?
2. Are there statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of the experimental group in the pre and post grammar test due to the use of computerized educational games?
3. Are there statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of experimental group in the pre and post grammar test due to gender factor?

1.5 Study Hypotheses

Based on the questions, the researcher hypothesized the following:

1. There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of the experimental group in the pre and post grammar test due to the use of computerized educational games.
2. There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of the experimental group in the pre and post grammar test due to gender factor.

1.6 Purpose of the Study

The study aimed at achieving the following objectives:

1. Designing computerized educational games to develop aspects of English grammar for the deaf ninth graders.
2. Examining the effectiveness of the computerized educational games on developing aspects (present & past simple tense) of English grammar for the deaf ninth graders after revising the result of the post test.
3. Measuring the changing degree of the deaf ninth graders on developing aspects of English grammar as a result of using computerized educational games.
4. Suggesting recommendations to face the difficulties of teaching English in general and grammar in particular for the deaf ninth graders.

1.7 Significance of the Study

This study benefits:

1. **Deaf Students:** The study magnetizes the deaf students to join a new way in learning, their readiness and motivation will be increased through using computerized games.
2. **The Teachers of English of Deaf:** This study contributes helping teachers for organizing an effective teaching and learning environment in the light of using computerized games.
3. **The Supervisors and Specialists:** The current study stimulates the supervisors for training courses to encourage the teachers to employ the modern techniques in their teaching for the deaf students.
4. **The Curricula Designers:** The study benefits curricula designers and English language educators to design special curriculum for the deaf students which are based on their competences and visual input.
5. **The Parents of the Deaf Children:** The study provides the parents of the deaf with suitable type of the computerized games which motivates their children to learn better.

In addition to that, the families of the deaf children feel there are educational researchers who are interested in making educational programs to help their children to learn easily. This may encourage them to register their children in the schools of the deaf.

6. **The Designers of Computerized Educational Games:** this study introduces the basic principles which should be available in the software of the computerized educational games of the deaf students.

1.8 Definition of Terms

The following part presents definitions of the terms used in the study in order to specify what they mean.

1. Effectiveness

It is the degree of the enhancement in using aspects of English grammar (present and past simple tense) for the deaf ninth graders as a result of using computerized educational games in the classroom.

2. Computerized Educational Game

They are digitally designed games with visual illustrations based on competition and reinforcement, combine between entertainment and learning which are designed to help the deaf ninth graders develop aspects of English grammar.

3. Aspects of English Grammar

A set of present and past simple tense rules that governs the composition of sentences, phrases and words in English language which are taught to help the deaf students to use English language correctly.

4. Deaf Ninth Graders

The students who are in the ninth grade at the schools of the deaf at Atfaluna Society for Deaf Children and they suffer from the profound degree of deafness which is more than 90 dB.

Chapter 2

Literature Review

Chapter 2

Part One

Theoretical Framework

2.1 Introduction

According to the purpose of this study, which aimed at investigating the effectiveness of computerized games on developing grammar for the deaf graders, this chapter is divided into two parts. The first part is a theoretical framework that is concerned with three issues related to English language and educational games, other issue related to teaching grammar using computerized educational games and the last issue concerning deafness.

The second part discusses previous studies that other researchers conducted in concern with computerized educational games in teaching English language, computerized educational games in teaching other school subjects and computer in teaching the deaf students English language and other school subjects.

2.2 English Language and Educational Games

2.2.1 How Do Children Learn English Language?

Children are professional learners who spend most of their day in a learning environment. Those learners are highly influenced by the type of environment they learn in. The quality and the style they are exposed to will greatly influence their language learning success. McGlothlin (1997:55) divides the process of learning English as a foreign language into two parts; the first part deals with how the new language comes to the learner and the second part deals with the idea of how the learner comes to the language; the strategies the learner uses to learn the language.

Cameron (2002:15) points out that there is an onus on the teacher to provide the learners with appropriate exposure and opportunities for learning English. Such exposure should be through activities that are tuned to the learners' need and interest rather than the demands of the curriculum. He claims that the teachers of English language for students should be aware of the following points:

- **Students Actively Try to Construct Meaning**

  They actively try to choose, compete, win and construct a meaning and purpose for what adults say to them. They can only make sense in terms to their world knowledge which is limited and partial.

- **Students Need Space for Language Growth**

  Routines and scaffolding are types of strategies that seem to be helpful in making space for language growth.

- **Language Development is Internalized**

  Language development can be seen as internalized from social interaction, techniques like games can help students develop their language.

- **Students Learning of English Depends on their Experience**

  There are important links between what and how students are taught and what they learn.

The researcher sees that playing games is an effective technique in class because they provide students with an opportunity to improve their language through scaffolding, internalized from social interacting and linking the content with the purposes. In the researcher's experience, the deaf students prefer to learn through this atmosphere where fun and interesting learning environment rather just take signs.

2.2.2 Playing as A medium for Learning

Playing is an instructional medium that helps the child acquire different social skills and aspects; mental, physical, emotional, effective and linguistic (Bisson & Luchner, 1996). Playing is considered a vital activity conducted by the child that has a major role in stimulating children towards learning and motivating their active interaction with the acquired facts, concepts and skills, educators are to invest such a medium in teaching and learning process (Kearney & Pivec, 2007:43).

2.2.3 Function of Playing

Playing is a process of experimentation and exploration. Playing serves many purposes and since children learn more effectively through activity rather than instruction, playing provides an excellent device for learning. Both of Altman (1986:10) and Banner (2005:22) refer to playing as a significant contributor to the child's cognitive development. They indicate that playing:

- Is one of learning instrument; through playing children acquire better understanding of the school subjects.
- Enhances the intrinsic motivation for learning.
- Helps children create and test their hypotheses about certain events which bring about better understanding.
- During playing, children use their imagination to understand the link between symbols and the objects they represent.

The researcher believes that playing is a vital device in the child's comprehensive growth as it helps the child discover his own strengths and weaknesses. It is advisable that playing games should include awareness that playing has a meaning and intrinsic value.

2.2.4 Definitions of Educational Games

Allery (2004:40) defines educational game as a competitive activity with a prescribed setting, constrained by rules and procedures in which the learning results from playing the game (for example, interactions and behaviors exhibited) and not from the academic content.

Schrier (2006:87) refers to educational game as a general term used to cover a variety of language activities. Language games are used for practicing grammar, sentence structures, vocabulary and spelling, for developing language skills, such as listening, speaking, writing and reading. Hadfield (1999:34) defines educational games as activities with rules, goals and elements of fun. Games should be regarded as an integral part of the language syllabus, not as an amusing activity for Friday or for the term end. Greenal (1990: 6) sees that the term of educational games is used whenever there is an element of competition between individual students or teams in a language activity. Sánchez, et al. (2007:65) define educational game as a way in which learners get repeated exposure to an aspect of language without being boring. As a result, games make learning and teaching English fun.

As mentioned above, the researcher considers that any educational game as an activity which uses to cover the variety of language activities, make fun and lovely atmosphere in the class. In addition it depends on certain objectives, rules and competition to make learning more fun effective.

2.2.5 Characteristics of Educational Games

Many educators and experienced language teachers admit that playing games is a means to learn English language through an effective way. For example, Yu (2005: 31) suggests that teachers should select and develop their own games since not all games are suitable every where.

Harvey & Bright (1985:5) determine the characteristics of educational games by the following:

- A game involves a challenge against either a task or an opponent.
- A game is governed by a definite set of rules.
- A game is freely engaged in.
- Psychologically, a game is an arbitrary situation which does not separate from the real life situations.
- Socially, the events of game situation are considered, in and of themselves to be of minimal importance.
- A game has a definite number of possible solutions, that is, only a finite number of things can happen during play.
- A game must always end, although the end may come simply.

Sørensen (2002:12) and Tuan & Doan (2010:33) suggest a set of concepts which seem central in the development of educational games, which are:

- **Challenges**: to be confronted with a problem students have to solve.
- **Reification:** to create, produce and make experiments.
- **Socialites:** to communicate.
- **Achievement:** to get acknowledgement and enjoy respect.
- **Pleasure:** to interact in sensitive and pleasurable situations.
- **Exploration:** to explore and act on basis of curiosity.
- **Fun:** the activity is chosen for its light-hearted character.
- **Nonproductive:** participation is not productive.

The researcher agrees with Harvey & Bright (1985), Sørensen (2002) and Tuan & Doan (2010) that integration between the psychological and the social aspects is important characteristic in playing games to enhance the learners' achievement, participation and interaction.

McCarthy(2002:90) and Pham(2007:65) present the characteristics of the educational games in English language class as the following:

- Focuses student's attention on specific structures, grammatical patterns, vocabulary items, spelling, and pronunciation..
- Have functions as reinforcement, revision and enrichment the learned material.
- Involve equal participation from both slow and fast learners.
- Adjust to suit the individual age and language levels of students.
- Contribute to an atmosphere of healthy competition, providing an outlet the creative use of natural language in a non-stressful situation.
- Can be used in any language teaching situation and with all skill areas (reading, writing, speaking and listening).
- Provide immediate feedback for the teacher.
- Ensure maximum participation of students for minimum of teacher participation.

Summing up the previous characteristics, the researcher believes that the following educational games should have basic characteristics:

- A game is rule governed.
- A game rules describe the pattern of activity meant to take place.
- A game encourages activities of participation and generates fun.
- A game has specific linguistic out comes and has a closure.
- A game seems to be task oriented.
- A game is goal defined.
- A game is competitive and engaging.
- A game should be suitable for the students' age and achievement level.
- A game should have immediate feedback.

2.2.6 Types of Educational Games in the Class of English Language

Educational games are highly motivating because they are interesting. They can be used to give practice in all language skills and be used to practice many types of communication.

Hadfield (1999:7) and Yu (2003:34) state that using educational games in the class of English may fall into three types:

- **Structure Games**: emphasize accuracy of language use. Rinvolucri & Davis (1995:76) point out the aim of structure games is to foster the linguistic ability for certain syntactic patterns and vocabulary areas.
- **Communication Games**: stress fluency of language use.
- **Games with Mixed Goals**: (structural and communication) provide the students with the opportunities to use particular language structure points in various communicative contexts.

Moreover, Little-wood (1981:32) divides the educational games into these types:

- **Communicative Games:** the emphasis is on successful communication rather than on grammatical correctness. They cover communicative functions such as, greeting, invitation, request, description and narration.
- **Pre-Communicative Games:** the emphasis is on accuracy of language use.

In the same time, games help teachers to create contexts in which the language is useful and meaningful. Loannou (2010:132) confirms that games can be used to enhance any part of language. Also, they can be used to develop listening, speaking, reading and even writing. Sánchez, et al.(2007:70) distinguish games according to English language skills:

- **Listening Games**: the aim is principally focused on practicing listening skill.
- **Speaking Games:** where oral communication is the principal objective of the task.
- **Writing Games:** the aim is principally the practice of writing skill.
- **Reading Games:** where reading comprehension is the main purpose of the task.

Also, they consider the sub skills games as games for improving accuracy of English language and divides them as the following:

- **Grammar Games:** provide experiences of the use of particular patterns of syntax in communication.
- **Vocabulary Games:** in which the learner's attention is focused on lexicon.
- **Spelling Games:** focused on the way the words are spelt.
- **Pronunciation Games:** focused on the way the words or phrases are uttered.

The researcher can conclude that each type of the educational games focuses on an item or a skill according to the purpose and the content of the lesson. Teachers also should be careful in choosing the suitable game for each lesson.

2.2.7 Advantages of Using Educational Games in Class

There are many advantages of using educational games, as they emerge from the literature, i.e. active learning, improved retention, collaborative learning, catering for learning styles, change of classroom atmosphere, and improved level of motivation. Deesri (2002:3) ensures that educational games improve the achievement and proficiency of the students. That is, playing games in the classroom can give students an opportunity to use language with a purpose in the situations provided.

In the class of English language, students feel stressful because they think they should be master in the target language. Games are advantageous at this point because they reduce anxiety, increase positive feelings and improve self-confidence because students do not afraid of punishment or criticism (Allery, 2004:56). Educational games develop students' fluency, accuracy and ability to improve. They maximize students meaningful use of English in a creative way (Hadfield, 1996:30) .

From the educational view point, creating a meaningful context for language use is another advantage that games present (Cross, 2002:153). They also provide learners with opportunity to direct their own learning.

The educational games help teachers create contexts which enable unconscious learning because learner's attention is on the message, not on the language. In other words, students acquire English unconsciously within an enjoyable and rewarding environment. Educational games foster student to practice English using different skills (Kim, 1995:35). Therefore, when they completely focus on a game as an activity, students acquire English language as a second language in the same way that they acquire their mother tongue, that is, without being aware of it (Richard-Amato, 1996:77).

Educational games motivate students to learn a second language. Games are a change of pace, something different that makes learning easier. Because they make learning more relaxed, fun and they are encouraged to learn more (Nemerow, 1996:25).

The researcher believes that each advantage of the educational games can be of a great pedagogical value for the deaf students who are nervous, less motivated, less attentive and less self confidence.

2.2.8 When to Use Educational Games

Games are very useful in class because they provide an opportunity for students to use their language in less formal situations. Manson (1982:46) confirms that games should be used correctly in any part of the lesson in order to achieve goals and should stimulate students to develop and improve the demanded abilities towards the learning process. There are three appropriate stages in a lesson where games can be used:

- **Opening the Lesson:** Teachers can use games to open the class in a stimulating way. In other words, teacher gets students interest in the language from the class beginning and knows what point or level students already have. So, the game is taken as a revision .
- **During the Lesson:** Games can reinforce an item that the teacher considers necessary to review and practice.
- **Closing the Lesson:** To close lesson in an effective way, so students can practice the learned item and the teacher can realize if the item is well achieved by students.

Hadfield (1996:54) adds that games can be used at all stages of the progression from controlled to free practice, serving at one end of the range as a memory aid and repetition drill, at the other as a chance to use the language freely and as a means to an end rather than an end itself. They can also serve as a diagnostic tool for teacher, who can note areas of difficulty and take appropriate remedial action.

Moreover, Harb (2007:60) conclude that games can be used for the useful practice and review of language lessons, thus leading toward the goal of improving learner's communicative competence.

The researcher thinks that games should be attractive and have clear objectives at any moment they are applied because this makes students enjoy the activity and improve their communicative competence through playing.

2.2.9 Which Educational Game to Use

Teachers should be careful about choosing games if they want to make them advantageous. First of all, the teacher should decide on the purpose of using the game. A game may seem appropriate and useful. However, when its value is considered from the view point of foreign language teaching, it may have little or no purpose (Gülin, et al. 2011: 221). The fact that teachers should consider whether the game like activity is for children only to make the lesson more attractive and protect them from being bored or whether we tend to revise and practice particular parts of grammar and vocabulary (Nedomová, 2007: 19).

Considering the level of the game is equally important while choosing games. Deesri (2002:77) sees that teachers should decide whether the level of the games fits students' language level because a game may become difficult when it is beyond the learners level or it may become boring when learners find it too easy to carry on.

Hogle (1996:43) refers that good games are fun and intrinsically motivating. Furthermore, games should be cognitive tools that reduce the need for laborious activity and drive students to achieve the goals. They should provide intensive practice of the language. Huyen & Nga (2003:76) point out that students level, age, culture, context, timing and classroom setting are basic factors to be considered.

Rixon, et al. (1991:5) refers that the fact that games enable social interaction and participation and learners learn better when they interact with their peers. Some games may include both cooperation and competition together. While students cooperate within a team, they, at the same time, compete against another team. Hence, what teachers should consider while choosing a game is the fact that children learn best with games which require physical action, interaction, competition and participation.

During the working at Atfaluna Society for the Deaf Children, the researcher noticed that the deaf students learn better in the social atmosphere which based on the interaction. So, the selection of games should be based on cooperation, participation and competition to help them to be more motivated.

In brief, the educational games for both hearing and deaf students should have clear objectives, suitable with their age, achievement level and even their culture. Moreover, games should be fun, attractive and motivated. Teachers should take all these factors into

the account to choose appropriate game. This because a game which seems to be most suitable may turn into a complete failure at the end.

2.3 Computer Assisted Language Learning (CALL)

The development of Information Technology (IT) has permeated the application of computers in the learning process, which is generally known as Computer Assisted Learning (CAL). A computer as a medium is used for the sake of facilitating peoples' in learning, such as learning a language. The computer can be situated in the classroom in a specially designed area of a library or in any convenient location where the student, or small groups of students can work uninterruptedly(Young, 2009:34). It can be used as the mainstay of a course, or back up, revision, reinforcement, and extension.

2.3.1 Definitions of CALL

The abbreviation CALL stands for Computer Assisted Language Learning. It is a term used by teachers and students to describe the use of computers as part of a language course (Prensky, 2001:122) . There are many definitions of CALL as follows:

- CALL is an approach to language teaching and learning in which computer technology is used as an aid to the presentation, reinforcement and assessment of material to be learned, usually including a substantial interactive element (Young, 2009).
- CALL is the use of Information and Communication Technologies (ICT) in second/foreign language learning and teaching. It includes a wide range of activities spanning materials and courseware development, pedagogical practice and research (Ang & Zaphiris, 2008:56).
- CALL presents a stimulus to which the learner must respond. The stimulus may be presented in any combination of text, still images, sound, and motion video. The learner responds by typing at the keyboard, pointing and clicking with the mouse, or speaking into a microphone(Prensky, 2001:98).

In the researchers' opinion CALL is described as a means of 'presenting, reinforcing and testing' particular language items. The learner is first presented with a rule and some

examples, and then answers a series of questions which test her/his knowledge of the rule and the computer gives appropriate feedback and awards a mark, which may be stored for later inspection for the teacher (Ang & Zaphiris, 2008:60).

2.3.2 History of CALL

Although computers have been used since the first half of the 20th century, they were not used for educational purposes until the 1960s. The 1970s witnessed the evolution of CALL as a result of development in research related to the use of computers for linguistic purposes and for creating suitable language learning conditions. The computer based introductory courses in the 1960s were pioneering projects in CALL, and were referred to as computer Assisted Instruction (CAI). The 1980s have witnessed the spread of computers both in educational institutions and in people's homes. Since the beginning of the '80s computers have also found their way into many schools. CALL software has also become more readily available on the market(Young, 2009:21). The emergence of inexpensive computer technology and mass storage media, including optical videodiscs and compact disks, has given instructional technologists better tools to work with. Compact disks are used to store large amounts of data, such as encyclopedias or motion pictures.

In CALL centers with computers and software such as CD-ROM, CD-I, or videodiscs, a student who is interested in a particular topic can first scan an electronic encyclopedia, then view a film on the subject or look at related topics at the reach of a button. Thus, such learning centers present students with the advantages of reference materials and popularize computer-aided instruction. The computer laboratory has become an integral component of foreign-language programs in most educational institutions. Computers have been used for language teaching for more than three decades(Young, 2009:26). According to Csikszentmihalyi (1990:43), the history of CALL can be divided into three stages: behaviouristic CALL, communicative CALL and integrative CALL. Each stage corresponds to a certain pedagogical approach.

2.3.2.1 Behaviouristic CALL: It was formed in the late 1960s and used widely in the 1970s under the influence of Audio-lingual teaching method. In this stage of CALL, repetitive language drills, referred to as drill-and practice were used. The computer was seen as a mechanical tutor who never allowed students to work at an individual pace,

which hindered motivation. Further, it included extensive drills, grammatical explanations and translation at 198various intervals .

2.3.2.2 Communicative CALL: It was the period of the 1980s. This period was the time that behaviouristic approach to language teaching was being rejected at both theoretical and pedagogical level, and also personal computers were creating greater possibilities for individual work at school. Communicative CALL corresponded to cognitive theories which stressed that learning was a process of discovery, expression and development. Under the influence of Communicative Language Teaching defendants of communicative CALL argued that computer based activities should focus more on using forms. Software developed in this period included text reconstruction program and simulations. In communicative CALL, the focus was not so much on what students did with the computer, but rather what they did with each other while working at the computer.

2.3.2.3 Interactive CALL: By the 1990s communicative CALL began to be criticized. New second language acquisition theories and socio-cognitive views influenced many teachers and lead them to use more social and learner-centered methods. This time, emphasis was put on language use in authentic social contexts. Task-based, project-based and content-based approaches all sought to integrate learners in authentic environments, and also to integrate the various skills of language learning and use. In integrative approaches, students are enabled to use a variety of technological tools as an ongoing process of language learning and use rather than visiting the computer lab once a week basis for isolated exercises.

2.3.3 Advantages of CALL

Many educators indicate that the current computer technology has many advantages for second language learning. The following are the advantages as stated by (Felicia, 2011:45):

- **Interest and motivation**: Classical language teaching in classroom can be monotonous, boring, and even frustrating, and students can lose interest and motivation in learning. CALL programmers can provide student ways to learn English through computer games, animated graphics, and problem-solving techniques which can make drills more interesting.

- **Individualization**: CALL allows learners to have non-sequential learning habit; they can decide on their own which skills to develop and which course to use, as well as the speed and level by their own needs.
- **A compatible learning style**: Students have different style of learning, and an incompatible style for students will cause serious conflicts to them. Computer can provide an exciting "fast" drill for one student and "slow" for another.
- **Optimal use of learning time**: The time flexibility of using computer enables students to choose appropriate timing for learning.
- **The importance of flexible learning**, learning anywhere, anytime, anyhow, and anything you want, which is very true for the web-based instruction and CALL. Learners are given a chance to study and review the materials as many times they want without limited time.
- **Immediate feedback**: Students receive maximum benefit from feedback only if it is given immediately. A delayed positive feedback will reduce the encouragement and reinforcement, and a delayed negative feedback affect the crucial knowledge a student must master. Computer can give instant feedback and help the students ward off his misconception at the very first stage. The advantages of CALL as giving immediate feedback, allowing students at their own pace, and causing less frustration among students.
- **Error analysis**: Computer database can be used by teacher to classify and differentiate the type of general error and error on account of the influence of the first language. A computer can analyze the specific mistakes that students made and can react in different way from the usual teacher, which make students able to make self-correction and understand the principle behind the correct solution.
- **Guided and repetitive practice**: Students have freedom of expression within certain bounds that programmers create, such as grammar, vocabulary, etc. They can repeat the course they want to master as many as they wish. According to Mason (2009:13), drill-type CALL materials are suitable for repetitive practice, which enable students to learn concepts and key elements in a subject area.
- **Pre-determined to process syllabus**: Computer enhances the learning process from a pre-determined syllabus to an emerging or process syllabus. For example, a monotonous paper exercise of 'fill-in-the-blanks' type can be made more exciting on the screen in the self-access mode, and students can select their own material. Therefore, CALL facilitates the synthesis of the pre-planned syllabus and learner

syllabuses "through a decision-making process undertaken by teacher and learners together".

The advantages of CALL can be outlined as providing motivation and autonomy for learner, compatible and time flexible learning, immediate and detailed feedback, error analysis, and a process syllabus.

2.3.4 Disadvantages of CALL

Although computers in language classes have an important role in language learning process, there are some disadvantages of CALL, such as,

- **Less-handy equipment**: According to Coshott (2009:67), using CALL is different from using traditional books that can be carried around and studied wherever and whenever they wish: on a train, at home, in the middle of the night, and so on. School computers or language laboratory can only be accessed in restricted hours, so CALL program only benefits people who have computers at home or personal notebook.
- **Increased educational costs:** Young (2009:65) indicates that CALL will increase educational cost, since computers become a basic requirement for students to purchase, and low-budget school and low income students cannot afford a computer.
- **Lack of trained teachers**: It is necessary for teachers and students to have basic technology knowledge before applying computer technology in second language teaching and learning. Therefore, computers will only benefit those who are familiar with computer technology, Coshott (2009:19).
- **Imperfect current CALL programs**: At present, the software of CALL mainly deals with reading, listening, and writing skills. There are some speaking programs have been developed recently, but their functions are still limited(Mason,2009:30) . Coshott (2009:57) states that a program should ideally be able to understand a user's spoken input and evaluate it not just for correctness but also for "**appropriatness"**. Speaking program should be able to diagnose a learner's problem with pronunciation, syntax, or usage and then intelligently decide among a range of options.

- **Inability to handle unexpected situations**: The learning situation that a second-language learner faces are various and ever changing. Computers merely have artificial intelligence, and it cannot deal with learner's unexpected learning problem or response to learner's questions immediately as teachers do. states that computer technology with that degree do not exist, and are not expected to exist quite a long time. In other words, today's computer technology and its language learning programs are not yet intelligent enough to be truly interactive (Can, 2003:38).

Some considerations must be given to the disadvantages of CALL, such as less handy equipment, high cost of education, lack of trained teachers and of CALL programs of perfect quality, and limited capacity of computers to handle unexpected situations.

2.3.5 What do we need to use CALL?

English teachers and language teachers in general should put many important factors into consideration before embarking on the adventure of CALL. First of all, they should evaluate the computer skills of learners. Learners with little or no knowledge of computers will first require a thorough introduction in basic computer skills.

secondly, a few technical issues should be taken into account. It is obvious that availability of a computer room on a regular basis is the first thing that teachers need for CALL to be successful (Koster, 2005:54).

The experience of many teachers has revealed that three students per computer is the maximum for the teaching experience to be effective. Besides, teachers should have at their disposal software especially designed for ESL. On the other hand, navigation on the web implies other specific requirements, such as,

- **Access to a reliable network environment**. The most important thing is to count on a reliable internet provider.
- **Use of modern equipment and browser software**. The use of outdated equipment may result in unacceptable download times and thus failure of the experience. The fastest modems should be used (at least 28,800 bps) and, if possible, the best computers to work on the web would be Power PC or Power Macintosh as they

possess the large amounts of memory required to operate the new generation of plug-in multimedia applications. Besides, teachers should note that many newer sites are designed to be used only with the latest versions of browser software, such as Netscapes Navigator and Communicator or Microsoft's Internet Explorer.

- **Teachers should be familiar with basic internet technology in order to anticipate potential problems**. Furthermore, they should be ready to contact support staff and on-line help resources in case major technical problems occur (Bakar, 2007:75).

2.4 Teaching Grammar Using Computerized Games

Grammar

2.4.1 Definitions of Grammar

There are different types of definitions for the term "grammar" according to the authors viewpoints. Some of these definitions refer to the traditional view point and others refer to the functional ones.

2.4.1.1 The Traditional View point in Defining "Grammar"

- Ur (1988:4) defines grammar as a way a language manipulates and combines words (or bits of words) in order to form longer units of meaning.

- Radford (1997:1) believes grammar is not only interested in forming the words, phrases and sentences together but concerns with the interruption.

- Millrood (2001: 56) asserts that grammar describes the rules of how a speaker produces sentences using the words and their morphology as the building blocks.

- Lock (2002 : 1) points out that the term grammar is regarded as a set of rules that specify the grammatical structures of the language.

The researcher defines traditional grammar as a set of rules in which words are combined together in a way to make meaningful sentences and phrases.

2.4.1.2 The Functional View point in Defining "Grammar"

As well as grammatical features, the connections between grammar and meaning and grammar and social context, have been taken into account (Desilva & Burns, 1999:17).

- Yu (2005:10) believes that grammar is not only a set of grammatical forms, but also it includes grammatical meaning and use as a whole. That is, grammar deals with three dimensions; form, meaning and use.

- Crystal (2004:65) says that grammar is the structural foundation of our ability to express ourselves. The more we are aware of how it works, the more we can monitor the meaning and effectiveness of the way we and others use language. It can help foster precision, detect ambiguity, and exploit the richness of expression available in English.

- Celce-Murcia (1991:466) stresses that grammar should never be taught as an end in itself but always with reference to meaning, social factors or discourse or a combination of these factors.

The researcher does not agree that grammar is only a set of grammatical forms, but also a system for real life meaning. In another wards, it is not appropriate to view grammar as a set of absolute rules. Patterson (2001:32) & Nunan (2005:76) have the same viewpoint which confirms that the issue should never be grammar teaching as rules. Rather, it should be about how grammar is taught to reflect real function e.g. apologizing and sympathy.

According to the above mentioned definitions, the researcher defines grammar as a set of rules governs the composition of sentences, phrases and words in English language which are taught to help the deaf students to use English language.

2.4.2 The Importance of Grammar

Grammar for any language is very important because language can not be transmitted correctly and accurately. Therefore, language without grammar is, to some extent, meaningless and aimless. Podgorski (2008:4) asserts that grammar is considered to be an important part of a language and a means which helps learners convey their intended meaning appropriately. Azar (2007:3) sees that grammar is to help students discover the

nature of language that consists of predictable patterns that make we say, read, hear and write intelligible. Ur (1992,1991) and Gao (2001:12) state that grammar helps learners to express their thought correctly either in speaking or in writing. Also, Leech, et al. (1982:8) see that mastering grammar helps learners improving their style of writing.

Further more, Alexander (1990:7) mentions that grammar is the support system of communication and learning; it helps learners communicate better using a language and grammar explains why and how of language. People cannot learn language without learning its grammar. Woods (1995:16) affirms that learning grammar is the learning of

rules. Learners should have an intellectual knowledge of grammar, this knowledge will provide basis on which learner can build their knowledge. These bases will act as the generative base for the learner.

As a matter of fact, the deaf students as hearing students need rules, structure and accuracy practice which lead them to fluency. The teacher should encourage fluency by offering climate of trust and support in the classroom through allowing pair-checking of answers before open-class checking as well as giving the class the chance to discuss a topic in groups.

2.4.3 Methods in Teaching Grammar

English language educators affirm the effectiveness of using the following methods in teaching grammar:

2.4.3.1 Teaching Grammar Based on PPP

The language and grammar can be learnt by three steps, the first one which is called presentation completely depends on the teacher by using different effective techniques. The second one, practice, depends on the learners with a help from a teacher by using various suitable tasks. The last one is called production which completely depends on the learners who are asked to convey what they understand by using their own structures and words (Russell, 2008:65).

2.4.3.2 Inductive and Deductive Methods

The importance of deductive and inductive method is to give students a good chance to practice thinking skills. In deductive method learners are taught rules and they

apply these rules when they use the language while the rules of grammar are not used directly according to the inductive learning (Larsen-Freeman, 2001:54).

The researcher thinks that using the inductive and the deductive methods create a positive and a cooperative atmosphere among the deaf students. Therefore, the deaf students can achieve the understanding and memorizing of the rules and then the production in meaningful discourse.

2.4.3.3 Teaching Grammar Based on EEE

Sysoyev(1999:3) confirms that three stages in teaching grammar which are; exploration, explanation and expression.

- **Exploration:** in this stage, students are given sentences with a certain grammar rule and they are asked to find out the structure with the help of the teacher, to deduce the rule. In fact, it is inductive learning.
- **Explanation:** is the second stage of learning grammar. After finding out and exploring the rule, students can summarize what was previously discovered, focusing on the form. The teacher can ask his students to look at the grammar reference at the end of the textbook to consider the rule.
- **Expression:** it is the third and the last stage of the process. After discovering the structure through the exploration stage, and looking at the rules through the explanation stage, students have to practice the new rule by communicative and interactive exercises.

2.4.4 Various Techniques in Teaching Grammar

The teachers use many techniques on teaching grammar which facilitate their teaching and make lesson more interesting. Some of these techniques as followed:

2.4.4.1 Using Songs in Teaching Grammar

Using songs in teaching breaks the routine of classroom activities. They relax and entertain the students when they learn a new structure. Songs facilitates grammar and make it easy. They depend on contextualizing (Saricoban & Metin, 2000:3). Also, repetition by singing songs helps students to practice the grammatical lessons through an enjoyable atmosphere (Cakir, 1999:2).

2.4.4.2 Teaching Grammar Through Drama

This technique is one of the effective techniques in teaching drama in class. Langran & Purcell (1994:65) drama can stimulate and increase learners' knowledge about lexical and grammatical structure by using literary texts.

Royka (2002: 3) lists some advantages of using drama in teaching languages as the following:

- Making the learning of the new language an enjoyable experience.
- Setting realistic targets for the students. Linking the language-learning experience with the student's own experience of life.
- Drama can create in a student a need to learn the language.
- Putting more responsibility on the learners as opposed to the teacher.

2.4.4.3 Musical Activities

Cakir (1999:1) points that songs, rhymes, chants and musical games are fantastic materials for the language teacher to use with young learners. In the opinion of Orlova (2003:5) students prefer certain kinds of music which should be simple, cheerful and up-to-date and teachers ought to select interesting text on the topic music.

2.4.4.4 Using Games and Problem-Solving Activities

Saricoban & Metin (2000:5) and Lee (1995:45) ensure that games and problem-solving completely depend on the communicative activities and they are task-based and have a purpose beyond the production of correct speech. They are used after the presentation because communicative tasks are practiced after mastering grammar or lexical points. In playing games, the learner's attention is on the message, not on the language. That is, students acquire language unconsciously while their whole attention is engaged by the activity itself.

The researcher believes that each one of the previous technique aims at teaching grammar rules in functional and enjoyable frame. It encourages students to practice and discover how to use the rules. In Gaza schools for the deaf students, deductive method is the most common in teaching grammar. In fact, some experienced teachers attempt to use games to explain the rules and it shows a positive result on providing a relaxed atmosphere and motivating the deaf students who are less motivated. Therefore, the researcher

intendes to investigate this filed and check its effectiveness on developing aspects of grammar for the deaf ninth graders.

Computerized Games

2.4.5 Definitions of Computerized Games

In this study, the terms of electronic games, digital games, computer games, computerized games and computerized educational game are simply defined as follows:

- **Electronic Game:** is an activity uses using either a computer or other electronic interface that has rules, goals, and feedback (Young, 2009:32).
- **Digital Games:** is a phenomenon that refers not to a linear but to a circular process of learning and the unstructured act of play in games. It can be characterized as an act of learning a new form negative instances experienced in an open virtual learning environment (Mitgutsch, 2008:66).
- **Computer Games:** are the activities in which students can see their performance, control their learning with getting feedbacks, and engage the lesson with graphics, sounds, animations and figures (Virvou, et al. 2005:20).
- **Computerized Game:** is a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the students exerts effort to influence the outcome, the students feels attached to the outcome, and the consequences of the activity are optional and negotiable (Juul, 2003:87) .
- **Computerized Educational Games:** are teaching aids based on multimedia, which combine between entertainment and learning. They designed according to certain procedures and rules to achieve the learning objectives (El-Harbi, 2009:116).
- **Educational Computer Games:** is a new kind of educational games which includes motivational and funny features which can be used as an alternative or supportive to the other instructional methods in the direction of instructional or educational goals (Çankaya & Karamete, 2009:98).
- **Computerized Educational Games:** are instructional activities that provide motivation, entertainment, competition and reinforcement while presenting a superficial or simulated reality (Li, 2007:12).

From the previous definitions it is noticed that some researchers like El- Harbi (2009); Young (2009); Juul (2003) and Can (2003) define computer games as activities based on rules and feedback to achieve learning goals. However, Mitgutsch (2008:76) defines computer games as means which make learning more enjoyable through vital environment. Moreover, Li (2007:87) and Çankaya & Karamete (2009:70) focus on fun, entertainment, competition and motivation. Computerized games can be considered as a new teaching technique which introduces the learning activities with entertainment and feedback to achieve the expected objectives.

Furthermore , the researcher sees that computerized educational games are digitally designed games with visual illustrations based on competition and reinforcement, combine between entertainment and learning which are designed to help the deaf ninth graders develop aspects of English grammar.

2.4.6 Elements of Computerized Educational Games

Prensky (2001:22) and Ang & Zaphiris (2008:80) ensure that computer games consist of six keys as structural elements which, when combine together, strongly engage the students which are:

- **Rules:** impose limits and they force students to take specific paths to reach goals and ensure that all the students take the same paths.
- **Goals or Objectives:** goals or objectives create duty sense.
- **Outcomes and Feedback:** are how to measure students' progress against the goals. Feedback comes when something in the game changes in response to what students do. The different potential outcomes of the game are assigned different values.
- **Conflict, Competition, Challenge and Opposition:** are the problems in a game students are trying to solve.
- **Interaction:** has two important aspects. The first is the interaction of the player and the computer. The second is inherently social aspect of games that students do with others.
- **Representation:** means that the game is about something.

Csikszentmihalyi (1990:9) confirms that when computer games are designed according to the previous elements, there are many results appear such as:

- Challenge is optimized.
- Attention is completely absorbed in the activity.
- The activity has clear goals.
- The activity provides clear and consistent feedback as to whether one is achieving the goals.
- The activity is so absorbing that it frees the individual, at least temporarily, from other worries and frustrations.
- The individual feels completely in control of the activity.
- All feelings of self-consciousness disappear.
- Time is transformed during the activity.

The researcher sees that the results of using computer games in class make challenge, pay attention and increase individuals' freedom from worry and frustration. These elements make the computer games to be appropriate one of the teaching techniques. In the same time, The researcher thinks that these elements which the deaf students need during their learning.

Felicia (2011:31) considers that when computer games are specifically created for learning, they usually include some or all of these elements: a game format, educational objectives, multimodal representations (e.g. tactile, auditory or visual), feedback mechanisms (e.g., formative or summative), information provided to users or students, tools to track their knowledge and proficiency and adaptive pedagogical mechanisms.

It becomes clear for the researcher that computerized games may have major elements like clear objectives, rules, feedback and challenge which can be investigated .

2.4.7 Types of Computerized Educational Games

There are nine common types of computerized games which are categorized into Exercise Games, Strategy Games, Simulation Games, Adventure Games, Role- playing Games, Twitch Games, Combat Games, Action Games, Puzzle Games, Sports Games, Deductive and Inductive Games. In (Appendix, H) a short description for each one of the included examples.

2.4.7.1 Exercise Games: or task-based games are the use of active electronic games in learning environment which foster not only the learning of the curricula but also motivate, engage, and stimulate healthy behaviors. They are more than a combination

of just exercises and games (Mason, 2009:76). They are intended to be used in repeating the previously learned skills and knowledge in an interesting environment of game with an educational purpose and thus increase in persistence (Alessi & Trollip, 2001:54). *Virtual 20Q Game* is an example for this type. Coshott (2009:23) points out five elements which help in designing good exercise games which are:

- **Intensity:** How much exercise does the game require?
- **Engagement:** Is the game appealing to the target student?
- **Duration:** How long will it be played for in one sitting?
- **Frequency:** Will the target student play the game often?
- **Progression:** Does the game challenge a wide range of abilities

2.4.7.2 Strategy Games: require higher-order thinking skills and problem solving skills for successful completion. They require users to perceive the larger problem and to plan strategies to solve it (Jones, 1998:4). Strategy games need to be played with caution and patience. This type has become popular amongst skilled players who are capable of concentrating on more than one thing at a time. (Can,2003). For example, *Conqueror Game*.

2.4.7.3 Simulation Games: require active participation and this affords opportunities for the learning material to be integrated into cognitive structures, there by aiding long-term retention(John & McFarlane, 2002:4). For example, *River City Game.*

2.4.7.4 Adventure Games: the purpose is entertainment or edutainment. In these games there are very complex environments like micro worlds, with no deterministic problem representation (Bakar, 2007:69). The player solves some of the logic puzzles (with no time constraints) in order to progress through some described virtual world (Koster, 2005:12). For example**,** *Hurricane Katrina game.*

2.4.7.5 Role-Playing Games: where the players assume characteristics of persons or animals and behave as what they expect from these characteristics to do in some situations, during the game (Can,2003). For example, *Against All Odds Game*.

2.3.7.6 Action Games: normally follow a simple play pattern; the player should defeat increasing numbers of increasingly skilled enemies and often in increasingly complex battlefields. These can be categorized into shooting games so called because the player's

characters move between onscreen platforms and another type of games is "reaction-based" (Alessi & Trollip, 1991:173). For example, *Eyewitness (Nanking) Game*.

2.4.7.7 Puzzle Games: where the player has to succeed within some simplified recreation of a place or situation (Maddux, et al. 1992). For example, *Puzzle Game.*

2.4.7.8 Deductive Games: are specific games based on the deductive method which moving from the rule to the examples, basic functions of the child's psyche and the need of playing. These games influence on the child intellectual actions consciously. The utilization of the game is one of methods to make students more interested in English. Currently deductive games, as a method of teaching, became more popular at schools (Ratusinski, 2009:33). As example for this type is *Spelling City Game*. Alessi & Trollip (1991: 87) refer that this type has three functions:

- Motivating to undertake intellectual effort.
- Didactic, they teach grammar and content.
- Educational, they teach rules of teams work.

2.4.7.9 Inductive Games: based on the inductive method which moving from the examples to the rule. In this method, students start from the point they want to prove, from the question which was put in the task. Answering the questions, formulate next questions, easier and easier, answers of which would lead them to the solution of the task (Ersoz, 2000:52). For example, *Game Goo*.

The researcher believes that not all the types of the computer games can be used in class. Some of these games require opened time such as Adventure and Combat games. Others like strategies games do not suit students who have low thinking level. However, Exercise, Didactic, Inductive, Simulation and Role-Play games have many educational characteristics such as receiving feedback and limiting in time playing which encourage the teacher to use in class.

2.4.8 Characteristics of Computerized Educational Games

In fact, not all the computer games appropriate the learning objectives so we as teachers should wonder why some computer games are effective learning means while some are not and what makes a successful learning game. Dempsey, et al. (1997:76) have studied forty computer games in order to find out, which characteristics are the most important for a good computer games and they found the following characteristics:

- Clear instructions and objectives should be available for the students.
- The game should be challenging which leads to the real learning.
- The students should have control over gaming options such as speed, difficulty, timing, sound effects and feedback.
- Aesthetics like screen design, graphics, animation and sound should be of appropriate quality.

Ersoz (2000:84) determines the common characteristics of computer games which have the same concepts into familiar classroom activities, to the goals that are perceived as clear and achievable, related challenges which gradually become more difficult, meaning choices for participants and an uncertain outcome.

FAS (2005) confirms that computer games could break the "Test and Tell" instructional paradigm prevalent in education today, potentially:

- Increasing the speed which expertise is acquired and depth of understanding.
- Increasing learner ability to transfer expertise acquired to the task solution.
- Increasing the range of outcomes among learners.
- Making learning more motivating, if only to get more time-on-task.

Both of Dempsey, et al. (1997) and Ersoz (2000) point out that goals, feedback and challenges as basic characteristics. FAS, (2005) adds other characteristics like speed, time, participants choices, outcomes and motivation. Furthermore, Neimeyer (2006) shows that the immediate feedback through playing digital games helps students know when they get the right or wrong answer. If the students get the answer wrong, they can immediately correct it.

The researcher discussed with the teachers of the deaf, in different societies of the deaf in Gaza, about the sutiable characteristics which should be avaliable in the desinged computer games and most of them mentioned that computer games should depend on the visual input, challenging, introduce immediately feedback and make learning more motivating. They also predicted that using computer games as a new technique will play an effective role in teaching the deaf learners.

Klopfer, et al., (2009:65) consider that one of the main characteristics of computer games is a freedom. So they explain the types of freedom as the following:

- **Freedom to Fail:** one does not actually fail at play, but one is free to do things at play that would look like failure in other contexts. At play, the student has unlimited freedom to undertake such doomed enterprises and learns as much about the nature of things from failure as from success.
- **Freedom to Experiment:** this correlates closely with the freedom to fail, but suggests that within the play space the student has some room to invent new approaches to whatever task is at hand. Experimentation would be meaningless without the ability to fail regularly.
- **Freedom to Fashion Identities:** at play, the student is not examining the nature of the physical and social worlds, but is also exploring those worlds.
- **Freedom of Interpretation:** one can not learn from games without engaging in playing. The individual, social, and cultural motivations of a student affect what is experienced through play.

The researcher thinks that the mentioned characteristics of computerized games may help the deaf students in their learning. For example, by giving the students an opportunity to fail, experiment, explore and be motivated through playing computer games, the teachers encourage students to learn better.

2.4.9 Advantages of Using Computerized Educational Games

Computerized educational games based on learning through playing games. Therefore; they become to be a favorite technique for students. The following are the advantages of using these technique in learning:

2.4.9.1 Challenge

A good digital game moves at a rate that keeps the students at the edge of their capabilities, moving to challenges as mastery is acquired. (Quinn, 1997:3) ensures that broad experiences and practice opportunities continue to challenge the learner. Learners are presented with a broad set of experiences and practice opportunities. Learning from a world that has color, complexity and challenge, is more challenged than a set of abstract devoid of real world context.

2.4.9.2 Motivation

Computerized games offer motivational challenges create competitive environments and affective experiences of fun in which learners can engage (Garris, et al. 2002:90). Denis & Jouvelot (2005:462) distinguish between two types of motivation which intrinsic motivation pushes students to do the task freely, and extrinsic motivation which pulls students to act due to factors that are external to the activity itself, like reward or threat. Motivation leads to the activation of efficient cognitive strategies for long-term memory issues like monitoring, elaborating or organizing information.

2.4.9.3 Competition

Competition is against oneself, opponents, chance or time. Which associates with electronic games and plays a crucial role as for the nature of games requires. Learners are excited by competition because the question of who will win or lose remains unanswered until the game is over. Students also enjoy the competitive games and these serve as a motivation for successful participation (Gee, 2003:90).

2.4.9.4 Engagement

Students can spend hours playing a game and not be aware of the time they have spent. (ibid., 2003:76) points out the reasons to why computer games engage learners as the following:

- Computer games represent fantasies and follow a simple principle of winning or losing, with instant outcomes,
- They recognize features to engage the learners' attention by stimulating the learners enjoyment with visual feedback,
- They provide interactive playing environment and an experience,
- Furthermore, they open up different solutions of solving problems.

2.4.9.5 Interesting Learning Environment

Using computerized games in learning environment is predicted to be one of the ways to give students an authentic learning environment and this condition helps students to learn language better than the daily classroom context. Li (2007:2) comments that computer games can vary learning situations and change the learning environment of classroom and so increase students' motivation. They promote language development in a fun and communicative atmosphere.

2.4.9.6 Scaffolding / Contextual Bridging

Digital games can close the gap between what is learned and its use. Neimeyer (2006:87) ensures that using computerized games are used to train the students' brains to tune out distractions, pay attention to what was useful information and let students obtain the knowledge then connect it in their own way with what they already have learned. Macedonica (2005:90) confirms that these games can offer scaffolding, providing learners with prompts and partial solutions to keep them progressing through learning, until they are capable of controlling their learning.

2.4.9.7 Feedback / Reinforcement

Computer games continually monitor progress so reinforcement or feedback should be clear, immediate and appears after the attempt of solving problems. Lewis & Hill (1995:89) confirm that electronic games show immediate feedback which helps students know when they get an answer right or wrong. They can also provide visible and audible rewards such as music or images.

2.4.9.8 Safe Training

Computerized games provide inexpensive real-world background experience and provide safe training in areas where it would be dangerous allow learners to experiment freely (Gee, 2003:98). Also, Norman (1993:67) adds they support a safe way of acting out a dangerous reality such as playing war games.

2.4.9.9 Bring Real Life Situations

Electronic games bring real life situations to the confinement of the classroom which provide learners with an opportunity to use the language (Celce- Murcia,1991:65). Nunan (1999:26) reports that interactive visual media such computer games seem to have a unique instructional capability for topics that involve social situations or problem solving, such as interpersonal solving.

2.4.9.10 Infinite Patience

The teacher's impatience may intimidate a learner or influence how the learner perceives himself or herself. However, machines such as computers and its games do not lose patience, and offer learners innumerable opportunities to "Just try and try it again" (Nedomová, 2007:65).

2.4.9.11 Task Time

The ability to hold the attention of students is a hallmark of modern computer games. Neimeyer (2006) confirm that some students spend hundreds of hours mastering games. Designers understand how to keep students engaged, while delivering critical information for attaining the objectives.

2.4.9.12 Student - Focused Activities

Student-focused activities require active involvement of learners. They can be considered the best way for students to be responsible for their learning. According to the opinion of Crookal (1990:79) that learners and teachers change their roles and relations through games and learners are encouraged to take active role in their learning process.

2.4.9.13 Developing Skills

Cognitive skills can be developed by using computerized games. These skills help learners to retrieve factual information effortlessly from their memories. Furthermore, procedural skills can be developed which help learners to perform quickly, smoothly and with few errors (Grabe & Grabe,1996:2). In addition, Can (2003:65) recognizes that playing computer games can support valuable skill development, like strategic thinking, critical thinking, processes planning, communication, negotiating skills and decision-making.

2.4.9.14 Increasing Learning Outcomes

The nature of learning which is supported by computer games could be broadly divided into three types; learning as a result of tasks stimulated by the content of the games, knowledge developed through the content of the game and skills arising as a result of playing the game (Can & Cagiltay, 2006: 79).

2.4.9.15 Facilitating Activities and Content

In computer games students engage in activities during the play; they apply their knowledge; they investigate and discover. These activities will help them develop their creativity, imagination, and visualization skills. The lessons will be more understandable when using computer games and the previous knowledge will be reinforced(Baltra, 1990:66).

Some of the experienced teachers of the deaf students at Atfaluna society and Deir El Balah Society expected positive effects for using digital games as a modern technique in teaching their deaf students. Moreover, the teachers directed the researchers' attention to focus on reinforcement / feedback, motivation, student-focused activities and engagement in designing the computer games. In the same time, The researcher expects that computerized games can enhance the deaf students' learning competences and develop feelings of confidence.

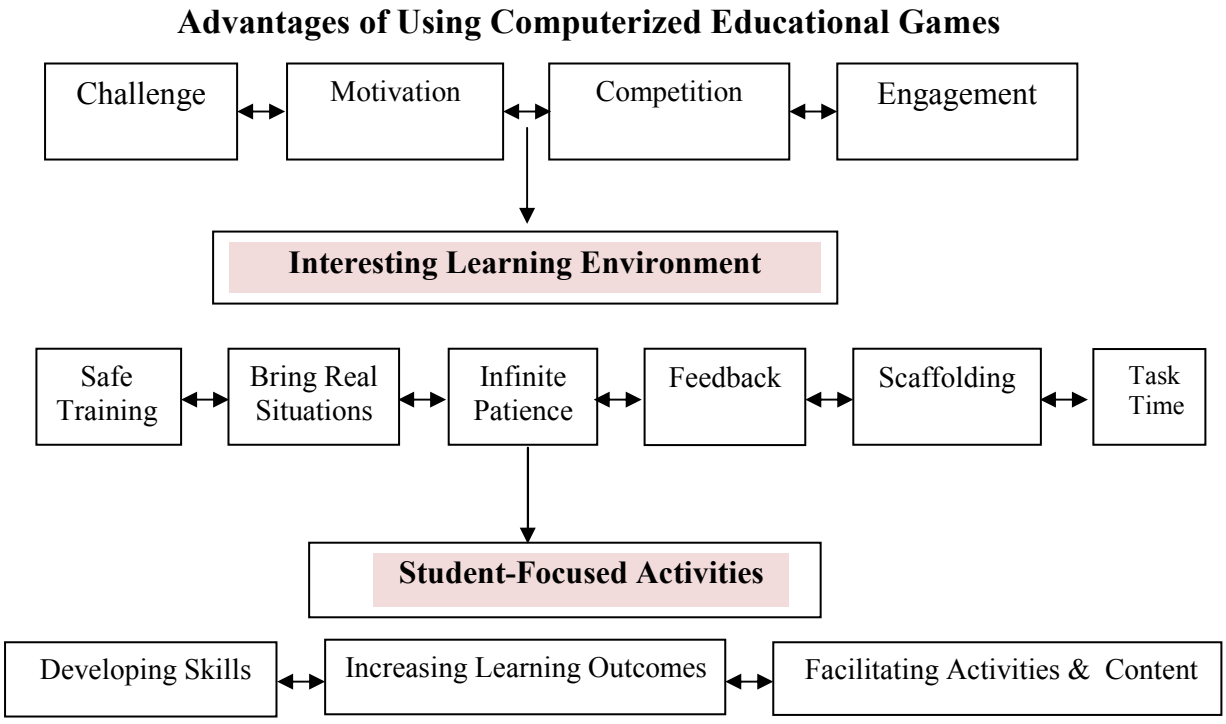


Diagram (1) Advantages of Using Computerized Educational Games

It is clear from diagram (1) that computerized educational games include challenge, motivation, competition, and engagement to create an interesting learning environment through safe training, bring real situations, infinite patience, feedback, scaffolding and task time. All the previous advantages make students to focus on activities help in developing skills, increasing learning outcomes and facilitating activities and content.

2.4.10 Criteria for Designing Computerized Educational Games

Computerized educational games should be designed on the learning process. John & McFarlane (2002:65) consider there are two common keys to design games; the desire to harness the motivational power of games to make learning fun and through doing.

Prensky (2001:51) lists the main cognitive changes have been observed in the new generation of computerized games:

- Twitch speed versus conventional speed
- Parallel processing versus linear processing
- Graphics first versus text first
- Random access versus step by step
- Connected versus standalone
- Active versus passive
- Play versus work
- Pay off versus patience
- Fantasy versus reality
- Technology-as-friend versus technology-as-foe

In addition to the previous, Mitchell & Smith (2004:78) add another important criteria for designing computerized games as the following:

- User centricity
- Novelty
- Measurable progress
- Moves a learner through multiple levels of achievement
- Keep players at the edge of his or her skills but do not over- challenge
- Build both generic and specific skills
- Self-directed play
- Provide tasks to fill gaps in knowledge or skill
- Provide sense of mastery
- Requires active problem solving,
- Delivery of some ambient information, and
- Build skills that can be carried forth in new games.

The researcher sees that Prensky (2001:90) and Mitchell & Smith (2004:65) determine most of the essential criteria which should be available in designing computer games. The researcher asked some teachers of the deaf about the criteria for designing a software for the deaf and they answered that fun, challenge, graphics, fantasy, play, measurable progress, self-directed and fill gaps in knowledge are very important in such designing. Good quality software affects the student's success positively and bad quality software can cause waste of time and get undesired behaviors for students.

2.4.11 Procedures for Using Computerized Educational Games

The teacher is the one who decides which game would be appropriate for students in a class. It would seem easy; however, the teacher should be aware for the procedures which included in the teacher guide when deciding which a game would be the most appropriate for his students. Carrier & The Centre For British Teachers (1980:7) point out the following procedures:

- **About the Game Itself:** it is necessary to know the main aim of having a game to analyze perfectly the purpose of the activity. To establish the specific language skill to be achieved and the time for presentation, practice and production in which it should be presented and applied. Also, if the game is used for introducing a topic, for general practice or to reinforce any language skill.
- **About Students:** teachers should mainly take into account the student's level in language (beginners, intermediate or advanced), age, manners, if they are serious-minded or light-hearted, their situation towards the language, if they take English as a compulsory subject or are highly motivated in learning it, the size of the class (the number of students in the course) and the cultural background.
- **About the Time:** when the game is used is important too. Student's motivation and interest in a game may be very different on a Monday morning from the last hour of class on Friday or, student's response to a game after a test or after a discussion lesson. The teachers should consider the minimum amount of time needed to play the game with the maximum amount of time available in the lesson.
- **About the Preparation of the Game:** teachers should check if there is access to get
- the material and if it's available at school and examine the physical space in which the game will be applied. Macedonica (2005:39) advices the teacher to be a ware of the following points when giving instruction for a game:
    - ❖ Tell the students "**Why**" they are going to play the game and how they will benefit from it. If learners are aware of what they gain from a game they will be more engaged participants.
    - ❖ Tell the students "**What**" are going to do while playing the game. This explanation should be done step by step.
    - ❖ Tell the students "**How**" to play the game.
    - ❖ Handing out photocopied rule sheets to each group is very helpful, as the learners can refer back to them and refresh their memories if necessary during the game.

- ❖ Clarify what the **"Outcome"** will be. Students will pay their attention and therefore they will work more effectively if they know what they can expect at the end of the game.

The researcher confirms that the teacher should be aware that each one of the procedures requires a lot of considerations and arrangements to achieve the purposed objectives especially with deaf students as they need learn through an interesting techniques according to their age , academic level and cultural background.

2.4.12 Computerized Games Categories

All the computerized games in the current study were designed to teach present and past simple tense through the teacher guidance for the deaf students in the class and it did not as self learning software. Also, after each wrong answer there was an immediate feedback. The computerized games were classified into three categories as follows:

2.4.12.1 The Computerized Games of the Present Simple Tense:

- **My Way (1) Game:** aimed to teach present simple tense affirmative, negative and question forms. This game was called **"My way (1)"** because the deaf students in this study learn the rules and the examples of the present simple tense (affirmative, negative and question forms) through a boy who was walking, running in a way and standing up in front of a wise man who explains the rule or the examples. This game showed only the rules and the examples. The reason why the researcher used My Way (1) game, because it introduces the present simple tense rules to help the deaf students learn the rules and examples before moving to the exercise games such as the Rocket, Frog, Catching and Similar Pictures.

The researcher asked many teachers of deaf students about how they teach both Arabic and English grammar ,and the researcher noticed that most of them taught grammar by drawing a way on the board or on a poster then presenting and explaining the rules which were written on the trees or on anything on the way.

- **Rocket Game:** It is an exercise game aimed to teach the affirmative form of present simple tense which verbs take (s) or (es). This game was named "Rocket" because it was based on Launching the rocket towards the target or the selected

answer. After each wrong answer there is an immediate feedback. The reason why the researcher used this specific game was that deaf students could use and apply what they learnt not only to memorize rules and examples.

The researcher and the other teachers at Atfaluna Society for Deaf Children have the same opinion that the suitable question for the idea of Rocket game is "Choose the correct answer."

- **Frog Game:** aimed to teach the negative form of present simple tense**.** This game named "Frog" because its idea depended on clicking on (√) or (×) before passing 30 seconds to help the frog to jump and catch butterflies. After the wrong answer there is an immediate feedback and alternative question. The aim of this game was to enable deaf students to deal with the suitable pronoun, helping verbs (do/does), and the form of the verb. The reason why the researcher used this specific game, is that deaf students could apply what they learnt in the part of how to make the negative of the present simple and use the English pronouns and helping verbs in the present simple practically not to memorize the lists of the different pronouns.
- **Catching Game:** aimed to make meaningful questions using does/do. Its idea based on catching the parts of the question (Do/Does, subject and the complement) by clicking on each part. When the student selected the wrong part, it gave a light for correction. The reason why the researcher used this specific game is that the teachers of deaf at Deir El Balah Society and another experienced teachers advised the researcher to design a game used to make a meaningful question. This was because deaf students did not have to know the parts of the question; they had to know how to arrange these parts

.

- **Similar Pictures Game:** aimed to teach how to make affirmative and negative answers from do/ does questions. In other words, the aim was to enable the deaf students to select a suitable answer which combines the correct pronoun and helping verbs (do/does). This game required finding the two similar pictures and matching them to present the question on the screen.

Many of the experienced teachers of deaf suggested using two games; one of them to teach how to make questions and another to teach how to answer in the present simple. The reason why the researcher used these games was that the teachers of deaf teach how to

make questions and answers as two lessons. So the researcher designed Catching Game and Similar Pictures Game.

2.4.12.2 The Computerized Games of the Past Simple Tense:

- **My Way (2) Game:** aimed to teach past simple tense affirmative, negative and question forms. This game was called **"My Way (2)"** because the deaf students in this study learn the rules and the examples of the present simple tense (affirmative, negative and question forms) through a boy who was walking, running in a way and standing up in front of the wise man who explains the rule or the examples. This game only showed the rules and the examples and it did not include exercises. The reason why the researcher used My Way (2) game was that it introduced the past simple tense rules to help the deaf students learn showed rules and examples before moving to the exercises games such as the Puzzle, Solitaire and Car games.

The researcher was advised to use the same game/software to present the rules and examples of both the past simple and the present simple because using the same software for explaining two different things make and help deaf students to compare and to learn better.

- **Puzzle Game:** aimed to teach deaf students to distinguish between regular and irregular verbs in the past simple tense. This game was named "Puzzle", because the deaf students try to find the correct form of the verb. Its idea depended on clicking on the past simple of the verbs which were presented on the monitor in order to guess the missing word. There was unlimited number of the opportunities to get the correct answer. The reason why the researcher used this specific game was that deaf students prefer to learn the new information through attempting and experimenting. So the researcher used this game to teach the deaf students how to form of the past simple.

- **Solitaire Game:** aimed to teach the negative form of the past simple. It was named by this name because it is like solitaire. It is based on selecting one card randomly and finding the similar card in the other side to show the question and select the correct answer. The reason why the researcher used this specific game was to increase focusing on the correct arrangement of the pronoun/ name, helping verb (did), and not on the answer.

The idea of this game was taken from the idea of a traditional game for deaf which was based on selecting five of the similar cards in one minute.

- **Car Game:** aimed to teach how to make meaningful and complete questions using (Did) and how to answer a question with affirmative and negative answer. The name of this game was taken from its idea which requires passing the obstacles of the road by selecting the correct answer. After two mistakes the car exploded and then the student restarts. The reason why the researcher used this specific game was that the researcher noticed that deaf students prefer this kind of games which combines exercise and action.

2.4.12.3 Additional Computerized Games - Revision Games

- **Key Game:** aimed to revise the present simple affirmative, negative and question forms. The reason for naming this game "Key "was that the students explode the animated objectives to find the lost key, open the door to present the question and correct the mistake in each sentence.

The teachers of the deaf students at Deir El Balah Society for Deaf Children suggested the idea of this game. Also, they commented that if deaf students began their learning through an attractive game in an attempt to find the lost key, they would learn better and retain the material.

- **Lights Game:** aimed to revise the past simple affirmative, negative and questions forms. It was named "Lights" because when the answer is correct, the green light appears, and the red light appears when the answer is wrong. The idea of the Lights game was based on passing the first level and moving to the second level. To pass the first level, the student should correct more than four mistakes.

The teachers of the deaf students agreed with the researcher's opinion that designing additional games as revision games is an important part of the software because they will help the deaf students to remember and revise the learned rules to answer the questions in the games.

2.4.13 The Importance of Computerized Educational Games in Teaching and Learning Grammar

There are three reasons for implementing computerized games in teaching and learning English grammar; grammar is usually taught by using traditional method and teachers always rely on blackboard and poster as teaching aids; grammar lessons seem complex to students and learning it is the challenge and most of students have negative experiences with grammar and have limited grammar knowledge.

When the value of the computer games in teaching grammar is considered, teachers tend to use them for practice or to reinforce a specific grammatical aspect of language only if a game is suitable for learners' level so that the grammatical knowledge can be used easily as they are playing the game. These games increase learner's proficiency in practicing grammar communicatively (Deesri, 2002: 3).

Can & Cagiltay (2006: 80) confirm that using computer games provides learners with a chance to practice grammar communicatively and attracts learners' attention to some specific forms before the communicative practice.

In short, computerized games provide learners with an opportunity to drill and practice grammatical rules in a communicative way.

Whitton (2007:76) indicates that computer games are particularly useful in grammar learning because they provide a mechanism which give students an incentive to go on practicing a structure beyond the point where they will normally tire of repeating it.

As Hegelheimer & Fisher (2006:76) indicate that computerized games can be instrumental in creating an innovative grammar resource aimed for raising learner awareness of troublesome grammatical features. Mohamad & Amin (2009:87) conclude that computerized games help students understand complex concepts in grammar and make grammar lessons become more effective, motivating and interesting.

Nguyen (2008:87) indicates the necessity of using computerized games for easing the difficulties, exciting the atmosphere in teaching and learning grammar. And the teachers who just follow the tasks given in the textbook and do not create any games activities lead a grammar lesson to a boring, hard-digesting experience to their students and surely, do not meet the need for more interesting and effective grammar classes.

In addition to the previous, the researcher thinks that using the computerized games for the presentation, explanation, and application of grammatical structures could be dedicated to real communication that focuses on expressing meaning. According to the experience of the researchers, teaching grammar for the deaf students through playing computerized games may raise their awareness of grammatical features by making grammar lessons more effective and interesting.

2. 5 Deafness

2.5.1 Introduction

Hearing is one of our five senses. Our ability to hear sounds has an impact on virtually every aspect of our lives. If hearing is limited, there can be far-reaching effects on an individual's capability to interact with the environment. This is especially true during children formative years. When a young child is unable to hear sounds clearly, significant educational problems may develop. For example, if a child has a problem in hearing speech sounds, he or she may not be able to produce those speech sounds accurately later in life. This can have a direct effect on literacy development.

Education is important for the deaf children because it develops their thinking, communication with other deaf and hearing people. It also allows them to be able to live productive, independent lives and take part in the life of the community.

2.5.2 Definitions in Hearing Impairment

Hearing impairment is a term used to describe a wide range which includes two terms; hard of hearing and deafness / hearing loss. According to the definition of WHO (2009:80) hearing impairment is the lack or the complete loss in the ability for hearing.

- **Hard of Hearing**
  - Albertini, et al.(2002:33) define hard of hearing as a reduction in the ability to perceive sound. Someone may have a mild hearing impairment and need hearing aids to make sense of sounds.
  - AHC (2003) hard of hearing refers to a person who can only hear some words if they are shouted into the ear.

- **Deafness/ Hearing Loss**
  - Quigley(1994:55) defines deafness as a term refers to people or animals who suffer from a complete hearing impairment and those who are fully or almost fully incapable of detecting sounds.
  - Luterman (1991:30) defines deafness as a complete of hearing inability that the child is impaired in processing linguistic information through hearing, with or without amplification.
  - NICCHY (2010:80) defines deafness as an impairment in hearing that adversely affects a child's educational performance.

As mentioned above, hearing impairment is divided into complete or part loss in the ability for hearing. The rate of the remaining hearing of the individual is one of the most important factors that separate between hard of hearing and deafness. The current study tackled the deaf students.

- **Deaf**
  - Deaf is a term refers to those who were born with, or developed hearing loss at a young age, before the full development of oral language. They are who wholly or partially unable to hear (Johnson, 2004: 59).
  - Deaf is a person who cannot even hear shouted words or hearing loud sounds (AHC, 2003:5).
  - Deaf is a term that refers to children who suffer from wholly hearing loss due to damage to the auditory nerve or the ear canal, genetic reasons or other environmental factors. It may happen before acquiring language or after the acquisition of language (Afana & Kabaja, 1997:32).

The researcher defines deaf as a person whose degree of deafness is more 90 dB which prevents hearing completely.

- **Deaf/ Hearing Loss Student**

  A student who has hearing loss more than 90 dB and that hampering hearing, understanding, pronouncing words and losing the correct verbal communication, even if he/she uses hearing aids (Koraz, 2004:14).

It becomes observable that deafness means a complete hearing impairment which affects on acquiring language, understanding and educational performance. Thus, researcher defines deaf student as a child who has loss of hearing sense or deafness more 90 dB which prevents him / her from acquiring the spoken language and hampers the understanding of speech through the ear.

2.5.3 Types of Deafness/ Hearing Loss

There are four types of deafness as follows:

2.5.3.1 Conductive Deafness

This type of diseases is caused by obstructions in the outer or middle ear (the pathways for sound to reach the inner ear). A person with a conductive hearing loss usually is able to use a hearing aid well or can be helped medically or surgically (NICCHY,2010). Some of the causes of conductive hearing loss are presented by (AHC**,** 2003:56) such as:

- Blockage of the ear canal by impacted wax or foreign objects.
- Outer ear infection (sometimes a result of swimming).
- Glue Ear (middle ear infection), a common problem in young children.
- Perforated ear drum, maybe from a bad middle ear infection.
- Ostosclerosis, which is a hereditary condition where bone grows around the tiny stirrup bone (stapes) in the middle ear.
- A partial or a complete closure of the ear canal (known as Atresia).

2.5.3.2 Sensorineural Deafness

It is a result from damage to the delicate sensory hair cells of the inner ear or the nerves that supply it. This hearing loss can range from mild to profound. It often affects the person's ability to hear certain frequencies more than others. A person with a sensorineural hearing loss may perceive distorted sounds, sometimes making the successful use of a hearing aid impossible. It can be acquired or congenital (NICCHY, 2010:76).

AHC(2003:45) points out that there are many causes of an acquired sensorineural hearing loss such as:

- The ageing process,
- Excessive noise exposure,

- Diseases such as meningitis and Meniere's disease,
- Viruses, such as mumps and measles,
- Drugs which can damage the hearing system (called Ototoxic drugs),
- Head injuries.

Another causes of a congenital sensorineural hearing impairment such as:

- Inherited hearing loss,
- Prematurity, lack of oxygen at birth, or other birth traumas,
- Damage to the unborn baby due to a virus, such as German measles (Rubella) and
- Jaundice, after birth.

2.5.3.3 Mixed Deafness

Refers to a combination of conductive and sensorineural loss and means that a problem occurs in both the outer or middle and the inner ear.

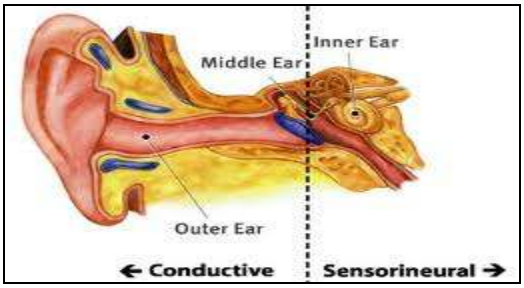
2.4.3.4 Central Deafness

A result from damage or impairment to the serves or nuclei of the central nervous system, either in the pathways to the brain or in the brain itself.

According to the time in which the deafness happened, Moores (1996) classifies deafness into two types:

- **Pre-Lingually Deafness:** happens before acquiring spoken language.
- **Post-Lingually Deafness:** happens after child learned to speak.

As noticed that each type of deafness damages a part of the ear; Conductive deafness damages outer or middle; Sensorineural deafness damages inner ear; Mixed deafness damages outer, middle and inner ear; and Central deafness damages the serves or nuclei of the central nervous system. The deafness can happen before or after acquiring language. The following diagram (2) shows the difference between the types of deafness.



Diagram(2) The Types of Deafness

2.5.4 Causes of Deafness/ Hearing Loss

The causes of deafness are divided into four main categories which are:

2.5.4.1 Acquired: meaning that the hearing loss occurred after birth, due to illness or injury. The most common cause of acquired hearing loss is exposure to noise. Other causes can include:

- Build up of fluid behind the ear drum.
- Ear infections (known as Otitis Media).
- Childhood diseases, such as Mumps, Measles, or Chicken Pox and Head Trauma
- Old age as people get older they usually develop hearing impairment.
- Drugs that can damage hearing: Antibiotics such as Streptomycin and Gentamycin and Antimalarials such as Quinine and Chloroquine.
- Wax blocking the ear canal can cause hearing impairment at any age (Malcolm, 2000:56).

2.5.4.2 Congenital: already presents when the baby is born. The first group of congenital causes is genetic causes. Genes are the structures on the chromosomes in either the sperm (from fathers) or the ovum (from mothers) that determine what we inherit from parents. Congenital deafness refers to the family history of hearing loss (NICCHY, 2010:90).

2.5.4.3 Complications During Pregnancy: things happen during pregnancy that interfere with the growth and development of the baby. Such as,

- Diseases during pregnancy like Rubella and other viral infections.
- Drugs that can damage hearing taken during pregnancy.

2.5.4.4 Difficulties At Birth: events that happen during birth or soon after birth that cause harm or damage to the baby. Such as:

- Premature birth.
- Difficult birth when the baby suffers from lack of oxygen (Malcolm, 2000:8).

As noticed, some people are born deaf as a result of malformed ear drums. Others suffer from deafness as a result of accidents or damage to the auditory portions of the brain.

2.5.5 Degrees of Deafness / Hearing Loss

MMOML (2007:56) determines the degree of deafness by measuring hearing threshold which is the level in dB at which a signal is just barely heard. The louder a sound

must be made to be heard, the greater the degree of hearing loss. Thresholds are measured at several frequencies (pitches) and graphed on the audiogram. Frequency is noted in Hz. The degrees of hearing loss are not the same in all over the world. But there are general averages. NICCHY(2010) shows the general degrees of hearing loss as in table (1).

Table (1)

The General Averages of Hearing Loss Degrees

The Degrees of Hearing Loss	From	To
Normal Hearing Sensitivity	0	15 dB
Minimal Hearing Loss	16	25 dB
Mild Hearing Loss	26	40 dB
Moderate Hearing Loss	41	55 dB
Severe Hearing Loss	56	70 dB
So Severe Hearing Loss	71	90 dB
Profound Hearing Loss	91	and greater

In Gaza, according to Afana & Kabaja (1997) and ASDC (2011) point out the degrees of hearing loss as in table (2).

Table (2)
Hearing Loss Degrees in Gaza

The Degrees of Hearing Loss	From	To
Normal Hearing Sensitivity	0	25 dB
Mild Hearing Loss	25	40 dB
Moderate Hearing Loss	40	70 dB
Severe Hearing Loss	70	90 dB
Profound Hearing Loss	90	110 dB

It is clear from the table (1) and (2) that the difference between the averages of the degrees is limited. But, these limitations between the degrees are used to classify normal, mild, moderate, severe, so severe and profound hearing loss.

2.5.6 General Characteristics of Deaf Students

The researcher adopts the following characteristics of the deaf students which were determined by CAF (2011:43).

2.5.6.1 Physical Characteristics

- Move around the classroom to get closer to sound source.
- Appear physically uncoordinated in some activities.

2.5.6.2 Social / Emotional / Behavioral Characteristics

- Choose younger and/or handicapped students as peer group
- Be isolated.
- Frequently misunderstands peers.
- Use physical contact for getting attention .
- Move sporadically from one activity to another.
- Seem to be "overly social" or "nosey."
- Demonstrate aggressive behaviors due to frustration .
- Appear bored and /or lethargic at times .
- Act impulsively .
- Lacks self confidence and withdraws from group activities.

2.5.6.3 Cognitive / Academic Characteristics

- Dependent on visual reinforcement/cues .
- Demonstrates uneven performance that may result in overall under achievement.
- Has reading comprehension skills which may be below grade level .
- Has reading comprehension skills which are weaker than word recognition skills.
- Does not seek assistance when needed .
- Has difficulty in following written directions and sequencing information.
- Needs frequent repetition/clarification of instructions and content material.

2.5.6.4 Speech / Language Characteristics

- Exhibits a discrepancy between receptive and expressive language; comprehends more than he/she uses.
- Has difficulty expressing ideas and gives inappropriate verbal responses.
- Has difficulty interpreting non-verbal cues, e.g. body language, facial expressions.
- Has an egocentric speaking style; lacks awareness of the listener's needs.
- Has difficulty maintaining a topic and changes topics inappropriately .

- Does not understand idiomatic expressions and has limited vocabulary in comparison to peers.
- Has difficulty with word order and complex language structures .
- Has noticeable articulation difficulties and may omit word endings .
- Has difficulty monitoring voice loudness and/or pitch

2.5.6.5 Listening Characteristics

- Has difficulty in hearing and processing oral information .
- Has difficulty understanding speaker at distances greater than six feet or when speaker is not directly in front.

The researcher benefited from the previous characteristics in designing computerized games for the deaf students particularly the social, cognitive and speech characteristics which reflect that the deaf learners are in need to learn by technique based on elements of cooperation, motivation, visual reinforcement, repetition and immediately feedback.

2.5.7 Communication Philosophies of Deaf Students

There are two basic philosophies of how the deaf children should be educated. The first philosophy stresses the fundamental importance of the auditory channel for communication and the need to provide early amplification and intensive auditory stimulation in order to facilitate oral language development through listening (Marschark, 2001:45). The two basic philosophies within the "Auditory" philosophy are known as the Auditory-Verbal Approach and the Oral Approach. The Auditory-Verbal Approach stresses the importance of intensive auditory training. The Oral Approach also stresses the importance of auditory training; however much emphasis is placed on the importance of speech reading and encouraging teachers and parents to facilitate the development of lip reading skills (FS3D, 2004:30).

The second or the alternative philosophy stresses the importance of vision as the communication channel and the importance of early language development through signing. Proponents of a visual approach support the use of the sign language as the most accessible, clear and natural language for deaf students. The approach that uses the sign language as the language of instruction along with the spoken language through reading and writing is known as the Bilingual Bicultural Approach (Berent,1996 a).

The researcher sees that auditory and visual philosophies are important on the communication process of the deaf. These philosophies contribute to establish three main approaches used in education; Sign Language, Oralism Approach and Total Communication Approach.

2.5.8 Characteristics of Teachers of Deaf

The success in teaching the deaf and hard of hearing children emanates from the real love for these children . In addition to, teacher quality, the characteristics and skills they bring to the classroom, and teaching quality, how they teach once they are in the classroom. The researcher points out the following characteristics of teachers of deaf:

- Be master in using sign language, the suitable communication approach and method, and the effective teaching method in the classroom according the degree of hearing loss.
- Have knowledge about and skilled with technologies such as hearing aids, cochlear implants, and FM systems and be able to provide troubleshooting and auditory training if needed.
- care about deaf students' feelings, self-image, goals and emotional stability. When this occurs, students report more cognitive and affective learning.
- Use the suitable communication approach to create positive learning environments to face individual differences between the deaf learners inside the class.
- Support the collaboration skills, making effective and interesting environment, having both of patient and flexibility, and understanding the nature of the hearing impairment (hard hearing and deafness) to be able dealing with deaf children and deaf learners.
- Have the ability to design teaching aids which appropriate with the students type and degree of hearing impairment.
- Use modern techniques which based on the visual input in the class in order to modify the traditional methods in teaching deaf students.
- Teach deaf students to use thinking, problem solving, and other cognitive strategies to meet their individual needs.
- Establish a consistent classroom routine because it is important of the deaf learners to know what the next stage is .
- Design learning environment that is visual which encourage active participation by deaf learners in a variety of group and individual learning activities.
- Provide opportunities for the deaf learners to develop basic concepts through participation in meaningful and motivating real-life experiences.

- Integrate the academic instruction, the affective methods, and the emotion to create an effective teaching and learning process for the deaf students.
- Develop effective behavior support plans according the teacher own vision and the personal characteristics of his / her deaf students.
- Provide opportunities for the deaf learners to actively explore and experience common objects that learners can with vision or hearing learn about incidentally.
- Help parents and other professionals to understand the impact of hearing impairment on learning and experience .

2.5.9 Educational Approaches of Deaf Students

Hearing children build their speaking skills mainly by listening to their parents talking and communicating. It is difficult for a child to learn how to communicate at later ages. The same thing applies to the deaf children; if a deaf child did not learn how to use the sign language and other basic words at early ages, it will be difficult for that child to learn how to do so when he/she get older. There are three approaches for communication which are Sign Language, Oralism Approach and Total Communication Approach.

The first approach is **Sign Language**. SL is a language that uses visually transmitted sign patterns manual communication and body language to convey meaning simultaneously combining hand shapes, orientation and movement of the hands, arms or body, and facial expressions to fluidly express a speaker's thoughts (Rose & Waldron,1984:67).

SL is a visual and gestural language that has no written component; when deaf students learn to read, they must learn a new symbolic system that, for them, has no basis in oral language. Purported to be the native language of deaf (Baker-Schenk & Cokely, 1991:90). Its own grammatical structure cannot be written (NIDCD, 2006:40).

The second approach is **Oralism Approach**. Two of the most common oral approaches used today to educate the deaf students are the auditory- oral and the auditory-verbal approaches(Ewoldt, 1996). In the Auditory-Oral Communication Approach, the educators emphasize maximum use of residual hearing. It consists of four main communication features; speech, audition, audition, speech/lip reading and gestures or body (Greers & moong, 1989:79). Another oral approach is the auditory-verbal approach. It teaches deaf students how to maximize their listening skills (AGBALSL, 2007).

The third approach is **Total Communication Approach,** which distinguishes as a "Language" because it is encoding the structure and grammar of an already existing language(Luetke-Stahlman,1998). It is an approach based on the combination of the oral method with signing and finger spelling (FS3D, 2004).

The researcher thinks that non of the previous approaches is the best approach in teaching the deaf because the family history and characteristics of the deaf child may influence on selecting teaching approach. For example, most of the deaf students have hearing parents. These parents might prefer the Oralism Approach or Total Communication Approach. Similarly, families that use both the sign language and the spoken language for communication might prefer the Total Communication Approach.

2.5.10 Considerations in the Classroom of the Deaf Students

Inside the silent classroom, there are many considerations which are the key factors of success in teaching the deaf students. (Prinz & Nelson,1985) point out the following considerations:

2.5.10.1 Personal Delivery

Teaching deaf students requires some considerations to create a vital learning environment to be appropriate for them. The teachers of the deaf should be aware of the following considerations:

- **Speech:** speak clearly and at a reasonable pace, try to keep the rhythm of your speech as natural as possible and avoid using a loud voice or exaggerated mouth movements.
- **Visibility:** the deaf student needs to see your face and mouth, do not cover your mouth with pens, coffee cups or hands while speaking and do not speak while writing on the board or walking around the room.
- **Face:** try to maintain eye contact when talking to the deaf student one to one. Try to use expression in your face as well as gesture as this helps to convey the sense of your words and do not stand in front of a window or light source, as it will cast a shadow on your face.
- **Distractions:** try to keep light reflecting to a minimum, and wear plain clothes. Bright clothes, stripes or dots can make concentration difficult.
- **Gaining Attention:** be sure to gain the deaf student's attention before speaking. You can wave your hand at the student, flash the lights on and off or, if necessary, ask the student's neighbour to tap a shoulder or arm to alert him or her.

2.5.10.2 Using Visual Aids

Using visual aids in teaching the deaf students is considered an essential part and not as a complemented or a decorated part in the lesson. When using it, the teacher should speak first and then show visual clues, such as maps and charts, repeat the presentation, question and the answer more than one time, list page numbers, questions numbers, assignments, key points, and new vocabulary on the chalkboard to make sure that the deaf student is not left out, give the students time to read what is written before starting to speak when using computers, maps, charts, OHPs, boards and flipcharts (See Appendix, J).

2.5.10.3 Presentation

Denny (2002) focuses on the attention of teachers, during the presentation of lessons and students' participation, into the following points:

- **Context:** Before starting a discussion or changing the subject let the deaf student know the topic being discussed. Communication is much easier when the subject is known.
- **Structure:** Try to follow a logical structure for your session as this makes lip reading easier to follow. If possible, let the student have a copy of your written notes before the lecture as this will help with following an argument.
- **Pace:** Try to allow little extra time for the deaf student to assimilate information and respond before going on to the next stage. Break the session up so that the deaf students do not be attended for a long time.
- **Participation :** Encourage participation in extracurricular activities. The teachers can make them more successful if they pre-teach new lesson to the students, repeat the question before going on to answer it, question the students at regular intervals to ensure comprehension and write an outline of the key points on the chalkboard before the lesson.

As the researcher thinks that illustration a topic with the encouragement for participating and working together enables the deaf students learn better and be attentive for a long time more than the illustration by using the sign language without any interaction while they are learning.

2.5.11 Deaf Students and English Language

The educational methodologies in teaching English for the deaf students have changed over time. Since the late 1900s educational methodologies of English language

have focused more on teaching the deaf children through Oralism Approach or Sign Language Approach and after that focused on using Total Communication Approach and technology specially computer as a visual technique.

English is the lingua franca of the land. Deaf children need to have the tools to become independent deaf adults. Some deaf children, but not all, will acquire the speech skills needed to communicate their desires within the larger society of hearing individuals. It is important to be able to clearly write if speaking is not an option (Davila & Hurwitz, 1999:80).

Deaf learners generally experience tremendous difficulty in acquiring English language in contrast to their natural and effortless acquisition of signed languages (Berent, 2001). Without full access to the sounds and intonations of English, the acquisition process for deaf learners is often labored and unnatural and occurs at a much slower rate than for hearing learners (Quigley & King, 1980:58).

According the researcher's experience, some deaf learners are able to compensate for the lack of auditory and acquire English language. However, many deaf learners accomplish only partial acquisition of English and experience persistent difficulties in reading comprehension and written expression.

Fleming (2004:64) says that perhaps teaching English grammar is alien to the development of the deaf students' cognitive processes as it based on auditory and oral elements. In other words perhaps a visual input matches perfectly the absence of hearing. In addition to that, Berent, et al. (2007:8) confirm that English grammar learning is a challenge for the majority of deaf students, a major obstacle to the development of overall English skills is the difficulty of mastering many of the most fundamental English grammatical forms and structures. Moreover, Davila & Hurwitz (1999:55) access that the visual input is the best way for the deaf children to learn English grammar which must be taught structurally and formally.

In Gaza, most of the schools / societies for the deaf students used the same teaching method which based on using the vision philosophy (visual input) and Total Communication Approach.

Grammar is considered a difficult subject which is often misunderstood by deaf students. The reseacher sums up some of the principles which facilitate grammar learning and understanding so the teacher should:

- Repeat the same rule.
- Rephrase the rule by simplifying the language more.
- Focus on the parts which represent the rule.
- Give more examples and ask them to give similar examples.
- Use visual aids such pictures, diagrams and drawings.
- Ask them to repeat the rule for each other.
- Use techniques such OHP, games, computer and etc.

The researcher gives the previous principles the importance in designing the computerized games for the current study. The designed games are based on using pictures and repeating the rules more than once or when the deaf student needs that.

2.5.12 Grammar Teaching Methods for Deaf Students

Generally, grammar is taught through two methods; the direct and the indirect methods. It is worth mentioning that the same methods are used in teaching grammar for the deaf students but with using pictures to illustrate meaning. In Gaza, the teachers of the deaf students use the direct and indirect method to develop grammar for thier deaf students. The following are techniques of the direct and indirect method which were determind by the teachers of the deaf students:

2.5.12.1 Direct Method

This method includes three techniques; multiple choices, true or false and correct the mistakes.

- **Multiple Choices:** this technique depends on choosing one response among two or three responses. For example, ***Choose the correct answer:*** *John ..... foot ball every day. a) playes b) plays c) played*
- **Write or wrong:** in this technique, student ticks true for the sentence which does not include grammatical mistake and ticks false for the sentence which includes grammatical mistake. For example, ***Put True (√) or False(×):*** *Sara did not wrote her homework yesterday. ( )*

- **Correct the Mistakes:** in this technique, student underlines and corrects the mistake in each sentence. For example, ***Correct the mistake****: Ali are cleaning his car now. (……..)* .

When the researcher asked a number of the teachers of the deaf at the schools about their methods of teaching the present and the past simple, they ensured that the direct method is the most suitable one in teaching grammar for deaf students.

2.5.12.2 Indirect Method

The following techniques are pointed out by Berent (1993, 1996a, 1996b):

- **Converting Statements to Questions:** one of the indirect techniques consists of a traditional exercise in which statements are converted to questions. This technique simultaneously taps several aspects of students grammatical knowledge. Students are given a statement with a noun phrase underlined. They must rewrite the sentence as a Wh-question and make all other required changes to form an appropriate English Wh-question. For example, ***Make question from this sentence:*** *The teacher saw the student at the bookstore.*
- **Sentence Combining:** another useful indirect technique involves a sentence combining technique. For example, ***Join the sentences using (who):*** *Ahmed likes the teacher. The teacher explained the answer to the students*.
- **Establishing Identity:** the third indirect technique requires students to decide who the logical subject of an infinitive is in sentence containing infinitive clauses. For example, ***Read and answer:*** *Ali told Ahmed to close the door. Who will close the door? Ali or Ahmed*

All the three indirect techniques which illustrated above can be used for developing the grammatical rules for the deaf students. The researcher adopts the opinion of Mich (2008) that when the teachers of the deaf students use the direct or indirect methods in teaching grammar, they should use a picture for each question, item or sentence. And the picture should convey one notion.

2.5.13 Teaching Deaf Students by Using Computer

Han, et al. (2005) state that using technology in education has significance for the deaf learners. They primarily have access only to visual input and any attempt to facilitate the noticing of English input is through focus-on-form. Deaf students are visual learners

who learn information best by seeing it. Their eyes are the most important senses for learning. Visual learners prefer using images, pictures, colors, and maps to organize information and communicate with others. They can easily visualize objects, plans and outcomes in their mind eyes (Ysseldyky & Algozzine,1995).

Computer can be considered an appropriate and effective visual aid in educating the deaf / hearing loss students. It is a visual technique used to help the deaf students learn English grammar with which they traditionally experience difficulty in English. With the availability of computer technology for instruction many of the obstacles to effective English syntax instruction for the deaf may be removed (Al-Qsaimi, 2009:33).

Israelite, et al. (2002:87) confirm that using computers in the classroom of the deaf that is equipped with hardware and software applications enhance grammar learning. Also, number of teaching techniques has been identified to encourage their learning. Different teaching techniques, engaging also the brain right hemisphere, should be applied for visual learners. McInerney, et al. (1999:12) & McCarthy (2002:53) illustrate these strategies as the following:

- **Exposure:** to a wide range of written materials in "print-rich physical environments".
- **Demonstration:** of written; finger spelled, sign language and the relationship among the three.
- **Opportunity:** to experiment with reading and writing in a risk-free and supportive setting.

The researcher and the teachers of the deaf believe that using computer in teaching help their students to learn better, retain the learned lesson and improve the academic level, increase their confidence and motivate them.

The researcher noticed during the work with deaf students that computerized lesson became more attractive to deaf students who showed very little interest at the beginning of the lesson. When the teacher tells them using the sign language "Today, we want to learn lesson by using computer", they prepare themselves for the lesson; their eyes follow the teacher everywhere and put their chairs in the appropriate positions. In my opinion, these actions reflect their enthusiasm and motivation to learn (See Appendix, J & K).

2.5.14 Criteria for Designing Software for Deaf Students

Lipman (1991:23) and Chaisanit & Suksakhari (2008:34) point out the following criteria which should be taken to the consideration before designing software for the deaf students:

- Software should be used to enhance the curriculum. Integrate the use of technology into lessons in a purposeful and meaningful way.
- Define the goals and then decide where can software be used.
- Make sure that the use relating with the goal(s).

Each student has very specific needs and the used software should complement those needs. Software can be used to support the following:

2.4.14.1 Communication

Deaf students often have difficulty with the development of a communication system. The ability to communicate is integral to the student's social, emotional, and cognitive development. Collaboration on activity encourages students to extend their use of language and their understanding of concepts as they plan and carry out their work.

2.5.14.2 Subject-Based Software

Software is available for teaching students through drill, practice and problem solving in many different subject areas including English. Software needs to be carefully designed.

2.5.14.3 Sign Language Software

Designing software for the deaf student is not successful without using sign language videos which are used to translate the written words into sign language.

2.5.14.4 Word Processing

Word processing has been one of the most successful uses of the software in the schools of the deaf. Students can initially just concentrate on their thoughts and ideas and then enter them into the software. At a later stage, they can focus on the sequencing of their thoughts and ideas, word choice, spellings, grammar and punctuation.

2.5.14.5 Multimedia Authoring

The opportunity to create software combining text, pictures, video and animation can enable the deaf students to learn and experiment with media.

2.5.14.6 Presentation Programs

Presentation software provides the basic tools needed to create professional-looking, customized presentations. This type of software allows a great deal of flexibility and versatility by giving the deaf student easy control over the information displayed.

Nowadays software can overcome some of the traditional barriers such as time and place. Learners can learn materials by themselves. In the same time, using software in learning does not require high computer skills. So, the deaf students can use it to develop their skills, their understanding and their performance in the classroom and daily life.

2.5.15 Summary

This part dealt with the theoretical framework of the study. It discussed three domains; English language and educational games, teaching grammar using computerized educational games, and deafness. The researcher began the theoretical framework part by defining educational games, their characteristics, types and advantages. After that, the researcher concentrated on the concept of grammar and its definitions, kinds, its importance in the language itself and techniques of teaching. Furthermore, the researcher showed the definitions of computerized games, elements, types, characteristics, advantages and the criteria of designing. Also, the researcher discussed definitions of deafness, types, causes, degrees of deafness, general characteristics of deaf students, communication philosophies, educational approaches for the deaf, considerations in the classroom of the deaf students, deaf students and English language, grammar teaching methods for the deaf students, teaching the deaf using computer, the criteria of designing software for the deaf and their rehabilitation societies in Gaza.

Part two

Previous Related Studies

1. Introduction

This part dealt with the previous studies. The researcher used related studies concerning three domains. The first one tackled studies that examined the effectiveness of using computerized educational games in teaching English language. The second is related to the studies which investigated the effect of using computerized educational games in teaching other school subjects. The final domain tackled studies that examined the effect of using computers in teaching English language and other school subjects for deaf students. The researcher benefited from the previous studies to know how the other researchers design their studies, what the suitable instruments to collect data from the deaf learners are , and how the other researchers dealt with the deaf during the application of the experiments .

The researcher presented related studies in the light of methodology criteria which are (purpose, place, sample, instruments, statistical analysis, results and recommendations). Although the researcher found a number of studies that did not include all the previous criteria. The researcher wrote them down because they served the variables of the current study.

2. Related Studies Concerned with Using Computerized Educational Games in Teaching English Language for the Ordinary Students.

2.1 Palmberg (1988) in his study tried to investigate the effect of playing computer games on leaning English vocabulary for Swedish–speaking in elementary level and discuss the role of computer games as a technique used to teach English in Finland. The sample was two Swedish–speaking boys aged (9-11) years. The researcher designed a computer game, as an instrument for his experiment, which depended on students' communication words; personal and social words. The result indicated that computer games constituted a good example of material that satisfies the criterion of language needs relevant to young learning of English language and computer games allowing pupils to be motivated and work at their own pace. The researcher recommended that teachers of foreign language could make use of carefully selected computer games to introduce new vocabulary to the pupils and irrespective of their previous experience of the foreign language.

As noticed, the researcher believes that this study indicates that computer games help students to learn new English vocabulary at their own pace.

2.2 The purpose of **Lim's (2005**) study was to examine the effect of English reading instruction with the application of computer games on achieving and interesting of reading for the 4th grade students compared with the traditional method in China. The sample was two classes with similar proficiency levels were chosen by a diagnostic test. In the experimental group, the students learned the lesson of English reading with computer games, while in control group the students learned through the traditional method which based on the English textbook. The study results were, the experimental group showed higher improvement of achievement in reading than the control group and the experimental group improved more significantly than the control group on interest of English reading. The study suggested that the teachers should make an effort to develop their teaching methods and materials in order to teach English more effectively.

According the previous study, the researcher considers that computer games can be suitable techniques in teaching English effectively and in improving reading skill.

2.3 **Yu (2005)** explored the effect of computer game-based grammar instruction on students' motivation and classroom atmosphere. In addition, it explored that the use of game in practicing grammatical features may improve the students' rate of accuracy in Japan. The participants were (57) which divided into two groups, the control and experimental groups. The teaching program was the same for both groups. The difference consisted in the use of game-based practice for the experimental group, while the control group performed traditional grammar-based practice only. Data were collected using the following instruments: grammar tests and examinations, a questionnaire on motivation, a questionnaire on classroom atmosphere, a questionnaire on the type of grammar practice, a questionnaire on the grammar and grammar instruction, focus group interviews with students, and the researcher's field notes. The findings of this study showed that the class became entirely student-centered. The use of computer games improved students' rate of accuracy and developed practicing grammatical features.

From the previous study, the researcher ensured that teaching grammar through computer games has many benefits like improving the students rate of accuracy, class becoming student-centered and student learning while they are motivated.

2.4 To examine the effect of using computerized educational games on ESL students' achievement in China, **Li (2007)** selected randomly a sample consisted of (90)students. The sample was divided into two equivalent groups; the experimental group consisted of (45) students were taught by computerized games while the control group consisted of (45) students were taught by the traditional method. The instrument of the research was a pre- post achievement test. The researcher used T. test to measure the significant differences between the results in the achievement test. The results indicated that the experimental group did better than the control group in the post test. Also, using computerized educational games in learning English as a second language had a great effect on the fourth students' achievement level in English language. In the light of this results, the researcher recommended teachers of English language should use computerized educational to teach the four skills specially listening and speaking skills.

For the current study, the researcher notices that computer and computerized games can be of a great help for learners to facilitate their interaction and thus improve their achievement.

2.5 **Hamzah & Dourad (2009)** carried out their study to examine the effects of using computer games in teaching grammar, particularly in the use of the present simple tense and past simple tense as well as to gain insights on students and teachers responses towards using computer games in teaching and learning grammar items in Malaysia. The sample consisted of (56) students which distributed into two groups; experimental group used games to learn grammar whereas no treatment was given to the control group. A pre-post achievement test was designed to collect the data which analyzed descriptively using classroom observations to observe students' reaction to the games and interviews to find out (ESL) teachers' perspectives on using computer games to teach grammar. The results indicated that grammar games had a positive effect in learning the present and the past simple tenses. The students who learned grammar using computer games were motivated to learn more rules. The study suggested that using computer games on learning grammar can be effective and successful way in acquiring grammatical competence.

This study encourages the researcher of the current study to think about using computerized games to teach English grammar for the deaf learners and investigating its effectiveness. Depending on the studies results of Yu (2005), Li (2007) and Hamzah &

Dourad (2009), the researcher thinks that the use of computer games may be successful in teaching present and past simple tense for the deaf students.

2.6 Kablan (2009) study aimed at examining whether using exercises based on computer games increase the performance of learning and enhance the academic achievement among 1st and 2nd graders. The sample was all the students who were in 1st and 2nd grade. It was divided into two groups; experimental and control group. A pre - post achievement test was designed to collect the data. The researcher used T. test to measure the significant differences between the results of the pre and the post test. The study showed that the academic achievement enhanced as a result of using computer games which facilitate the learning process.

2.7 The researcher **Peterson (2010)** tried to investigate the effect of computerized games and simulation on acquiring English language or any another language. He examined the psycholinguistic and sociocultural constructed proposed as basis for the use of games and simulation in computer assisted language learning. The study results confirmed that computerized games and simulation presented valuable opportunities in learning language. Also, computerized games were beneficial methods for helping learners to acquire English language or any other language.

The researcher benefited from the study of Kablan (2009) and Peterson (2010) which confirm that using exercises computer games improve the performance of learning and the academic achievement.

3. Commentary on the First Domain of the Previous Studies

Having reviewed those studies, the researcher's background has been enriched, to some extend, on using computerized educational games in teaching English language. After presenting previous studies, the researcher conducts that implementing computerized educational games brings a positive effect on students' achievement and acquisition English language e.g. Palmberg (1988), Lim (2005), Li (2007), Kablan (2009) and Peterson (2010). Computerized games increase students' motivation towards English language learning as a second language such as Palmberg (1988), Yu (2005) and Hamzah & Dourad (2009). In addition, the studies of Lim (2005), Li (2007), Kablan (2009) and Hamzah & Dourad (2009) used an achievement test to collect data and used T. test to measure the differences between the results of the pre and post test.

The studies in this domain focused on studies confirmed the effectiveness of using computerized educational games on student's achievement in the different school subject the increase in their motivation which will help the researcher of the current study to focus on how to design computer games combine learning and fun.

4. Related Studies Concerned with Using Computerized Educational Games in Teaching Other School Subjects for Ordinary students

4.1 Abo Rayya (1993) tried to investigate the effect of using computerized games to develop the different mathematics skills for the sixth graders in private school in Amman. The sample of the study was (101) male and female students. The sample was randomly distributed into two groups; the experimental group was taught mathematics through using computerized games and the control group was taught by the traditional method. An achievement test was designed to collect the data which were analyzed using ANOVA technique. The study showed that there were significant differences in favor of the experimental group which taught mathematics through using computerized games and no significant differences were found due to gender factor.

It is clear from the previous study that using computerized games is an effective technique on teaching mathematics skills for male and female students. Therefore, computerized games could be of an educational value and the researcher intends to investigate this in the current study.

4.2 In an attempt to investigate the effectiveness of using computerized games on developing some of science concepts for dyslexic students in Amman, **Motaw'a(1999)** used both of the experimental and descriptive approach. The sample consisted of (60) students on the 1st grade. A pre achievement test and checklist were designed to assign the students who suffer from dyslexic as an experimental group, they were (5) students. He used computer games in their learning and then the researcher implemented the post test. The finding concluded that using computerized games contributed on developing some of science concepts for dyslexic students.

The researcher benefited that computer games are appropriate for dyslexic student or the student who does not read well and has difficulties in reading texts and help him or

her on developing some concepts of science. This encourages the researcher to try using computer games in teaching English grammar for the deaf students.

4.3 Al-Helih & Ghuneem (2002) in their study, tried to examine the effect of computerized and ordinary linguistic educational games in treating reading disabilities for the fourth graders in two private schools in Amman governorate. The sample consisted of (48) students. It had been chosen upon the results of a diagnostic test developed particularly for this study, and upon the result of Arabic version for Michael Best scale. The subjects were randomly assigned into three groups; the first group was treated by computerized linguistic educational games, the second group by ordinary educational games and the third one by the traditional method of teaching. The study showed there were significant differences in performance between the immediate and delayed achievement for the group treated by computerized linguistic games, then the group treated by ordinary educational games, then the group treated by the traditional way of teaching. Also, there were significant differences between the performance of the immediate and delayed achievement due to gender for females students.

Using computerized games proved to be more effective than using the ordinary games in treating reading disabilities and in improving the performance of the immediate and delayed achievement.

4.4 To examine the effect of using computerized educational games on achieving mathematics concepts for the 3rd graders in Jordan. **Obidat (2005)** selected a sample consisted of (68) students. The subjects were randomly assigned and divided into four groups; experimental group and control group. Each one divided into two groups on the base of gender (Male and Female). The two experimental groups consisted of (34) students were taught by using computerized educational games. The two control groups consisted of (34) students were taught by the traditional method. The researcher used T. test to measure the differences between the four groups. The result showed that there were statistically significant differences at ($\alpha \leq 0, 05$) on achieving mathematics concepts in the pre and post test due to the experimental group. Also, there were no statistically significant differences in the pre and post test for experimental group due to gender factor.

4.5 Neimeyer (2006) tried to answer question about whether the use of computerized educational games has an effect on students' mathematics achievement in Texas. The

sample of the study consisted of all the seventh grade classes. To answer the previous question, the sample divided into two groups; experimental group and control group. The researcher used a pre test, interviews then a post test to gather the data. The experimental group had one day for the interview and one day to learn by using the game. The control group had two days for the reviews without using the game. The result of the study showed that playing the computer assisted educational mathematics game had effect on the achievement levels of the students.

It becomes clear from the studies of Obidat (2005) and Neimeyer (2006) that using computerized games improves the achievement of the mathematics concepts more than using the traditional method.

4.6 To investigate the effect of computerized games and the instructional programs on achieving and developing creative thinking in writing and reading in Arabic lanuage for 1st graders in Saudi Arabia. **Dowidi (2007)** chose a sample consisted of (59) students which divided into three groups; the first group used computerized games only, the second group used computerized games and instructional program and the third group as a control group learned by traditional method. Two instruments were used; the achievement test for unit (6) from the text book of 1st grade and Torrance test for creative thinking. The study confirmed there were statistically significant differences at ($\alpha \leq 0, 05$) between the three groups for the second experimental group which learned by computerized games and the instructional program. Also, there were statistically significant differences at ($\alpha \leq 0.05$) on developing the competences of creative thinking for 1st graders.

According the previous results, the researcher examines that computerized games and the computerized programs are effective instruments on developing the creative thinking for students and it could be of great help for deaf students.

4.7 Tüzün, et al. (2008) tried to examine the effect of using computer games on primary school students' achievement and motivation in geography learning in Turkey. The study used a quasi experimental study. The researchers used experimental approach . The sample of study consisted of (24) students from the fourth and fifth grads. Pre-post test, observations, interviews and open ended questions were used to collect data. T. test was used to measure the differences between the results of the pre and the post achievement test. The study results showed there were statistically significant differences between the

results of pre and post test which ensured that computer games and had positive effects on geography learning and positive attitudes of students and teachers.

On the base of the previous result, computer games become effective instruments in the formal learning environments which support and motivate students in effective geography learning.

4.8 El-Harbi's (2009) study aimed to reveal the effectiveness of instructional electronic games on the direct understanding and the survival of the impact of learning in the lessons of multiplication of mathematics in El-Medina. The study followed a quasi experimental designing. The sample is one experimental group consisted of (36) students. They were selected randomly from the school of Sanable Al-Medina private primary school. The researcher chose instructional electronic games and prepared a pre- post achievement test in multiplication lessons and delayed test as instructions to collect the data. The study found there were statistical differences at the level of significance ($\alpha \leq 0$, 05) between the averages of the students in the delayed test of understanding after fixing the pre-understanding at the knowledge level, remembering level and the test as a whole.

The researcher thinks that computer games would enable learners to be motivated, focus on activities which develop the creative thinking and retain the learned material for along time.

4.9 Mansureh (2010) investigated the effect of using modern mathematics computer games on developing students' mathematics achievement and education in Orlando. The sample consisted of (193) students were randomly assigned to experimental group and control group. An achievement test (pre and post test) and interviews were used to collect the data. The researcher used Analysis of Co-Variance to analyze the gathered data. The study results indicated that significant improvement of the achievement level of the experimental group versus the control group. And the students who use computerized games in their learning reported grater motivation compared to the ones who learn without.

From the studies of Abo Rayya (1993), Obidat (2005), Neimeyer (2006) and Mansureh (2010), the researcher concluded that computer game can be one of the effective classroom techniques which can be used in developing mathematics skills, concepts and achievement.

5. Commentary on the Second Domain of the Previous Studies

Having studied the literature review, the researcher could extract that implementing computerized educational games has a positive effect on student's achievement in the different school subjects. The researchers like Abo Rayya (1993), Obidat (2005), Neimeyer (2006), El-Harbi (2009) and Mansureh (2010) devoted themselves to investigate the effectiveness of computerized educational games on teaching mathematics. Others like, Al-Helih & Ghuneem (2002) confirmed that computerized educational games are more effective than the ordinary educational games in treating reading disabilities. Some studies tried to estimate the impact of using computerized games on science achievement like Motaw'a (1999) and on geography achievement like Tüzün, et al.(2008). Dowidi (2009) confirmed that computerized educational game has a positive on developing students' achievement and creative thinking in writing and reading.

The researchers such Tüzün, et al. (2008) and Mansureh (2010) used a quasi experimental designing. The data were gathered by using achievement tests which were analyzed by different statistical analysis e.g. ANOVA, Co-Variance and T. test.

6. Related Studies Concerned with Using Computer in Teaching English Language and other School Subjects for Deaf Students

6.1 Fogel (1990) aimed to examine the effectiveness of computer based on the instructional treatments were presented as educational games called the "Yes-No" game to face the difficulties of formation Yes -No Questions for the deaf students. The sample was (32) deaf students their aged (8-10) years which divided into two groups; an experimental group consisted of (17) deaf students and a control group consisted of (15) deaf students. An achievement test was designed for comparing the results before and after implementing the computerized program. The study showed the effectiveness of computerized program to overcome the difficulties in building Yes-No Questions in English and the effectiveness of computerized program in teaching English for the deaf.

From the researcher experience, the deaf students have difficulties in forming questions in English. In the same time, the study of Fogel (1990) affirmed that using computer games help the deaf students to face these difficulties. This motivated the researcher to design computer games which may help the deaf students to learn how to make Yes-No Questions.

6.2 Melon (1991) aimed to explore the effectiveness of highly visually-oriented Computer as Assisted Instruction (C.A.I) for teaching syntax to deaf students. The Question Game study was carried out in two stages, Yes-No Game, and WH-Game. The teaching materials were evaluated through their use by two groups of the deaf students. Group A consisted of (8) students at the 7^{th} grade, Group B, at the 4^{th} grade level, was composed of (9) students. There were two groups which are experimental and control groups. The first group was to receive the training while the second group was to be exposed to a place treatment. The researcher used three tests; a pre-test and two post-tests. The analysis of the tests scores showed that both groups A and B made significant gains of the test, demonstrating the students' improvement in recognizing correct WH-Questions. The study results showed that C.A.I approach had a positive effect in acquiring English syntactic. The study suggested that computer games may help the teacher to provide adapted teaching for the weaker deaf students. The result affirmed that using computer facilitates the learning of making Yes-No and WH-Questions. The study suggested that computer games may help the deaf students in learning grammar.

In fact, the researcher benefited from this study result and suggestion that employing computer games may be an effective technique in teaching the deaf students how to make the form, negative and question of the present and the past simple tense. So the researcher designed a set of computer games for that purpose (See Appendix, C).

6.3 Husseen (1996) aimed at investigating the effectiveness of computerized program based on using educational games, practical activities and Computer as Assistant Instructional (C.A.I) on developing aspects of mathematics in Saudi Arabia. The sample was (4) deaf pupils, the total number of the sixth grade pupils in El-Amal society for the girls in El-Medina. The researcher used Black Modifies Gain Rank Equation and T. test to measure the differences among the pupils. The study concluded that the computerized program which based on using games has an effect on developing some mathematics basics to the level of memorizing, understanding and application for the deaf female pupils. There were statistical significant differences in the achievement and the cognitive levels. Also, there were statistically significant differences among the pupils in retention the learned material due to using the computerized program.

As noticed in the previous study, the computerized games play a role in developing some mathematics basics and in retaining the learned material by the deaf pupils.

However, in the current study the researcher hopes to develop some aspects of English grammar particularly present and past simple tenses.

6.4 Gaad & Qaryouti (2002) tried to examine the assumption that using computer in teaching deaf and hard of hearing children is better than using the sign language in the United Arab Emirates. The sample consisted of (12) deaf students. The sample was distributed into two equivalent groups as experimental and control. T. test was used to measure the differences between the results of the experimental and the control group. The result showed that using computer in teaching the deaf and hard hearing is more effective than the sign language and using computer attracted the attention of the deaf students who are less attention in process of learning.

According to some of the experienced teachers of the deaf, they confirmed that the deaf pupils retain the learned lesson when they learn it in the computer room. However, when they learn by using the sign language only they do not retain the lesson for a long time.

6.5 El-Dosoqi (2003) tried to investigate the effect of electronic educational games as an educational instrument to face the individual differences of deaf students in the light of the games' characteristics and the criteria of the use. The study supposed that electronic games are set of the characteristics and criteria which used to achieve an educational purpose and to response for the deaf student's requirements. The study concluded that the different characteristics of the deaf students do not prevent the teacher to use electronic games in the class. Using electronic games had effect more than the other teaching methods in facing the individual differences of the deaf students. The study recommended that the curricula designers should design curricula according to the deaf students competences basing on the modern educational techniques such as electronic games.

The researcher agrees with the experienced teachers' opinion which is the deaf students are not the same in the class. In fact, the individual differences are big among the deaf learners in the achievement level, intelligence level, abilities, skills, experiences, and parents' love and care level. However, the teacher can face all of these individual differences by employing modern visual aids such computers and computer games.

6.6 Barker (2003) investigated the acquisition of "every day" vocabulary of deaf children in an auditory/oral program based on special computerized program was called "Vocabulary Tutor" program. This audiovisual program gave the child the sound and the written form with drawing or photo for each word to be learned. The researcher applied the program for three years. The sample was (19) children; (16) deaf children and (3) hearing children. An achievement test was designed to collect the data which analyzed using Mann-Whitney and T. test. The result showed that using computer based on "Vocabulary Tutor" program was an effective technique on acquiring vocabulary for the deaf children. Hearing children also developed their every day vocabulary which they have no linguistic label. Most children of the study sample (deaf and hearing) retained more than half of the new words after (4) weeks.

In Gaza societies of the deaf children "Vocabulary Tutor program" called "Training Programs". Such these training programs which is based on lip reading method. In fact, the researcher asked the trainers of these programs, at Atfaluna Society for Deaf Children and El- Hanan School, about the effectiveness of lip reading method to understand some of the hearing people speech .

6.7 In his study, **Naji (2003)** tried to investigate the effect of using computer as a modern technique on acquiring science concepts for deaf 10^{th} graders and their attitudes towards using computer in Egypt. The sample was divided into two groups; the experimental group taught using computerized program and the control group taught by the sign language. The study showed that using computerized program which based on multimedia materials enhanced the achievement level of the experimental group compared with the control group in learning "Space" unit and developed the cognitive levels such memorizing, understanding and application. Using computer with multimedia materials also helped in developing the attitude towards using computer in the process of teaching and learning the deaf. The study supported employing the modern techniques instead of using the traditional methods in teaching other school subjects because these techniques contribute in developing the achievement levels and increasing retention of the learned material for the deaf.

The researcher benefited from the previous study that using computer with multimedia materials as a visual aids is very important in teaching a new material and in increasing the retention of the learned material in science.

6.8 The purpose of **Reistma's (2008)** study was to explore the effect of two different computerized programs based on exercises for learning the associations between the printed words and its meaning in the west of Netherlands. The first program was spelling oriented exercises required selecting the correct word among three orthographically similar alternatives that corresponds to drawing or sign (digital video).The second program was meaning oriented exercises requires selecting the correct sign or picture among three alternatives that corresponds to a written word. The researcher used one experimental group consisted of (11) deaf children; (6) males and (5) females from two private primary schools. The researcher determined the performance success on average about 80%. The study concluded that computer based exercises contributed in teaching deaf children how to read and the practical words in the orthographic conditions were recalled well than words of which the word meaning had been practiced.

6.9 To identify the effectiveness of a computerized program based on a private educational method in the presentation skills for deaf students. **Shogair & Agl (2010)** used a sample consisted of (16) deaf students in the 9^{th} grade. The researchers designed a note sheet to determine the differences between the performance of students before and after implementing the program. The study revealed that there was a significant impact on the students of the presentation skills. The study found number of recommendations such as promoting the idea of using teaching methods based on computer in teaching deaf students and promoting the language of the reference software for students who have hearing problems.

The previous studies of Reistma (2008) and Shogair & Agl (2010) confirmed that using computer based on multimedia and exercises plays a role in enhancing the achievement and the performance of the deaf students.

6.10 Zafrulla, et al. (2010) aimed at examining the effect of using games on facilitating interaction with computer gesture recognition technology and server as a practice tool for deaf students to improve their language skills. The sample was (22) deaf students; divided into two equivalent groups. The results showed that there was a significant between the experimental group which taught by using computer game (Copy Cat) and control group which taught by using the traditional method in favor of the experimental group. The study confirmed that using technology helps the deaf students to learn language.

The researcher concluded from the previous studies that using computer games is more effective than using the sign language in improving language skills. In fact, Husseen (1996), Melon (1991) and Fogel (1990) paved the way to predict that using these games as a modern technique may help in developing aspects of grammar for the deaf students in Gaza.

7. Commentary on the Third Domain of the Previous Studies

In this domain, the researcher presented a number of pervious studies which focused on teaching English by using computer. Many researchers examined the effect of using computerized games and computerized program in teaching and learning English for deaf students such as, Fogel (1990), Barker (2003), Reistma (2008) and Zafrulla, et al.(2010). The studies of Husseen (1996) and Naji (2003) showed the effectiveness of using computerized games in teaching mathematics and science as school subjects for the deaf students. Others like, El-Dosoqi (2003) showed that computerized games face the individual differences among deaf students. And Shogair & Agl (2010), Gaad & Qaryouti (2002) and Melon (1991) confirmed the positive effect of using computer with deaf students. Both of the researchers; Husseen (1996) and Reistma (2008) used a quasi experimental approach, while the other researchers used the experimental method.

8. General Commentary on the Previous Studies

The researcher reviewed a number of the previous studies which relevant to the theme of the current study which expanded the researchers' background and broadened on the theme of the study. The indicated studies tackled more than one field regarding the implementing of the computerized educational games in different countries, universities and schools. Administrated on different students who are hearing or deaf in different levels and adopted different kinds of tools to achieve their aims. After reviewing the literature, the researcher believes that the teachers of English language of deaf students in Gaza governorates are in bad need to know about the modern techniques and methods in teaching English language and particularly grammar.

9. The following conclusions can be driven:

In the first domain, a number of the related studies from 1988-2010 was presented in order to confirm the effect of using computerized games in teaching English language as a second language. The studies in this domain showed that a positive effect for using computerized games on teaching vocabulary e.g. Palmberg (1988), on teaching reading

e.g. Lim (2005) and on teaching grammar e.g. Yu (2005) and Hamzah & Dourad (2008). Li (2007), Kablan (2009) and Peterson (2010) confirmed the effect of using computerized games on increasing the academic achievement and acquiring English language.

In the second domain, the researcher presented some of the related studies from 1993-2010 to show the impact of using computerized educational games on teaching the different school subjects such as the studies of Abu Rayya(1993) on teaching mathematics skills, Motaw'a (1999) on teaching science and Tüzün, et al.(2008) on teaching geography. In addition to study of Al-Helih & Ghuneem (2002) showed a positive effect on the treating reading. The study of Obidat (2005) was on teaching mathematics concepts. However, the studies of Neimeyer (2006) and Mansureh (2010) were on developing mathematics achievement. Dowidi (2007) study was on developing creative thinking on writing and reading and El-Harbi(2009) study was on directing understanding and survival learning in mathematics .

In the third domain, number of the concerned studies from 1990-2010 was presented to show the role of using computer in teaching English language such as Fogel (1990), Reistma (2008), Barker (2003), Melon (1991), Shogair & Agl (2010) and Zafrulla, et. al. (2010). Other researchers implemented computer in teaching other school subjects such as Husseen (1996) and Naji (2003) and showed its effectiveness in teaching mathematics and science for deaf students. Others like, El-Dosoqi (2003) encouraged using computer to face the individual differences among deaf students. Gaad & Qaryouti (2002) confirmed that using computers motivate and attract the attention of deaf learners.

In fact, the results of the first and the third domains serve the researcher's expectation that using computerized games may have a positive effect on developing aspects of grammar for the deaf students in Gaza governorates.

This study may differ from the other studies in a number of points:

- **The place:** this study is the first one in the field of teaching grammar for the deaf ninth graders by using the computerized educational games in Gaza, within the researcher's knowledge.
- **The Palestinian context in Gaza:** the context for the deaf ninth graders is the same context which are taught in UNRWA school for hearing students who are in the ninth grade.

- **The target group:** the target group is the deaf ninth graders because the deaf students in the 9th grade are taught grammatical rules more than other deaf students. This means that the results of the study can be generalized on other grads.

From the Previous Studies of Using Computer Games in Teaching Hearing and Deaf Students, the Researcher Concluded the Following:

- Implementing computerized games in teaching English language as well as other school subjects showed positive results on the ordinary and deaf student's achievement and attitudes towards the teaching- learning process.
- Most of the previous studies indicated that computerized games can create an interesting atmosphere for students which face the difference in their academic and intelligence levels. This means that they face the individual differences among students and help them work at their own speed.
- Some of the previous studies showed that by using computerized games makes English teaching and learning process depends on the students which is called students center. This process creates active learners and good participants at English and other school subjects such mathematics, geography and science.
- Some of the previous studies showed that computerized games can overcome the difficulties in learning English for the deaf learners, develop their achievement levels and increase the retention of the learned material.
- The previous studies indicated that computer game was an effective technique in the formal learning environments which supports, encourages and increases student's motivation and consciousness.
- The previous studies showed that computerized games developed the competences of creative thinking and enhance students competence of communication as they enhance their language.
- Some of the previous studies showed that using computer draws the attention of the deaf students who are less attention and motivation. So it becomes an essential requirement in teaching the language for deaf students.
- The findings of many previous studies for the deaf learners reflected that there are lack of using modern techniques in teaching English and grammar in particular which support the need for this study.

Despite all the previous positive results of using computerized educational games in teaching English and other school subjects, there was no study in Gaza that tackled the effectiveness of using computerized educational games in teaching the deaf students. This encourages the researcher to examine that computerized games may help in developing aspects of grammar for deaf ninth graders in Gaza governorates.

9. Summary

This chapter showed foreign and Arab studies which dealt with computerized games from different aspects. The majority of the studies emphasized that computerized games had positive effects on learning English language and other school subjects. Also, it was clear that both Arab and foreign studies proved the importance of computerized games in teaching despite the different environment and the facilities.

In fact, the literature review has paved the way of the researcher, facilitated the work and provided the suitable instruments for collecting and analyzing the data to carry out this study. The researcher wishes that this study would be a circle in the hard work series of the deaf.

Chapter 3

Research Design and Methodology

Chapter 3

Research Design and Methodology

3.1 Introduction

This chapter presents the methodology which dealt with and the procedures the researcher went through. It also introduces a complete description of methodology, population, sample, study instruments and statistical treatment for the collected data.

3.2 Research Design

The current study used a quasi experimental approach which required one experimental group. The experimental group was the deaf students in 9th grade. They were taught grammar by using computerized games which were based on fun and motivation as well as creating a positive atmosphere and emotion. By the end of the experiment, the researcher applied a post test in grammar to examine the effectiveness of using computerized games on developing aspects of grammar (the present and past simple tense) for the deaf students.

3.3 Population of the Study

The population of the study consisted of the deaf ninth male and female graders at the societies of deaf in Gaza governorates for the school year (2011-2012). The population was (53) deaf students; (21) females and (32) males as in table (3).

Table (3)

The Distribution of the Population

Societies of Deaf	Male	Female	Total
Atfaluna Society for Deaf Children	4	12	16
Deir El Balah Rehabilitation Society	2	8	10
Rafah Rehabilitation Society	7	5	12
Jabalia Rehabilitation Society	3	4	7
The Red Crescent Society of Gaza	5	3	8
Total of all societies	21	32	53

3.4 Sample of the Study

The researcher used an intended sample. The sample of the study consisted of (16) deaf students; (4) males and (12) females as an experimental group chosen from Atfaluna Society for Deaf Children in Gaza. The educational program in this society supports using computer in teaching the deaf students. In addition to that, there is enough number of computers in the society which is equal to the participants of the study sample.

3.5 Variables of the Study

The study included two variables: the independent variable is represented in computerized educational games and the dependant variable is represented in developing aspects of English grammar.

3.6 Instruments of the Study

In order to collect the data that help in achieving the aim of the study, the researcher used the following instruments:

3.6.1 A Pre - Post Grammar Test.

3.6.2 Computerized Educational Games.

3.6.1 A Pre - Post Grammar Test

A pre-post grammar test was prepared by the researcher to measure the participant's progress in learning aspects of grammar. It was used as a pre test applied before the experiment and as a post test applied after the experiment (See Appendix, A).

3.6.1.1 The General Aims of the Test

The general aim of the test was to measure the effectiveness of using computerized educational games on developing aspects of English grammar. It was designed according to the criteria of test specification and the criteria of testing deaf students in English language.

3.6.1.2 Description of the Test Items

Focusing on the achievement test, the total number of the test questions was (6) with (30) items. Each question consisted of (5) items and every item has one mark. Therefore, the total scores given to the test were (30) marks. In addition, the test examined two grammatical lessons which are the present and the past simple tense.

- **Question (1)** consisted of five choose the correct answer questions; items (1 & 3) examine the present simple and items (2, 4 & 5) examine the past simple.

- **Question (2)** consisted of five questions. Each one has three sentences and the students tick (√) the correct one. Items (7, 8 & 9) examine the present simple; item (6 & 10) examine the past simple
- **Question (3)** consisted of five sentences and the student decides whether the sentence is correct or false. Items (12 &14) examine the present simple; and item (11, 13 & 15) examine the past simple.
- **Question (4)** consisted of five sentences. Each one has a grammatical mistake which the students should point out and correct it. Items (16 & 18) examine the present simple; and item (17, 19 & 20) examine the past simple .
- **Question (5)** consisted of five sentences. Students have to rewrite the sentences using the words in brackets. Items (21, 22 & 24) examine the present simple and items (23 & 25) examine the past simple.
- **Question (6)** consisted of five questions. Students have to match the questions with the answers. Items (26, 28 & 30) examine the present simple and items (27 & 29) examine the past simple.

3.6.1.3 The Experimentation of the Test

In order to examine the suitability and appropriateness of the test in terms of time, difficulty and discrimination coefficients, the test was conducted (as a piloting test) on a randomly selected group of (10) males and females deaf students who had similar characteristics to the experimental group from Atfaluna Society for Deaf Children.

3.6.1.4 Time Estimation

The researcher used this the following equation (Abu Oda, 2010), to account for the test time.

$$\frac{\text{Time spent by the first student} + \text{Time spent by the last student}}{2}$$

So, the time estimation = 37+53/2= 45 minutes. After applying the equation, the researcher found that the time needed for the test was 45 minutes.

3.6.1.5 Validity of the Test

Abu Nahia (1994: 160) states that the test is valid when it measures what it is designed to measure. The referee validity, the content validity and the internal consistency validity were confirmed in the current study. It was proved valid according to:

a. Referee Validity

The researcher refereed the test by a panel of specialists in English language and methodology at Al-Azhar University and The Islamic University of Gaza as well as experienced teachers in the field of teaching English language for deaf students (See Appendix, F). According to their recommendations and advice, some modifications and editions were made (See Appendix, A).

b. Content Validity of the Test

Mackey & Gass (2005:107) state that the content validity refers to the representativeness of measurement regarding the phenomenon about which one want information. The test was designed according to the general objectives of the content and the objectives of the test.

In addition, the researcher specified the teaching objectives for the lessons and designed enough items for the pre-post grammar test. Then, a representative sample of these items were selected.

c. Internal Consistency Validity

Al Agha (1996:121) refers that the internal consistency validity indicates the correlation of the degree of each item with the total average of the test. It also indicates the correlation coefficient of the average of each scope with the total average. The researcher used Pearson Correlation Coefficient to measure the internal consistency validity of the test. The correlation coefficient of each question with the total scores of the test is significant at level (0.001) . The following table (4) shows the correlation coefficient of each question with the total scores of the test.

Table (4)

The Correlation Coefficient of Each Question with the Total Test Scores

Test Questions	Correlation with the Total Scores	Level of Sig.
Question(1)	0.678	0.031
Question (2)	0.863	0.001
Question (3)	0.924	0.001
Question (4)	0.924	0.000
Question (5)	0.863	0.001
Question (6)	0.809	0.005

Table (4) shows that the correlation of each question with the total scores of the test is significant at (0.001). For example, the correlation between question (1) and the total scores was (0.678). This means that the test is highly consistent.

3.6.1.6 Reliability of the Test

Mackey & Gass (2005:128) defined reliability as "Instrument Consistency", which means that if a student gets a high mark in a certain subject test, it would be expected that the student would also receive a high mark if he took the same test. The reliability of the test was measured by Alpha Cronbach Coefficient and the Split-Half techniques.

a. Alpha Cronbach Coefficient

The researcher used Alpha Cronbach Coefficient technique to measure the reliability of the test as in table (5).

Table(5)

Reliability Coefficient by Alpha Cronbach Technique for the Test Questions

Alpha Cronbach	Alpha Cronbach Based on Test Questions	No. of Questions
0.864	0.874	6

Table (6)

Reliability Coefficient by Alpha Cronbach If Question Deleted

Test Questions	Scale Mean if Question Deleted	Scale Variance if Question Deleted	Alpha Cronbach if Question Deleted
Question (1)	10.6	20.04	0.858
Question (2)	10.8	15.289	0.819
Question (3)	10.3	18.9	0.905
Question (4)	10.4	15.6	0.8
Question (5)	11.1	16.767	0.818
Question (6)	11.8	17.067	0.832

From table(5) Alpha Cronbach was (0.86 > 0.05) and from table (6) if any question deleted, Alpha Cronbach will be between (0.8 - 0.905) which means that the test is reliable.

b. Split-Half Technique

To ensure the previous result the researcher tested the reliability by another technique which was Spilt- Half Technique. The test was divided into two parts. Part (1) included the first, the second and the third question and part (2) included the fourth, the fifth and the sixth question.

Table (7)

Reliability Coefficient by Spilt - Half Technique for the Test Questions

Pre-Post Test	No. of Questions	Split-Half
Part (1)	3	0.539
Part (2)	3	0.882

Table (8)

Reliability Coefficient by Split-Half if any Question Deleted

Test Questions	Scale Mean if Question Deleted	Scale Variance if Question Deleted	Split-Half if Question Deleted
Question (1)	10.6	20.04	0.858
Question (2)	10.8	15.289	0.819
Question (3)	10.3	18.9	0.905
Question (4)	10.4	15.6	0.8
Question (5)	11.1	16.767	0.818
Question (6)	11.8	17.067	0.832

Table (7) shows that the Split-Half Technique in the two parts was between (0.539 – 0.882). However, table (8) showed that Split-Half Technique in the two parts was between (0.8 – 0.905) if any question is deleted so the test is reliable.

According to the previous tables (Alpha Cronbach Coefficient & Spilt-Half Technique), the test was proved to be reliable.

3.6.2 The Computerized Educational Games

In the this study, the researcher designed eleven of computerized games.

3.6.2.1 Aim of the Computerized Educational Games

The researcher used different eleven computerized games to teach present and past simple tense. Each tense included three grammatical lessons; how to form infinitive, negative and question for the deaf ninth graders. These games were used to teach the experimental group (See Appendix, C).

3.6.2.2 Developing the Computerized Educational Games

While designing the computerized games, the following aspects were taken into consideration:

- The aim of each language game.
- The abilities and skills of the deaf students.
- Achieving the objective of the lesson.
- Using sign language videos which translates the written words to SL.
- Depending on the visual input for presenting the grammatical rules.
- Reinforcement can be used at any time.
- Interactive and non-traditional.
- Exciting and attractive for continuing to use.
- Increasing students' motivation by limiting time for each game.
- Displaying the result at the end of each game.

3.6.2.3 Validity of the Computerized Educational Games

To test the games validity, the researcher submitted the first design of the computerized games software to a group of specialists in English language teaching, English language teachers for the deaf students and experts in instructional techniques to be refereed (See Appendix, D & F).

3.6.2.4 Computerized Educational Games Designing

The computerized games in the current study were designed to teach present and past simple tense. The following is an illustration about using the computerized games as one of the study instruments and see (Appendix , C)

A. The Computerized Games of the Present Simple Tense:

- **My Way (1) Game:**. In this game, the deaf students in this study learn the rules and the examples of the present simple tense (affirmative, negative and question forms) through a boy who was walking, running in a way and standing up in front of a wise man who explains the rule or the examples. This game showed only the rules and the examples.

- **Rocket Game:** It is an exercise game aimed to teach the affirmative form of present simple tense which verbs take (s) or (es). It's designed according on " Choose the correct answer". This game consisted of ten items. Each item has three multiples choices . After the wrong answer there is an immediate feedback.

- **Frog Game:** aimed to teach the negative form of present simple tense**.** This game named designed according on "Put (√) or (×) for each sentence". A student should put the symbol before passing 30 seconds. After the wrong answer there is an immediate feedback and alternative question. This game consisted of ten items. Five of them are main items and the other five items are alternative items which appeared in the case of the wrong answer.

- **Catching Game:** aimed to make meaningful questions using does/do. Its idea based on catching the parts of the question (Do/Does, subject and the complement) by clicking on each part. The game was based on making a meaningful questions from the parts . The game consisted of ten items. When the student selected the wrong part, the correct one will be lighted.

.

- **Similar Pictures Game:** aimed to teach how to make affirmative and negative answers from do/ does questions. The game designed according on choose the correct answer. In the game there were ten items. When the student selected the wrong part, the correct one will be lighted.

B. The Computerized Games of the Past Simple Tense:

- **My Way (2) Game:** aimed to teach past simple tense affirmative, negative and question forms. This game showed the rules and the examples of the present simple tense (affirmative, negative and question forms) through a boy who was

walking, running in a way and standing up in front of the wise man who explains the rule or the examples. This game showed only the rules and the examples.

The researcher was advised to use the same game/software to present the rules and examples of both the past simple and the present simple because using the same software for explaining two different things make and help deaf students to compare and to learn better.

- **Puzzle Game:** aimed to teach deaf students to distinguish between regular and irregular verbs in the past simple tense. There were twelve regular and irregular verbs , the student should find out where the past form was.

- **Solitaire Game:** aimed to teach the negative form of the past simple. It was based on choosing the correct negative form of the past simple. Ten items were included in the game. When the student selected the wrong part, the correct one will be lighted.

- **Car Game:** aimed to teach how to make meaningful and complete questions using (Did) and how to answer a question with affirmative and negative answer. The game designed according on choose the correct answer. In the game there were ten items. When the student selected the wrong part, the correct one will be lighted.

C. Additional Computerized Games - Revision Games

- **Key Game:** aimed to revise the present simple affirmative, negative and question forms. It was based on correcting the mistake in each sentence. When the student give the correct answer , the will move to find out another key.

- **Lights Game:** aimed to revise the past simple affirmative, negative and questions forms. The game consisted of twenty items . It was designed according on correct the mistake of the each sentence. When the answer is correct, the green light appears, and the red light appears when the answer is wrong. To pass the first level, the student should correct more than four mistakes.

The teachers of the deaf students agreed with the researcher's opinion that designing additional games as revision games is an important part of the software because they will help the deaf students to remember and revise the learned rules to answer the questions in the games.

3.7 Lessons Time-Plan

The time of implementing the six lessons was shown in table (9)

Table (9)

Time Distribution in Each Lesson.

Domain	Lesson	Title	Time	
			Period 1	Period 2
Present Simple Tense	1	Affirmative	45 min	45min
	2	Negative	45 min	45min
	3	Making Question	45 min	45 min
Past Simple Tense	4	Affirmative	45 min	45 min
	5	Negative	45 min	45 min
	6	Making Question	45 min	45 min

As it was shown in table (9), each lesson was taught during two teaching periods which were (90) minutes. Accordingly, the six grammatical lessons required (12) teaching periods to be accomplished in (4) weeks. It was important to say that the experimental group was taught six grammatical lessons in (12) teaching periods by using computerized educational games.

3.8 Description of the Deaf Students

All the deaf students who participated in the current study were in the ninth grade at Atfaluna Society for Deaf Children. They all suffer from the profound degree of deafness which is more than (90) dB. Furthermore, they were from a similar cultural, social and economic background.

3.9 General Observations on the Experiment Application

During the experiment application at Atfaluna Society for Deaf Children, the researcher and some teachers of the deaf learners from the same society and the other

societies who came to observe the application, noticed some observations (See Appendix, I & J). The following points are the main comments of the teachers on the experiment:

- Using computerized games created an interesting and attractive atmosphere in the class which encouraged them to learn better.
- Using computerized games helped the deaf students depend on themselves in learning the present simple and the past simple tense.
- Using computerized games encouraged the deaf students to be more motivated to learn English grammar .
- Using computerized games changed the deaf students thoughts that English grammar is so difficult to learn.
- Using computerized games encouraged the deaf learners to work in cooperation; pairs or groups with their classmates.
- Using computerized games gave the deaf learners an opportunity to learn according to their own speed and their achievement level.

In addition to the previous comments, the researcher asked the deaf students about their opinions and they commented that :

- They hope to learn more grammatical rules by using computerized games.
- They request their teacher to use computerized games in teaching them English grammar instead of using the ordinary method (SL) .
- They felt that using the computerized games helped them to learn English grammar especially the present and the past simple tenses, more than using the ordinary method (SL).

3.10 Statistical Analysis

The researcher used the following statistical treatment (See Chapter, 4):

1. T. test was used to determine the level of grammar competence of the experimental group before and after applying the experiment.
2. Pearson Correlation, Alpha Cronbach technique were used to account for the validity of the pre- post test by computing its internal consistency.
3. Spilt-Half Technique was used to confirm the reliability of the pre- post test.
4. Modified Gain Ratio Equation was used to count for the effectiveness of using computerized educational games on developing aspects of English grammar for the deaf ninth graders.

3.11 The Procedures of the Study

The study was processed throughout the following procedures:

1. Identifying the effectiveness of the computerized educational games on developing grammar for the deaf ninth graders through:
   - Reviewing literature and previous studies related to computerized educational games in general and the implementation of computerized games in teaching English grammar in particular.
   - Being aware of the literature review and the previous studies related to teaching English language for the deaf in general and teaching them using computer games and computerized games.
2. Consulting a number of experienced ninth grade teachers for deaf about the learning objectives, the suitable grammar exercises and the initial designing of computerized educational games.
3. According to the characteristics of the deaf students, some criteria for designing computerized games educational should be considered,
   - Identifying the objectives of the computerized educational games.
   - Identifying the content of the educational games.
   - Identifying and preparing the grammatical exercises.
4. Presenting the software of computerized games to a group of experts and specialists in teaching English language and methodology to avail from their experiences.
5. Preparing a teacher guide to facilitate teaching and learning using computerized educational games in the class of the deaf students.
6. Preparing a grammar test with the help of a group of teachers .
7. Consulting experts in English language and methodology to assure the reliability and validity of the test.
8. Holding regular meetings with the assistant teachers to explain the goals and the procedures for administering the experiment.
9. Applying the pre achievement test on the sample of the study.
10. Implementing the experiment, teaching the content using computerized educational games and teacher guide to the experimental group.
11. Applying the post test to examine the effectiveness of using the computerized educational games on developing aspects of English grammar, analyzing and interpreting the results.

12. Presenting the summary, the suggestions and the recommendations in the light of the study conclusions.

3.12 Limitations of the Study

- The study aimed to develop aspects of English grammar for deaf ninth graders (male and female) at Atfaluna Society for Deaf Children in Gaza Governorate.
- The study was implemented in the first semester of the school year (2011-2012).
- The research was limited to teach English language textbook, *English for Palestine* 9, through implementing computerized educational games. The content was the present simple and the past simple tense. The experiment lasted (4) weeks in October and November 2011.

3.13 Summary

This chapter showed the procedures of designing and applying the instruments, the subjects and the statistical analysis that the researcher adopts in analyzing the results of the pre and post grammar test. The next chapter views the data analysis and results for the study hypotheses .

Chapter 4

Data Analysis and Results

Chapter 4

Data Analysis and Results

4.1 Introduction

This study investigated the effectiveness of using computerized games on developing grammar for the deaf ninth graders. The data were statistically described in terms of mean, standard deviation and the number of participants in the sample. Comparison of quantitative variables between the participants was done using T. test for an independent sample.

This chapter included the statistical treatment of the hypotheses of the study, the data analysis and the results.

4.2 The Answer of the First Question

The first question of the current study is stated as follows:

"What are the suitable computerized educational games for developing aspects of English grammar for the deaf ninth graders?"

This question was answered in more details in chapter (2) and appendix (C). However , the researcher here displays the main elements which were used in designing the computer games for the current study. The suitable computerized games based on clear objectives, rules, instructions, using sign language video, using pictures, visualization skills, feedback, reinforcement, competition, and challenge.

The researcher designed the Computerized Games according to the following points:

1. The capabilities and skills of deaf students.
2. Achieving the objective of the lesson.
3. Using video which translates the written words into the sign language.
4. Depending on the visual input on presenting the grammatical rules.
5. Can be used at any time.
6. Interactive and non-traditional.
7. Exciting and attractive for continuing to use.
8. Increasing students' motivation by limiting time for each game.
9. Displaying the result at the end of each game.

The researcher added the following notes to make the computerized games of the current study to be more suitable for the deaf students:

1. All the computerized games based on the individual playing method which followed with discussion among the teacher and students.
2. The Duplicated pictures refer to plural (more than one).
3. The small picture  or  which is used with main picture refers to negative and action doesn't happen.
4. The small picture  which is used with main picture refers to the pronoun (I).
5. The small picture  which is used with main picture refers to the pronoun (you).
6. Using two pictures in the same time with key word (e.g. yesterday) refers that one of them represents present simple and the second represents past simple.

2.8 The Answer of the Second Question

The second question was to test the first hypothesis of the study which inquired the following question:

Are there statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of the experimental group in pre and post grammar test due to the use of computerized educational games?

To answer this question, the researcher tested the following null hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of experimental group in grammar pre and post test due to the use of computerized educational games.

To investigate the first hypothesis of the study, mean, standard deviation and T. value for the experimental group in the pre-test and the post-test were computed. Furthermore, each item of the test questions had a descriptive statistics in the pre test and the post test (See Appendix, B). The researcher used T-test paired sample to measure the significant differences between the mean scores of participants in the pre - post test due to the use of computerized educational games and table (10) illustrates this.

Table (10)

Mean, Standard Deviation and T. Value for the Experimental Group in the Pre-Test and the Post-Test

Experimental Group	No.	Mean	Std. Deviation	T. Value
Pre-test	16	11.94	4.297	- 14.756
Post-test	16	19.44	4.427	

Table (10) shows that the mean of the experimental group(19.44) in the post test is higher than the mean of the pre test (11.94). T. value was (- 14.756) which means that there were statistically significant differences at ($\alpha \leq 0.05$) between the deaf student's mean scores on their post and pre application of the test in favor of the post application.

Table (11)

The Difference between the Mean Scores of the Test Questions in the Pre-Test and the Post- Test.

Test Questions	Group	No.	Mean	Std. Deviation	T. Value	Sig.
Question(1)	Pre-test	16	2	1.155	-3.873	0.002
	Post-test	16	3.25	1.125		
Question(2)	Pre-test	16	2	1.033	-4.392	0.001
	Post-test	16	3.31	0.946		
Question(3)	Pre-test	16	2.38	1.025	-3.464	0.003
	Post-test	16	3.38	0.957		
Question(4)	Pre-test	16	1.5	1.265	-6.333	0
	Post-test	16	2.69	0.873		
Question(5)	Pre-test	16	2.25	0.683	-3.223	0.006
	Post-test	16	3	0.966		
Question(6)	Pre-test	16	1.81	0.981	-7.746	0
	Post-test	16	3.81	1.276		

Table (11) shows the difference between the Mean, Std. Deviation and T. value of each question in the pre test and the post test. For example, in the **Question(1)**, the mean scores in the post test was (3.25) and it was less than the mean scores in the pre test (2).

Sig. was (0.002 < 0.05) which means there was a significant difference between the mean scores in the pre test and the post test. T. value was a negative value (- 3.873). This means that the mean scores of the first question in the post test was greater than the mean scores in the pre test. (For more details about the differences in difference between the Mean for the other questions, look at table (11))

From the previous illustration, it is clear that the significant difference states that results of the post test are better than the results of the pre test. This is attributed to the use of the computerized educational games.

Thus, the first hypothesis of the present study, which states that " There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders' mean scores of experimental group in grammar pre and post test due to the use of computerized educational games" is verified.

The researcher concluded from the investigation of the first hypothesis that using the designed computerized games played a basic role on developing grammar competence for the deaf learners. These results agreed with some reviewed studies in chapter (2) such as: Hamzah & Dourad (2009), Fogel (1990), Gaad & Qaryouti (2002) and Zafrulla, et al. (2010)

4.4 The Answer of the Third Question

The third question was to test the second hypothesis of the study which inquired the following question:

Are there statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders mean scores of experimental group in the pre and post grammar test due to gender factor?

To answer the third question, the researcher tested the following null hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders of experimental group in the pre and post grammar test due to gender factor.

To investigate the second hypothesis of the study, the researcher used T-test for an independent sample to determine the significant differences between the male and the female in the pre and post test.

4.5 An Independent T. Test to Gender Variable in the Pre - Post test

To implement the independent T. test, the researcher tested the equal of variance between the male and female in the sample using Levene's test according to the hypothesis of " The male variance equals the female variance in the pre test and the post test."

Table (12)

The Equal of Variance between Male and Female in the Test

Group	Sig.	F.
Pre – Test	0.115	2.832
Post – Test	0.111	2.895

Table (12) shows that Sig. was (0.115 > .05) in the pre test and in the post test was(0.111 > .05) which means there was no a significant difference between the variances. So, the assumption of the independent T. test was achieved.

Table(13)

Differences between the Mean Scores of Male and Female in the Pre - Post Test

Group	Mean Difference	Sig.	D.F	T. test	Confidence Interval	
					Upper	Lower
Pre-test	-1.917	0.459	14	- 0.762	3.48	-7.313
Post-test	-0.917	0.73	14	-0.0348	4.733	-6.566

Table (13) shows that the Sig. was (.459 > .05) in the pre test and (.73 > .05) in the post test which means there were no significant differences between male and female in the mean scores in the pre test and in the post test. And the confidence interval was (-7.313, 3.48) in the pre test and (- 6.566, 4.733) in the pre test which means that, the (0) lies inside the confidence interval, the mean of the male equaled the mean of the female in the sample.

In other words, There were no significant differences between the mean of the male and female in the pre test and the post test.

Thus, the second hypothesis of the current study, which states that " There are no statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders of experimental group in the pre and post grammar test due to gender factor." is accepted. The researcher noticed and concluded that the results of examining the effectiveness of the computerized games in teaching English and specially grammar for the deaf students(male and female) were in agreement with the findings of the studies of Fogel (1990), Melon (1991), Gaad & Qaryouti (2002) and Barker (2003).

4.6 The Effectiveness of Using the Computerized Educational Games

To account for the effectiveness of the computerized games on developing grammar for the deaf 9th graders, the researcher used Modified Gain Ratio equation as follows:

$$\frac{\text{The mean scores of post test} - \text{The mean scores of pre test}}{\text{Total scores} - \text{The mean of pre test}}$$

Table(14)

The Effectiveness of the Computerized Games on Developing Grammar for the Deaf 9th Graders

Experimental Group	Mean of the Post Test	Mean of the Pre Test	Total Scores	Difference between the Two Means	Modified Gain Ratio
	19.44	11.94	30	7.5	41.5

Table (14) shows that the Modified Gain Ratio was (41.5), which nearly lied in the middle between the highest and the lowest modified gain ratio for all the questions (27.3 – 62.7) as in table (15). In other wards, using the computerized educational games had a medium effectiveness on developing the 9th Graders English grammar.

Table (15)

The Effectiveness of the Computerized Games for Each Question

Test questions	Mean of the Post Test	Mean of the Pre Test	Difference between the Two Means	Modified Gain Ratio
Question(1)	3.25	2	1.25	41.7
Question(2)	3.31	2	1.31	43.7
Question(3)	3.38	2.38	1	38.2
Question(4)	2.69	1.5	1.19	34
Question(5)	3	2.25	0.75	27.3
Question(6)	3.81	1.81	2	62.7

Table (15) shows that the Modified Gain Ratio for all the questions was between (27.3 – 62.7). Therefore, the positive signs of the differences between the means of the pre test and the post test highlighted the effectiveness of using computerized games on developing grammar for the deaf students.

So, the researcher can ensure that using computerized games an effective and positive results on developing English grammar for the deaf 9th graders.

4.7 Summary

It is very obvious that computerized games have positive effects on developing grammar for the deaf 9th graders. These activities (computerized games) were enhanced, in the student's perception by more positive classroom atmosphere and a supportive spirit(See Appendix, J).

The researcher found that the deaf students were more willing to help one another. In fact, student's perceptions confirmed that using computerized games as a teaching and learning technique is fun and creates a non-threatening learning environment which encourages interactions between the students and teachers, supports active participation.

As a matter of fact, using this strategy in teaching the present and the past simple tenses indicated improvement and development in the experimental deaf student's . In addition, it is noted that the finding of this study was in agreement with the findings of all

previous studies which were mentioned in this thesis. The previous studies emphasized that using games in teaching English language, especially grammar, and ESL teaching leads to clear improvement in student's achievement and performance. However, the current study ensured that using computer games plays a basic role on developing aspects of English grammar (present simple and past simple) for deaf learners. In addition to that, computer games help students to be more motivated, interested, and work together in a cooperative atmosphere.

Furthermore, the deaf students in the experimental group said that they were not only more motivated by being exposed to the use of computerized games, but also more active and happy to be in their language classes, more ready to help each other, more willing to use grammar. Finally, it was noted that there were significant differences between the deaf ninth graders in the mean scores in grammar pre and post test due to the use of computerized educational games. And there were no significant differences between the deaf 9th graders in the pre and post grammar test due to gender factor.

The next chapter views the study findings, discussion, pedagogical implications and recommendations.

Chapter 5

Findings, Discussion, Pedagogical Implications and Recommendations

Chapter 5
Findings, Discussion, Pedagogical Implications and Recommendations

5.1 Introduction

This chapter discussed the findings of the study. It summarized the findings that were documented in the light of the study results. In addition to a focused discussion, some pedagogical implications were mentioned to enrich the teaching-learning process for the deaf learners. The researcher also provided some recommendations which could be beneficial for curriculum designers, educators, teachers of the deaf learners and researchers because they can help in improving the teaching-learning process for the deaf in Gaza governorates.

5.2 Findings

This study aimed at examining the effectiveness of using computerized game on developing aspects of English grammar for deaf 9th graders. To achieve this aim, the researcher adopted the quasi- experimental approach of research in which one experimental group was employed. This group was taught using computerized games and it was called the experimental group. It consisted of (16) deaf students. The researcher used a grammar test as pre and post test to measure the differences before and after the application of the experiment.

The study presented the results which have been reached with using the statistical program (SPSS) for data processing.

The result of the first hypothesis proved that there were statistically significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders in the mean scores in the grammar pre and the post test due to the use of computerized games. This means that computerized games are more effective than using the sign language in teaching grammar for the deaf students.

The result of the second hypothesis also proved that there were statistically no significant differences at ($\alpha \leq 0.05$) between the deaf ninth graders in the mean scores in the grammar pre and post test due to the gender factor. In other wards, there are no significance differences between the deaf male and female in the experimental group.

This result agreed with the result of some previous studies such as Yu(2005), Hamzah & Dourad (2009), Fogel (1990) and Melon (1991). This may be due to the fact that both male and female pupils were exposed to similar social and educational environment.

5.3 Discussion

Using computerized games as a new technique will become an effective technique in teaching grammar for the deaf according to the findings of the current study. That is for many reasons; the deaf learners have difficulty in acquiring English using the sign language. This technique based on the visual input which is using the vision instead of hearing. Computerized games is the suitable technique in the teaching and learning process and communication for the deaf learners.

The statistical treatment showed that there was a difference between the results of the pre test and the post test at level (0.05) due to the use of computerized games in teaching grammar for the deaf 9th graders. In other words, using computerized games had effectiveness on developing grammar.

Furthermore, there are no significance differences between the deaf male and female in the experimental group. This positive effect did not contradict the researcher's hypotheses of the effectiveness of computerized games on developing grammar for the deaf students male and female.

Developing English grammar for the deaf learners due to using the suitable method for these learners. The use of the computerized games could have affected the students motivation which could have also been reflected in their willingness to learn grammar and to enhance the academic achievement.

According to the general characteristics of the deaf which were pointed out by (CAF, 2011), the deaf learners are isolated, less motivated, less self confidence and they mainly depend on the visual input instead of hearing (See Chapter, 2) so that they need to learn by using the visual input techniques such as using computer or computerized games which motivate, encourage, and engage them and facilitate their learning. All these advantages of using computerized games were confirmed by the deaf learners (See Appendix, I).

The researcher and some teachers at Atfaluna Society for Deaf Children, Deir El Balah Rehabilitation Society and Jabalia Rehabilitation Society, noticed during the application of the experiment the following points which represent the theme of the current study:

1. Computerized Educational Games provided the deaf students with a better learning environment which developed their learning for grammar.
2. Computerized Educational Games increased the deaf students motivation to learn and raise the degree of competition among them.
3. By using the Computerized Educational Games, the deaf students who were nervous felt relaxed, funny and comfortable and this leaded to easier learning and developing English grammar.
4. Computerized Educational Games strengthened the relationship between the teacher and the deaf students which facilitated teaching-learning process.
5. Computerized Educational Games developed the cooperative learning among the deaf students. That is, by using computer games, the deaf students should be divided into groups or pairs and discussed what they learned after their playing for each game.
6. Computerized Educational Games gave the deaf students the chance to play several roles as thinkers, problem-solvers, decision makers and better communicators. By practicing these roles, students' characters can be formed in an effective way which reflected positively in society.
7. Computerized Educational Games changed the deaf students from passive participants into active participants. That is, these games facilitated and developed their learning and really this the real aim of using them in teaching grammar.
8. Computerized Educational Games created more a positive atmosphere and supportive spirit, whereby the deaf students were more willing to help one another and the teacher was more readily to offer support and help. That is, computerized games as a teaching-learning strategy is fun and create non - threatening learning environment encouraged interactions between the deaf students and teachers.
9. Computerized Educational Games provided the deaf students with fun, enjoyment, pleasure, enthusiasm and variation which were significant enough to affect the deaf students learning positively.

In fact, the real reason of the success in using the computerized games in teaching

grammar for the deaf learners in the current study is due to the well designing of these games which based on the main requirements and criteria of designing a software for the deaf learners such as the availability of the sign language videos, clear writing and pictures, movements and world processing (See Chapter, 2 & Appendix, E).

However, the researcher faced a number of difficulties before and during implementing the experiment. One of these difficulties appeared in the fact that not all the societies of the deaf use the same methods in teaching grammar. For example, the teachers at Atfaluna Society for the Deaf Children use pictures and computers as teaching aids in teaching grammar while the teachers in the other societies use only the sign language. In that time, the researcher also read in the literature and the previous studies that using pictures and computers as reflections of the visual input is considered very essential and effective technique in teaching grammar for the deaf learners.

Also, there was not a united semester plan of the curricula content at the societies of the deaf in Gaza. In other words, some teachers teach the present simple in two weeks, while others teach it in three weeks. In addition to that, some teachers do not teach the content (lessons) as the sequence of the textbook while the others do that.

Moreover, some deaf learners use computer well. This due to the educational program of each society. Some society consider "Technology" a main school subject while the other societies do not care about this subject.

5.4 Pedagogical Implications

1. Teachers of the deaf students should be aware of their student's needs and abilities and choose the suitable techniques which depend on the visual input for activating teaching and learning English grammar.
2. Computerized Educational Games strategy and technology are strongly recommended in teaching grammar for the deaf students.
3. Classroom environment should be provided with visual techniques like computer and OHP to increase student's enthusiasm and interest.
4. The teachers of the deaf and the deaf students should be convinced of the importance of using computerized games in developing the understanding and practicing grammar.

5. English curriculum for the deaf students should be full of many grammar exercises based on interesting computerized games which create a positive atmosphere and exciting grammar lessons.

5.5 Recommendations

Based on the results of the present study, the researcher adopted many recommendations that were directed to the following:

5.5.1 Ministry of Education

1. To provide the societies of the deaf students with special curricula which appropriates the deaf student's characteristics and academic level .
2. To provide the teachers of the deaf with plan for teaching the content of the curricula which united the teaching time for each lesson or unit .
3. To computerize the curriculum like using PowerPoint presentations and computerized games, which based on the visual input, to facilitate English grammar learning for the deaf students.
4. To support the schools of the deaf students with the new instructional techniques like computers, televisions, videos, internet, copy machines and all kinds of board. These visual aids help the teachers to activate and employ computerized games and other effective techniques in their teaching.
5. To mandate a number of experienced teachers and internal supervisors to support the other teachers of the deaf and pay their attention to the best methods and techniques.

5.5.2 Societies / Schools of Deaf Students

1. To increase English language periods in order to give the teachers of the deaf suitable opportunities to concentrate on learning quality.
2. To encourage the exchange visits between the teachers in the societies of the deaf to convey their experiences among each others.
3. To provide the teacher of the deaf with the suitable teaching techniques to facilitate the teaching and learning process.
4. To encourage the deaf students to compete with their peers in the other societies e.g. competition for the best academic performance.

5.5.3 Educational Supervisors

1. To provide teachers of the deaf students with instructional materials which improve their awareness about using computerized educational games and their importance and necessity of using this strategy in teaching grammar for the deaf students.
2. To increase training courses for the teachers of the deaf to encourage them employ computer in their teaching and increase their experiences.
3. To conduct workshops that aim at familiarizing teachers of deaf with computer programs particularly PowerPoint program and the different kinds of the computerized games.

5.5.4 English Language Teachers for Deaf Students

1. To implement computerized game in teaching English and specially grammar to make better outcomes in the deaf student's achievement of English language.
2. To concentrate on the fact that computerized games is an important strategy, this is because they are activities based on the visual input, introduce immediately feedback and reinforcement. Furthermore, they include the factors of fun and enjoyment.
3. To change the teaching methods and approaches of the deaf students from the sign language to the Total Communication Approach which support using the modern techniques.
4. To focus on using "Pictures" to facilitate the deaf students learning for English language and particularly for grammar.
5. To relate computerized educational games with teaching grammar, learning new vocabulary and improving writing skill .
6. To consider the individual differences between the deaf students, the experiences and the hearing loss degree in selecting computerized games for learning.
7. To select effective methods which based on the Total Communication Approach and visual techniques which activate the deaf student's motivation, participation and the degree of competition and challenging among them.
8. To strengthen the relationship with the deaf students which creates non-threatening classroom atmosphere and facilitates the learning-teaching process.

5.6 Suggestions for Further Studies

1. The current study was limited to two lessons; present and past simple tenses. So, the researcher suggests examining the effectiveness of using computerized games in teaching other grammatical lessons.
2. The effectiveness of using computer on developing students' translation from English into Arabic and from Arabic into English.
3. The effectiveness of computerized educational program on developing student's translation from text written in English into the sign language.
4. Other researchers can conduct evaluative studies to examine to what extent English language curricula appropriates with deaf student's encompasses the game activities and exercises.
5. The study suggested that researchers conduct other researches on computerized game on developing deaf student's higher-order thinking skills.
6. Carrying out researches on teaching English for Blind students.
7. Carrying out researches on teaching English for students of special needs.

5.7 Summary

The researcher tackled in this chapter the findings of the study. In addition, a general discussion for some points, pedagogical implications and some recommendations which could be beneficial for curricula designers, educators and teachers of the deaf learners .

REFERANCES

REFERANCES

1. Abu Nahia, S. (1994). **Educational Measurement**. Edition 1, Al-Anglo El-Masria Library, Egypt.
2. Abu Rayya, M. (1993).**The Effect of Using learning Through Playing Strategy Implemented by Computer on Acquiring the Four Calculations Skills in Private Schools in Amman**. Unpublished M.A Thesis, The University of Jordan, Jordan.
3. Abu Oda, K. (2010). **The effectiveness of Computer Based learning on Developing the 4th Graders English language Achievement in Gaza UNRWA Schools**. Unpublished M.A. Thesis, Al-Azhar University- Gaza, Palestine.
4. Afana, E. & Kabaja, N. (1997). Parents Attitude Towards the Behavior of Their Deaf Children. Islamic University of Gaza, **Journal for Research-Humanities,** Vol. 5, No. (2), pp.83_115.
5. AGBALSL(2007).**Auditory-Verbal Therapy**. Retrieved from: http://www.agbellacademyorg/Auditory_verbal_Therapy.htm. On: 24 November, 2007.
6. AHC (2003). **Causes of Hearing Loss**. Retrieved from: http://www.hearing.com.au. On: 5 May, 2003.
7. Al-Agha, E.(1996). **Educational Search: Elements, Methodologies and Instruments**. Edition 1, Islamic University of Gaza, Palestine.
8. Al-Helih, M. & Ghuneem, A. (2002). The Effect of Computerized and Ordinary Linguistic Educational Games on Treating Reading Disabilities for Fourth Graders. **Al-Najah University Journal for Research- Humanities**, Vol. 16, No.(2), pp.589_626.
9. Al-Osaimi, A. et al. (2009). User Interface Requirements for E-Learning Program Designed for Deaf Children. **First Kuwait Conference on E- Services and E-Systems**, 17-19 November, 2009, Kuwait.
10. Al-Sofi, A. (2008). **The difficulties of Teaching English Novel for The Eleventh Grade From the Teachers' Perspective in Gaza**. M.A thesis, the Islamic University of Gaza, Palestine.
11. Albertini, J. et al. (2002). **Educating Deaf Students**. Oxford University, Britain.
12. Alessi, S. & Trollip, S. (2001). **Multimedia for Learning: Methods and Development**. Allyn and Bacon, Britain.

13. Alexander, L. (1990). **English Grammar Practice**. Longman, Britain.

14. Allery, A. (2004). Educational Games and Structured Experiences. **Medical Teacher**, Vol. 26, No. (6), pp. 504_505.

15. Altman, B.(1986). Working With Play. **The Child Care Worker**, Vol. 4, No.(8), pp.10_12.

16. Ang, Ch. & Zaphiris, PP. (2008). **Computer Games and Language Learning**. Centre for Human-Computer Interface Design. City University, Britain.

17. ASDC (2011). **Workshop of The Project Community Outreach and Awareness Rising to Improve Ear Medical Care**, Atfaluna Society for Deaf Children,2_3 April, 2011,Gaza, Palestine.

18. Azar, B. (2007). **Grammar–Based Teaching: A practitioner's Perspective**. Retrieved from: http://test-ej.org\eju2\al.html. On: 12 March, 2007.

19. Bakar, N. (2007). English Language Activities in Computer-Based Learning Environment: A Case Study In ESL Malaysian Classroom. **GEME Online Journal of Language Studies**. Universiti Kebangsaan Malaysia.Vol. 7, No.(1), pp.33_48.

20. Baker-Shenk, C. & Cokeley, D. (1991). **American Sign Language: A Teacher's Resource Text on Grammar and Culture**. Clerc Books, USA.

21. Baltra, A. (1990). Language Learning through Computer Adventure Games. **Journal of Simulation and Games**, Vol. 21, No. (4), pp. 445_452.

22. Banner, C. (2005). **A Comparative Study of The Perceptions of Elementary School Administrators, Teachers and Students Regarding Recess and Free Play in Public School**. PH Thesis, East Tennessee State University, USA.

23. Barker, L. (2003). **Computer-Assisted Vocabulary Acquisition: CSLU Vocabulary Tutor in Oral _Deaf Education**. Colorado University ,USA.

24. Bennett, E. (1987). **Planning and Evaluating Computer Education Programs**. Merrill Publishing-New York, USA.

25. Berent, et al. (2007). **Visual Input Enhancement Via Essay Coding Results in Deaf Learners Long-term Retention of Improved English grammatical knowledge**. Retrieved from: http:// Jdsde .oxfordjournals.org. On: 2 March, 2011.

26. Berent, P. (1993). Improvements in the English Syntax of Deaf College Students. **American Annals of the Deaf**, Vol. 138, pp. 55_61.

27. Berent, P. (1996a). The Acquisition of English Syntax by Deaf Learners. In T. Bhatia & W. Ritchie (Eds.), **Handbook of Language Acquisition.** Academic Press, San Diego.

28. Berent, P. (1996b). Learn Ability Constraints on Deaf Learner's Acquisition of English Wh-Questions. **Journal of Speech and Hearing Research,** Vol. 39, No.(4), pp. 625_642.

29. Berent, P. (2001). English for Deaf Students: Assessing and addressing learners' grammar development. In D. Janáková (Ed.), **International Seminar on Teaching English to Deaf and Hard-of-Hearing Students at Secondary and Tertiary Levels of Education: Proceedings**. Charles University, Britain.

30. Betz, J. (1995). Computer Games Increases learning in an Interactive Multidisciplinary Environment. **Journal of Educational Technology Systems**. Vol. 21, No. (24), pp.195_205.

31. Bisson, Ch. & Luchner, J. (1996). Fun in Learning: The Pedagogical Role of Fun in Adventure Education. **Journal of Experimental Education**, Vol. 19, No.(2), pp. 108_112.

32. Brentari, D. (2007). **Sign Language Phonology: Issues of Iconicity and Universality**. Retrieved from: http://www.scribd.com/doc/963982. On: 31 June, 2008.

33.CAF (2011). **Deaf Characteristics**. Retrieved from: http://www.abilities.ca/. On: 2 February, 2011.

34. Cakir, A. (1999). Musical Activities for Young Learners of EFL. **The Internet TESL Journal**, Vol. VI, No.(11). On: 15 June, 2010. Retrieved from: http: //iteslj.org/Lessons/Cakir-MusicalActivities.html

35. Cameron, L. (2002).**Teaching Language to Young Learners**. Cambridge University Press, Britain.

36. Can, G. & Cagiltay, K. (2006). Turkish Prospective Teacher's Perceptions Regarding the Use of Computer Games with Educational Features. **Educational Technology & Society**, Vol. 9, No. (1), pp. 308_321.

37. Can, G. (2003). **Perceptions Of Prospective Computer Teachers Toward The Use of Computer Games with Educational Features in Education**. Unpublished M.A Thesis, The Middle East University.

38.Çankaya, S. & Karamete, A. (2009). The Effects of Educational Computer Games on Students' Attitudes Towards Mathematics Course and Educational Computer

Games. **Procedural, Social and Behavioral Sciences**. Vol.3, No. (1), pp. 145_149. Retrieved from: http: //www.sciencedirect.com. On: 8 March, 2009.

39. Carrier, M. & The Centre for British Teachers. (1980). **Games and Activities for Language Learner**. Cambridge University Press, Britain.

40. Celce-Murcia, M. (1991).Grammar Pedagogy in second and Foreign Language Teaching. **TESOL Quarterly**, Vol. 25, No. (3), pp. 459_480.

41. Chaisanit, S. & Suksakulchai, S. (2008). **An E-Learning Management System for the Deaf people: S & T Teaching in Vocational Education Based on Sufficient Economy**. The Association of Industrial Education Thai, Thailand.

42. Coshott, R.(2009). **Tests for Exergames**. Retrieved from: http://exergaming.pbwiki.com/. On: 4 June, 2009.

43. Crookal, D. (1990). **Simulation, Gaming and Language Learning**. Newburg-House Publishers, New York. Retrieved from: http://www.thaisim.org/articles/Crookall-Oxford. On: 23 June, 2000.

44. Cross, D. (2002). **A Practical Hand Book for Language Teaching**. Prentice Hall-New York, USA.

45. Crystal, D. (2004). **Words & Deed**. Retrieved from: http://www. davidcrystal.com. On: 12 March, 2004.

46. Csikszentmihalyi, M. (1990). **The Psychology of Optimal Experience**. Harper & Row, New York, USA.

47. Davila, R. & Hurwitz, A. (1999). **NTID's Blueprint: Strategic Objectives 1999-2004**. National Technical Institute for the Deaf, Rochester Institute of Technology.

48. Deesri, A. (2002). **Games in the ESL and EFL Class**. Retrieved from: http://iteslj.org/Techniques/Deesri-Games.html. On: 5 March, 2008.

49. Dempsey, J. et al. (1997). **An Exploratory Study of Forty Computer Games**. COE Technical Report, pp. 2_97. Retrieved from: http://www.sciencedirect.com /science/article/pii/S0360131509000840. On: 5 March, 2008.

50. Denis, G. & Jouvelot, P. (2005). **Motivation-driven Educational Game Design: Applying Best Practices to Music Education**. Paper presented at the 2005 ACM SIGCHI International Conference on Advances in computer entertainment technology, Spain.

51. Denny, H. (2002). Teaching English to Deaf Students within an ESOL Curriculum Framework at AUT: Issues and strategies. **TESOLANZ Journal**, Vol. 10, No. (3), pp. 65_80.

52. Desilva, H. & Burns, A.(1999). **Focus on Grammar**. National Centre for English Language Teaching and Research, Australia.

53. Dowidi, A.(2007). **The Effect of Using Computer Games and instructional program on Achievement and Creative Thinking Development in Reading and Writing Syllabus for the 1st Grade**. Unpublished M.A thesis, Faculty of Education, King Abdul Aziz University, Saudi Arabia.

54. Doyle, M. & Dye, L. (2002). **Mainstreaming the Student Who is Deaf or Hard of Hearing: A Guide for Professionals, Teachers and Parents**. CCHAT Center, San Diego, USA.

55. Easterbrook, S. (1999). Improving Practices for Students With Hearing Impairments. **Exceptional Children**, Vol. 65, No.(4), pp. 537_554.

56. El-Dosoqi, M. (2003).The Effectiveness of Using Educational Electronic Games as Entrance of Learning for Special Needs Students. **The Ninth Annual Scientific Conference for Technology in Education for Special Needs,** Helwan University, 2_3 December 2003, pp.247_272.

57. El-Harbi, O. (2009).**The Effectiveness of Instructional Electronic Games on Understanding and the Survival of Learning Impact in Mathematics**. Unpublished PHD Thesis, Umm Al-Qura University, Saudi Arabia.

58. Ersoz, A. (2000). **Six Games for EFL/ ESL Classroom**. Retrieved from: http: //itesilj.org/lesson/Ersoz_Games.html. On: 4 March, 2006.

59. Ewoldt, C. (1996). Deaf Bilingualism: A holistic perspective. **Australian Journal of the Education of the Deaf** . No .(2) No. (6), pp. 5_9.

60.FAS (2005). **The Summit on Educational Games: Harnessing the Power of Video Games for Learning**. Marriott Metro Center, Washington, USA.

61. Felicia, P.(2011). **How Can A Digital Game for Learning Be Defined**. Waterford Institute of Technology. Retrieved from: http://linked.eun.org/c/document_ /get_file?. On: 29 March, 2011.

62. Fleming, J. (2004). **Teaching English to Deaf and Hard of Hearing Students at Secondary and Tertiary Levels of Education**. Charles University, Britain.

63. Fogel, N. (1990) . **A Computer Approach to Teaching English Syntax to Deaf Students**. A paper presented at the Annual Meeting of the American Educational Research Association, April, 1990, Boston.

64.FS3D (2004). **Deafness and Hearing Loss**. Retrieved from: http://www.nicchy.org. On: 19 January, 2004.

65. Gaad, E. & Qaryouti, I. (2002). Effect of Using Computers in Teaching 1st Grade Deaf Children in United Arab Emirates. United Arab Emirates University, **Journal of Faculty of Education**, Vol. 20, No.(19), pp.222_150.

66. Gao, Z. (2001). **Second Language Learning and Teaching of Grammar**. Retrieved from: http://www.proquest.umi.com. On: 15 March, 2005.

67. Garris, R. et al. (2002).Games, Motivation and Learning: A research and practice model. **Simulation & Gaming**, Vol. 33, No.(4), pp.441_467.

68. Gee, P. (2003). **What Video Games Have to Teach us About Learning and Literacy**. Palgrave MacMillan, New York, USA.

69. Grabe, M. & Grabe, C. (1996). **Integrating Technology for Meaningful Learning**. Univirsiti Teknologi Malaysia, Malaysia.

70. Greenal, S. (1990). **Language Games and Activities**. Hulton Educational Publications Ltd, Britain.

71. Greers, A. & moong, J. (1989). Factors Predictive of the Development of Literacy in Profoundly Hearing-Impaired. **Journal of Volta Review**. Vol. 15, No. (91), pp. 69_86 .

72.Gülin, Y. et al. (2011). **The Effectiveness of Using Games in Teaching Grammar to Young Learners**. Retrieved from: http://ilkogretime-online.org.tr. On: 10 July, 2011.

73. Hadfield, J. (1996). **Elementary Communication Games: A Collection of Games and Activities for Elementary of English**. Wesley Longman, England.

74. Hadfield, J. (1999). **Beginners, Communication Games**. Longman, England .

75. Hamzah, M. & Dourad, J. (2009). **Using Grammar Games in Teaching Grammar**: A case study in SMK Damai Jaya. Fakulti Pendidikan, Univirsiti Teknologi Malaysia, Malaysia.

76. Han, Z. et al. (2005). **Input Enhancement: A Critical Meta-Synthesis of the Research**. Unpublished manuscript, Teachers College, Columbia University.

77. Harb, A. (2007). **The Effectiveness of Educational Games on the 6th Graders Achievement in English language in Gaza Southern Governorates**. Unpublished M.A. Thesis, Islamic University of Gaza, Palestine.

78. Harvey, G. & Bright, W. (1985). **Basic Math Games**. Deale Seymour Publication. Palo Alto, California, USA.

79. Hegelheimer, V. & Fisher, D. (2006). Grammar, Writing, and Technology: A Sample Technology-supported Approach to Teaching Grammar and Improving Writing for ESL Learner. **CALICO Journal**, Vol. 23, No. (2), pp. 200_250.

80. Hogle, J. (1996). **Considering Games as Cognitive Tools**. In search of Edutainment-Eric. No.: 425737. Retrieved from: http://www.eric.ed.gov/. On: 20 June, 1999.

81. Husseen, A.(1996).**The Effectiveness of A Suggested Program Including C.A.I in Teaching Deaf Sixth Grade Pupils Fractions and in Developing Some Mathematics Basics**. Unpublished M.A Thesis, Faculty of Education, Saudi Arabia.

82. Huyen, N. & Nga, Kh. (2003). The Effectiveness of Learning Vocabulary Through Games. **Asian EFL Journal**, Vol. 5, No. (4), pp.287_300. Retrieved from: http://www.asian-elf-journal.com.On: 17 September, 2006.

83. Israelite, N. et al. (2002). Hard of Hearing Adolescents and Identity Construction: Influences of School Experiences, Peers and Teachers. **Journal of Deaf Studies and Deaf Education**, Vol. 7, No.(2), pp.134_148.

84. John, C. & McFarlane, A. (2002). **REPORT 8: Literature Review in Games and Learning**. University of Bristol, Britain.

85. Johnson, T. (2004). The Deaf Community, Population, Genetics and the Future of Australian Sign Language. **American Annals of the Deaf**, Vol. 148, No. (5), pp. 358_75.

86. Jones, G.(1998). **Creating Engagement in Computer-Based Learning Environments**. Retrieved from: http://itech.coe.uga.edu/itforum.html. On: 7 July, 1998.

87. Juul, J. (2003). **The Game, the Player and the World: Looking for a Heart of Gameness**. **Asian EFL Journal**, Vol. 3, No. (2), pp.190_200. Retrieved from: http://www.asian-elf-journal.com.On: 17 September, 2004.

88. Kablan, Z. (2009). **The Effect of Exercise Based on Computer Games During the Process of Learning on Academic Achievement among Education Majors**. Kocali University. Retrieved from: http://www.foqs.org. On: 1 May, 2010.

89. Kearney, P. & Pivec, M. (2007). Recursive Loops of Game Based Learning. In Montgomerie C. & Seale J. (Eds.). **Proc. of ED-MEDIA07**, Vancouver BC, Canada, 2007, Vol. 10, No. (24). pp. 2546_ 2553.

90. Kim, S. (1995). Creative Games for the Language Class. **Journal of Forum**, Vol. 33, No.(1), pp.35_60.

91. Kincaid, K. et al. (1994). **Technology in Public Elementary and Secondary Education: A Policy Analysis Perspective**. Menlo Park, CA. Stanford Research Institute.

92. Klopfer, E. et al. (2009). **Moving Learning Games Forward**: **The Education Arcade Massachusetts Institute of Technology**. Retrieved from: http://creativecommons .org/licenses/by/3.0/. On: 8 March,2009.

93. Koraz, B. (2004). **A suggested Vision for Treating the Special Problems of Connection and Communication for Teachers of Deaf in Gaza Governorate**. Unpublished M.A Thesis, Islamic University of Gaza, Palestine.

94. Koster, R. (2005). **A Theory of Fun for Game Design**. Scottsdale Paragylph Press, Arizona.

95. Langran, J. & Purcell, S. (1994). **Language Games and Activates**. Center for Information on Language Teaching and Research, Britain.

96. Larsen-Freeman, D. (2001). **Teaching Language; From Grammar to Grammaring**. Heinle and Heinle Publishers, Boston, USA.

97. Lee, K. (1995). **Creative Games for Language Class**. Vol. 33, No.(1), pp. 35_77. Retrieved from: http: //11eca.State.gov/forum/no1/. On: 8 May, 2009.

98. Leech, G. & et al. (1982). **English Grammar for Today; A New Introduction**. The Macmillan Press in Conjunction with the English Association, Britain.

99. Lewis, M. & Hill, J. (1995). **Practical Techniques for Language Teaching**. Commercial Color Press, Britain.

100. Li, B. (2007). **The Effect of English Educational Computerized Games on English Second Language (ESL) Teaching Among Level Four ESL Students**. Unpublished M.A. Thesis, Western Oregon University, USA.

101. Li, P. & Gleitman, L. (2002). Turning the Tables: Language and Spatial Reasoning. **Journal of Cognition**, Vol. 83, , No.(8), pp. 265_294.

102. Lim, Y. (2005).**The Effect of English Reading Instruction with Application of Computerized Games on the 4th Grade Children's Achievement and Interest of English Reading**. Retrieved from: http://www.English T.com/board plus/php?. On: 19 December, 2005.

103. Lipman, M. (1991). **Thinking in Education**. Cambridge University, Britain.

104. Little-wood, W.(1981). **Communicative Language Teaching**. Cambridge University Press, Britain.

105. Loannou, S. (2010). **Teaching English to Very Young Learners: Using Games**. Retrieved from: http://www.pi.ac.cy/files/epimorfosi/. On: 3 May, 2002.

106. Lock, G. (2002). **Functional English Grammar: An Introduction For Second Language Teachers**. Cambridge University Press, Britain.

107. Luetke-Stahlman, B. (1998). **Language Issues in Deaf Education**. Hillsboro or Butte Publications, USA.

108. Luterman, M. (1991). **When Your Child Is Deaf: A guide for Parents**. York Press, Parkton, USA.

109. Macedonica, M. (2005). Games and Foreign Language Teaching. **Support for Learning**, Vol. 20, No. (3), pp.135_140.

110. Mackey, A. & Gass, S. (2005). **Second Language Research: Methodology and Design**. Lawrence Erlbaum Associates Publishers, Britain.

111. Maddux, D. et al. (1992). **Educational Computing: Learning with Tomorrow's Technologies**. Allyn and Bacon, Britain.

112. Madylus, O. (2002). **Teaching Teenagers Grammar**. Retrieved from: http//www.onestopenglishcom/teachingGrammar. On: 12 March, 2002.

113. Malcolm, A. (2000). **Deafness. An Introduction**. Report Retrieved from STC's Special Needs Committee, 47th International STC Conference, 3_12 May, 2000, Orlando.

114. Manson, M. (1982). Exploration in Language Arts for Preschoolers. **Language Arts Journal**, Vol. 59, No.(1), pp. 33_39.

115. Mansureh, K. (2010). **The Effect of Modern Mathematics Computer Games on Mathematics Achievement and Motivation**. No: EJ884426. Retrieved from: http://www.eric.ed.gov/. On: 4 May, 2010.

116. Marschark, M. (2001) . **Language Development in Children Who are Deaf and Hard of Hearing: A research synthesis**. National Association of State Directors of Special Education, USA.

117. Mason, J. (2009). **A Research on Exergames Based Learning in an ESE Classroom**. University of Central Florida, USA.

118. Mayberry, R. (1993). First-language acquisition after childhood differs from second language acquisition: The case of American Sign Language. **Journal of Speech and Hearing Research**, Vol. 36, No.(6), pp. 258_ 270.

119. McCarthy, B. (2002). The Grammar Dilemma in University Beginner's programs: Some Teacher Thoughts on Grammar. **Babel Journal**, Vol. 37, No.(1), p.17.

120. McGlothlin, D. (1997). A Child's First Steps in Language. **Internet TESL Journal**, Vol.3, No.(10), pp.120_160. Retrieved from: http://iteslj.org/Articles/ Mcglothlin-ChildLearn.html. On: 15 December, 2006.

121. McInerney, M. et al. (1999). Technology To Support Literacy Strategies For Students Who Are Deaf, **Journal of Speech and Hearing Research**, Vol. 30, No.(10), pp. 800_ 880.

122. Melon, P. (1991). **English Communication Skills for Deaf students (ECSD)**. Conference Paper, Washington, USA. Retrieved from: http://www.eric.ed.gov/. On: 18 December, 2007.

123. Mich, O. (2008). **KRDB Research Centre Technical Report: Constraint-Based Temporal Reasoning and E-Learning Tools for Deaf Users**. Faculty of Computer Science, Free University of Bozen-Bolzano. Retrieved from: http://www.inf.unibz.it/krdb/ Italy. On: 7 March, 2008.

124. Millrood, R. (2001).Teaching Grammar Modular Course in ELT Methodology. Retrieved from: http://www.google.ps1C2ECBB. On: 23 May, 2002.

125. Mitchell, A. & Smith, C. (2004).**The Use of Computer and Video Games for Learning**. The Learning and Skills Development Agency. Retrieved from: http://www.LSDA.org.uk. On: 15 March, 2008.

126. Mitgutsch, K. (2008). **Digital Play-Based Learning: A Philosophical -Pedagogical Perspective on Learning and Playing in Computer Games**. Vienna University, Vienna.

127. MMOML(2007). **Hearing Loss and Deafness**. Retrieved from: http://www.merck.com/ /sec19/ch218/ch218a.html. On: 13 April, 2007.

128. Mohamad, F. & Amin, M. (2009). The Effectiveness of Customized Courseware in Teaching Grammar. **Proceedings of the 2nd International Conference of Teaching and Learning (ICTL 2009).** INTI University College, Malaysia.

129. Moores, D. (1996). **Educating the Deaf: Psychology, Principles and Practices (4th ed.)**. Houghton Mifflin, Boston, USA.

130. Motaw'a, M.(1999). **The Effectiveness of Using Computerized Games on Achieving Some of Science Aspects for Dyslexics Students in the Intermediate Schools in Saudi Arabia**. Retrieved from: http://www.gulfkids.com/ar/lindex.php?action. On: 22 October, 2008.

131. Naji, M. (2003). **The Effect of Using Computer as A modern Technique in Science Teaching on Deaf student's Achievement in Secondary School and Their Attitudes Towards it**. Assiut University, Egypt.

132. Nedomová, A. (2007). **Teaching grammar to young learners**. Unpublished M.A Thesis. Masaryk University. Retrieved from: http://is.muni.cz/th/44537/_b/bachelor_thesis. On: 28 March, 2008.

133. Neimeyer, S.(2006). **An Examination of The Effects of Computer-Assisted Educational Games on Student Achievement**. Unpublished M.A. thesis, The University of Houston-Clear Lake,USA. Retrieved from: http://proquest.umi.com. On: 1 February, 2007.

134. Nemerow, G.(1996). **Classroom Games Improve Motivation and Learning**. Retrieved from: http://www.global.umi.com. On: 30 August, 2001.

135. Nguyen, Y. (2008). **Teaching and Learning Grammar Through Games in the Tenth Grade at Hung Vuong High School**. M.A Thesis. The University of Social Sciences and Humanities, China.

136. NICCHY (2002). **Deafness and Hearing Loss**. Retrieved from: http://www.nicchy.org. On: 3 August, 2002

137. NICCHY(2010). **Deafness and Hearing Loss, Sheet (3)**. Retrieved from: http://www.nicchy.org . On: 9 June, 2010.

138. Nielsen, S.(2006). **Understanding the Educational Potential of Commercial Computer Games through Activity and Narratives**. Retrieved from: http://www.game -research .com. On: 23 November, 2006.

139. Norman, D. (1993). **Things that Make Us Smarter: Defending Human Attributes in the Age of the Machine.** Addison-Wesley Press, USA.

140. Nunan, D. (1999). **Second Language Teaching & Learning**. Heinle & Heinle Publishers, USA.

141. Nunan, D. (2005). Forgiving Ourselves and Forging Ahead: Teaching Grammar in A new Millennium. **English Journal**, Vol. 2 , No. (8), pp.46_78.

142. Obidat, L. (2005). **The Effect of Computerized Educational Games on Achieving Aspects of Mathematical Concepts for the Third Graders in Irbed Government**. Unpublished M.A Thesis, El-Hashymia University, Jordan.

143. Orlova, N. (2003). Helping Prospective EFL Teachers Learn How to Use Songs in Teaching Conversation. **Internet TESL Journal**, Vol. 1, No.(3), pp.187_200. Retrieved from: http://iteslj.org/Techniques/Orlova-songs. On: 1 June, 2010.

144. Palmberg, R. (1988). **The Effect of Playing with Computer Games on the Learning of English Vocabulary for Elementary Level**. Oxford University Press, Britain.

145. Patterson, N. (2001). Research and Theory About Grammar Instruction. **Voices From the Middle**, Vol. 8, No. (3), pp. 50_55.

146. Peterson, M. (2010). **Computerized Games and Simulation in Computer Assisted language: A Meta-Analysis of Research**. No. EJ871847. Retrieved from: http://www.eric.ed.gov/. On: 6 May, 2010.

147. Pham, H. (2007). **The Effect of Games on Optional English Classes in Ben Tre Primary School**. Unpublished M.A Thesis. Vietnam National University, Vietnam.

148. Podgorski, N.(2008).**The Role of Grammar in Language Teaching**. Gallaudet University Press, USA.

149. Prensky, M. (2001). Digital Natives, Digital Immigrants (part1). **On The Horizon**, Vol. 9, No.(5), pp.1_6.

150. Prinz, PP. & Nelson, K. (1985). **A Child-Computer Teacher Interactive Method for Teaching Reading to Young Deaf Children**. Gallaudet University Press, USA.

151. Quigley, P. (1994). **Language and Deafness**. Singular Publishing Group, USA.

152. Quigley, P. & King, M. (1980). Syntactic Performance of Hearing Impaired & Normal Hearing Individuals. **Applied Psycholinguistics**, Vol.9, No.(1), pp. 329_356.

153. Quinn, N.(1997). **Engaging Learning through Games**. Retrieved from: http://www.addressneedscompletingplease . On: 12 May, 2010.

154. Radford, A.(1997). **Syntax: A Minimalist Introduction (1st end)**. Cambridge University Press, Britain .

155. Ratusinski, T. (2009). **Use of Computer Educational Games For Forming Reductive Reasoning at School**. Pedagogical University of Cracow, Poland.

156. Reistma, P. (2008). Computer Based Exercises for Learning to Red to Spell by Deaf Children. **Journal Deaf Studies and Deaf Education**, Vol. 14, No.(2), pp.178_189.

157. Richard-Amato, A. (1996). Chinese Students, Perceptions of Communicative and Non - Communicative Activities in the EFL Classroom. **System**, Vol. 30, No.(1), pp. 85_105.

158. Rinvolucri, M. & Davis, P. (1995). **Grammar Games: Cognitive, Affective and Movement Activities for EFL Students**. Cambridge University Press, Britain.

159. Rixon, S. et al. (1991). **How to Use Games in Language Teaching.** Modern English Publications, Hong Kong, China.

160. Rose, S. & Waldron, M. (1984). Microcomputer Use in Programs for Hearing-Impaired Children: A national survey. **American Annals of the Deaf**, Vol. 129, No. (3), pp. 338_342.

161. Royka, J. (2002). Overcoming the Fear of Using Drama in English Language Teaching. **Internet TESL Journal**, Vol. 5, No. (6), PP.280_300. Retrieved from: http://iteslj.org/Articles/Royka-Drama.html. On: 4 July, 2010.

162. Russell, A. (2008). **Teacher Training-Grammar Based PPP.** Retrieved from: http://www.usingenglish.com . On: 28 July, 2010.

163. Sánchez, et al. (2007). **Interactive Games in the Teaching-Learning Process of English as A Foreign Language**. Retrieved from: http://www.teoriaypraxis.uqroo.mxldoctos/numero4/ . On: 3 November, 2007.

164. Saricoban, A. & Metin, E. (2000). Songs, Verse and Games for Teaching Grammar. **Internet TESL Journal**, Vol. VI, No.(10), pp. 230_269. Retrieved from: http://iteslj.org/Techniques/Saricoban-songs.html. On: 15 June, 2010.

165. Schrier, K. (2006). **Using Augmented Reality Games to Teach 21st Century Skills**. Paper presented at the ACM SIGGRAPH Conference, Boston, USA.

166. Shogair, M. & Agl, M.(2010). The Effectiveness of A Computerized Program Based on the Method of Private Education in Acquiring Skills of Presentation Skills to Pupils of Special Needs. Islamic University of Gaza, **Journal for Research - Humanities**, Vol. 18, No. (2), pp. 649_681.

167. Sørensen, H. (2002). **Children's New Learning Skills-Educational Perspective**. Danmarks Padagogiske Universitet , København.

168. Sysoyev, P. (1999). Integrative Grammar Teaching: Exploration, Explanation and Expression. **Internet TESL Journal**, Vol. 4, No.(6). Retrieved from: http://iteslj.org/Articles/ Integrative.html .On: 22 July, 2010.

169. NIDCD (2006). **Introduction: Deaf .** Retrieved from: http://www.nidcd.nih.gov. On: 7 December, 2006.

170. Tuan, L. & Doan, N. (2010). Teaching English Grammar Through Games. **Journal of Studies in Literature and Language**, Vol. 1, No. (7), pp. 61_75. Retrieved from: http://www.cscanada.org. On: 22 November,2010.

171. Tüzün, et al. (2008). **The Effect of Computer Games on Primary School Students Achievement and Motivation in Geography Learning**. Retrieved from: http://www.simge.meta.edu. On: 24 June, 2008.

172. Ur, P. (1988).**Grammar Practice Activities: A practical Guide for Teachers**. Cambridge University Press, Britain.

173. Ur, P. (1991). **A Course in Language Teaching; Practice and Theory**. Cambridge University Press, Britain.

174. Ur, P. (1992). **Grammar Practice Active: A Practical Guide for Teachers (12th ed.)**. Cambridge University Press, Britain.

175. Vasilopoulos, G. (2008). Adapting Communicative Language Instruction in Korean University. **Internet TESL Journal**, Vol. 8, No.(8), PP.450_480. Retrieved from: http://iteslj.org/Techniques/vasilopoulos. On: 12 July, 2010.

176. Virvou, M. et al. (2005). Combining Software Games with Education. **Educational Technology & Society**, Vol. 8, No. (2), pp. 54_65.

177. Whitton, N. (2007). **Motivation and Computer Games Based Learning Education and Social Research Institute**. Manchester Metropolitan University, Britain.

178. WHO (2009). **Report on Deafness**. Retrieved from: http://www.who./mediacentre/. On: 31 January, 2009.

179. Wikipedia, the free encyclopedia, **Effectiveness**. Retrieved from: http://en.wikipedia.org/wiki/Effectiveness. On: 6 May, 2011.

180. Wilbur, et al. (1983). Comprehension of Syntactic Structures by Hearing Impaired Students. **Journal of Volta Review**, Vol. 85, No. (2), pp. 328_345.

181. Woods, E.(1995). **Introducing Grammar** . Penguin Book, USA.

182. Young, B. (2009). **Exergaming Definitions**. Retrieved from: http://www.gamesforhealth.org/index3.html. On: 4 February, 2009.

183. Ysseldyky, J. & Algozzine, B. (1995). **Special Education, A Practical Approach for Teachers**. New Jersey Press, Boston, USA.

184. Yu, S. (2003). **Junior College Student's Perceptions of the Role of Grammar in the German Department**. Unpublished manuscript, Kaoshsiung University, German.

185. Yu, Sh. (2005). **The Effects of Games on the Acquisition of some Grammatical Features of L2 on Student's Motivation and on Classroom Atmosphere**. Unpublished PHD Thesis, Austalian Catholic University, Australia.

186. Zafrulla, et al. (2010). **American Sign Language Phrase Verification in an Educational Game for Deaf Children**. International Conference on pattern Recognition, 23-26 August, 2010, Istanbul, Turkey.

Appendices

Appendix (A)

Grammar Test

(1) Before Refereeing

(2) After Refereeing

The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders in Gaza Governorates

Subject: Refereeing Grammar Test

The researcher is carrying out an MA research on the effectiveness of using computerized educational games on developing aspects of grammar for the deaf 9th graders. One of the requirements of this study is to conduct pre-post grammar test. The test consists of two grammatical subjects; present and past simple tense. Also, the test has six questions with thirty items covering the two grammatical subjects in balance.

Please, you are kindly requested to look carefully at the attached test, and fill in the following form whether the items of the test are suitable or unsuitable.

Your personal profile

- Full name: ……
- Qualification: ( ) Bachelor degree ( ) Master degree ( ) PhD degree
- Experience: ( ) less than 5 years ( ) from 5-10 ( ) more than 10 years

Pre - Post Test Refereeing Checklist

Items	High	Average	Low
1. The test items reflect the objectives.			
2. The questions suit deaf ninth graders' level.			
3. There is coherence between items and the two subjects.			
4. The layout is acceptable			
5. The rubrics are clear.			
6. The time assigned is suitable.			

Thank you for collaboration

Researcher,

(1)

(Before Refereeing)

Grammar Test

Deaf ninth Grade

Date: ……

Time: 30 minutes

Name: …… **Society:** ……

Class: ……

30

Answer the following questions:

(1) Choose the correct answer from a, b or c: **(5 Points)**

1. Noor ……her room every day.

a) clean **b)** cleans **c)** cleaned

2. The sky did not…..last night.

a) rains **b)** rained **c)** rain

3 …… the man open the window every night?

a) Did **b)** Do **c)** Does

4. They …. milk every day.

a) drinks **b)** drink **c)** drank

5. Do you …. your homework every day?

a) wrote **b)** writes **c)** write

(2) Tick (/) the correct sentence: **(5 Points)**

6. ☐ My mother cooks the food two hours ago.
   ☐ My mother cooked the food two hours ago.
   ☐ My mother cook the food two hours ago.
7. Do friends plays football every day?
   ☐ Do friends play football every day?
   ☐ Do friends played football every day?
8. ☐ They buys a new car every five years.
   ☐ They bought a new car every five years.
   ☐ They buy a new car every five years.
9. ☐ I do not write a letter to my sister.

☐ I does not write a letter to my sister.

☐ I do not writes a letter to my sister.

10. ☐ Did she visit the grandma yesterday?

☐ Did she visit the grandma yesterday?

☐ Did she visit the grandma yesterday?

(3) Decide whether the following are (/) or (×): **(5 Points)**

11. Our teacher not did punish us last week. ( )
12. Arwa watches T.V every night. ( )
13. Did you have a good journey? ( )
14. Do Mr. Ahmed finish his work every day? ( )
15. The boy broke the vase yesterday. ( )

(4) Correct the mistakes in the following sentences: **(5 Points)**

16. She make noise every night. (……)
17. They do not help us last night. (……)
18. Do child play football every day? (……)
19. Ahmed drink orange juice two hours ago. (……)
20. Did your cousin travelled to Canada yesterday? (……)

(5) Underline the correct answer in the following: **(5 Points)**

21. Rabbits (do not/ does not) eat meat.
22. It (drinks/ drinkes) milk every morning.
23. My mother (does/ did) not visit her friend last week.
24. (Do/Does) your brother go to the sea every week?
25. The cat (caught/ catch) a mouse last month.

(6) Match the following questions with the answers: **(5 Points)**

26. Does your father repair the car?	Yes, they did.
27. Did the sky rain last night?	Yes, he does.
28. Does Eman listen to the radio?	No, it did not.
29. Did children like ice-cream?	Yes, I do.
30. Do you love your teacher?	No, she does not.

(After Refereeing)

Grammar Test

Deaf ninth Grade

30

Date: ……

Time: 45 minutes

Name: …… **Society:** ……

Class: ……

Answer the following questions:

(1) Choose the correct answer from a, b or c: **(5 Points)**

1. Noor ……her room every day.

a) cleans **b)** cleaned **c)** clean

2. The sky did not…..last night.

a) rain **b)** rained **c)** rains

3 …… the man open the window every morning?

a) Do **b)** Does **c)** Did

4. My father …… travel to America last week

a) do not **b)** did not **c)** does not

5. …you write your homework yesterday?

a) Does **b)** Do **c)** Did

(2) Tick (/) the correct sentence: **(5 Points)**

6. ☐ My mother cooked the food two hours ago.
   ☐ My mother cooks the food two hours ago.
   ☐ My mother cook the food two hours ago.

7. ☐ Do friends play football every day?
   ☐ Do friends plays football every day?
   ☐ Do friends played football every day?

8. ☐ They buy a new car every five years.
   ☐ They bought a new car every five years.
   ☐ They buys a new car every five years.

9. ☐ I do not write a letter to my sister.

☐ I do not writes a letter to my sister.

☐ I does not write a letter to my sister.

10. ☐ Did she visits the grandma yesterday?

☐ Did she visited the grandma yesterday?

☐ Did she visit the grandma yesterday?

(3) Decide whether the following are (/) or (×): **(5 Points)**

11. Do Mr. Ahmed finish his work every day? ( )
12. Arwa does not watches T.V every night. ( )
13. The boy broke the vase yesterday. ( )
14. Did you have a good journey? ( )
15. Our teacher not did punish us last week. ( )

(4) Correct the mistakes in the following sentences: **(5 Points)**

16. They do not help us last night. (……)
17. Did your cousin travelled to Canada yesterday? (……)
18. Do child play football every day? (……)
19. She make noise every night. (……)
20. Ahmed drink orange juice two hours ago. (……)

(5) Underline the correct answer in the following: (5 Points)

21. My mother (does/ did) not visit her friend last week.
22. Rabbits (do not/ does not) eat meat.
23. The cat (caught/ catch) a mouse last month.
24. (Do/Does) your brother go to the sea every week?
25. It (drinks/ drinkes) milk every morning.

(6) Match the following questions with the answers: **(5 Points)**

26. Does Eman listen to the radio?	No, it did not.
27. Do you love your teacher?	No, she does not.
28. Did the sky rain last night?	Yes, he does.
29. Did children like ice-cream?	No, we did not.
30. Does your father repair the car?	Yes, they did.
	Yes, I do.

Good luck

Appendix (B)

The Descriptive Statistics of the Test Items

The Descriptive Statistics of the Test Items

The researcher used a pre - post grammar test consisted of (6) questions. Each one included (5) items. So, the test was (30) items (See Appendix, A). Each item in the test had a descriptive statistics according to the number of the males and females who answer correctly or wrongly as in the following tables.

The First Question: Choose the correct answer from a, b or c:

Item (1): Noor cleans her room every day. **Table (1)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	5	8	1	3	4
Correct answer	1	7	8	3	9	12
Total	4	12	16	4	12	16

From the table (1) **the result of the pre test** showed there were (8) deaf students choose the correct answer; including (1) male and (7) females. Also, there were (8) deaf students choose the wrong answer; including (3) males and (5) females.

However, the result of the post test showed there were (12) deaf students choose the correct answer; including (3) males and (9) females. Also, there were (4) deaf students choose the wrong answer; including (1) male and (3) females.

Item (2): The sky did not rain last night. **Table (2)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	9	11	1	5	6
Correct answer	2	3	5	3	7	10
Total	4	12	16	4	12	16

From table (2) **the result of the pre test** showed there were (5) deaf students choose the correct answer; including (2) males and (3) females. In the same time, there were (11) deaf students choose the wrong answer; including (2) males and (9) females.

The result of the post test showed there were (10) deaf students choose the correct answer; including (3) males and (7) females. And there were (6)deaf students choose the wrong answer; including (1) male and (5) females.

Item (3): Did the man open the window every morning? **Table (3)**

	Pre test			Post test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	4	8	12	1	4	5
Correct answer	0	4	4	3	8	11
Total	4	12	16	4	12	16

From table (3) **the result of the pre test** showed there were (4) deaf students choose the correct answer; including (4) females. But, there were (12) students choose the wrong answer; including (4) males and (8) females.

However, the result of the post test showed there were (11) students choose the correct answer; including (3) males and (8) females. And there were (5) deaf students choose the wrong answer; including (1) male and (4) females.

Item (4): My father travel to America last week. **Table (4)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	4	6	1	3	4
Correct answer	2	8	10	3	9	12
Total	4	12	16	4	12	16

From table (4) **the result of the pre test**, there were (10) deaf students choose the correct answer; including (2) males and (8) females. And there were (6) deaf students choose the wrong answer; including (2) males and (4) females.

However, the result of the post test showed there were (12) deaf students choose the correct answer; including (3) males and (9) females. And there were (4) deaf students choose the wrong answer; including (1) male and (3) females.

Item (5): Did you write your homework yesterday? **Table (5)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	8	11	2	7	9
Correct answer	1	4	5	2	5	7
Total	4	12	16	4	12	16

Table (5) showed that **the result of the pre test**, there were (5) deaf students choose the correct answer; including (1) male and (4) females. And there were (11) deaf students choose the wrong answer; including (3) males and (8) females.

The result of the post test showed there were (7) deaf students choose the correct answer; including (2) males and (5) females and there were (9) students choose the wrong answer; including (2) males and (7) females.

The Second Question: Tick (/) the correct sentence:

Item (6): My mother cooked the food two hours ago. **Table (6)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	8	10	2	0	2
Correct answer	2	4	6	2	12	14
Total	4	12	16	4	12	16

From table (6) **the result of the pre test**, there were (6) deaf students ticked the correct answer; including (2) males and (4) females . And there were (10) deaf students did not tick the correct answer; including (2) males and (8) females.

But the result of the post test showed there were (14) deaf students ticked the correct answer; including (2) males and (12) females. Also, there were (2) males students ticked the wrong answer.

Item (7): Do friends play football every day? **Table (7)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	7	9	1	7	8
Correct answer	2	5	7	3	5	8
Total	4	12	16	4	12	16

From table (7) **the result of the pre test** showed there were (7) deaf students ticked the correct answer; including (2) males and (5) females. But, there were (9) deaf students ticked the wrong answers; including (2) males and (7) females.

The result of the post test showed there were (8) deaf students ticked the correct answer; including (3) males and (5) females. And there were (8) deaf students ticked the wrong answer; including (1) male and (7) females.

Item(8): They buy a new car every five years. **Table (8)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	8	11	2	5	7
Correct answer	1	4	5	2	7	9
Total	4	12	16	4	12	16

From the previous table (4:8) we can conclude that:

In the result of the pre test, there were (5) deaf students ticked the correct answer; including (1) male and (4) females and there were (11) students ticked the wrong answer, including (3) males and (8) females.

In the result of the post test there were (9) deaf students ticked the correct answer; including (2) males and (7) females and there were (7) deaf students ticked the wrong answer; including (2) males and (5) females.

Item(9): I do not write a letter to my sister. **Table (9)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	8	11	2	4	6
Correct answer	1	4	5	2	8	10
Total	4	12	16	4	12	16

From table (9) **the result of the pre test** showed there were (5) deaf students ticked the correct answer; including (1) male and (4) females and there were (11) deaf students ticked the wrong answer; including (3) males and (8) females.

And the result of the post test showed there were (10) deaf students ticked the correct answer; including (2) males and (8) females and there were (6) deaf students ticked the wrong answer; including (2) males and (4) females.

Item (10): Did she visit the grandma yesterday? **Table (10)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	5	7	1	3	4
Correct answer	2	7	9	3	9	12
Total	4	12	16	4	12	16

From table (10) **the result of the pre test** showed there were (9) students ticked the correct answer, including (2) males and (7) females , and there were (7) students answered the wrong answer, including (2) males and (5) females.

And the result of the post test showed there were (12) students ticked the correct answer; including (3) males and (9) females and there were (4) deaf students ticked the wrong answer; including (1) male and (3) females.

The Third Question: Decide whether the following are (/) or (×):

Item(11): Do Mr. Ahmed finish his work every day? **Table (11)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	3	6	4	4	8
Correct answer	1	9	10	0	8	8
Total	4	12	16	4	12	16

From table (11) **the result of the pre test** showed there were (10) deaf students put the correct symbol (/) or (×); including (1) male and (9) females and there were (6) deaf students put the wrong symbol; including (3) males and (3) females. **But the result of the post test** showed there were (8) females deaf students put the correct symbol and there were (8) students put the wrong symbol; including (4) males and (4) females.

Item(12): Arwa does not watches T.V every night. **Table (12)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	6	8	0	0	0
Correct answer	2	6	8	4	12	16
Total	4	12	16	4	12	16

From the previous table (4:12) we can conclude that:

The result of the pre test showed there were (8) deaf students put the correct symbol; including (2) males and (6) females and there were (8) deaf students put the wrong symbol; including (2) males and (6) females.

But the result of the post test showed that all the (16) deaf students put the correct symbol; including (4) males and (12) females.

Item (13): The boy broke the vase yesterday. **Table (13)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	7	10	2	2	4
Correct answer	1	5	6	2	10	12
Total	4	12	16	4	12	16

From table (13) **the result of the pre test** showed there were (6) deaf students put the correct symbol; including (1) males and (5) females and there were (10) deaf students put the wrong symbol; including (3) males and (7) females.

Also, the result of the post test showed there were (12) deaf students put the correct symbol; including (2) males and (10) females and there were (4) deaf students put the wrong symbol; including (2) males and (2) females.

Item(14): Did you have a good journey? **Table (14)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	9	11	0	6	6
Correct answer	2	3	5	4	6	10
Total	4	12	16	4	12	16

From table (14) **the result of the pre test** showed there were (5) deaf students put the correct symbol; including (2) males and (3) females and there were (11) deaf students put the wrong symbol; including (2) males and (9) females.

Also, the result of the post test showed there were (10) deaf students put the correct symbol; including (4) males and (6) females and there were (6) females deaf students put the wrong symbol.

Item(15) : Our teacher not did punish us last week. **Table (15)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	5	7	2	6	8
Correct answer	2	7	9	2	6	8
Total	4	12	16	4	12	16

From table (15) **the result of the pre test** showed there were (9) deaf students put the correct symbol; including (2) males and (7) females. Also, there were (7) deaf students did not put the correct symbol; including (2) males and (5) females.

And the result of the post test showed there were (8) deaf students put the correct symbol; including (2) males and (6) females and there were (8) deaf students put the wrong symbol; including (2) males and (6) females.

The fourth question: Correct the mistakes in the following sentences:

Item(16): They did not help us last night. **Table (16)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	6	9	2	3	5
Correct answer	1	6	7	2	9	11
Total	4	12	16	4	12	16

From table (16) **the result of the pre test** showed there were (7) deaf students correct the mistake; including (1) male and (6) females. Also, there were (9) deaf students did not correct the mistake; including (3) males and (6) females.

From the result of the post test, there were (11) deaf students correct the mistake; including (2) males and (9) females and there were (5) deaf students did not correct the mistake; including (2) males and (3) females.

Item (17): Did your cousin travel to Canada yesterday? **Table (17)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	4	9	13	2	4	6
Correct answer	0	3	3	2	8	10
Total	4	12	16	4	12	16

From table (17) **the result of the pre test** showed there were (3) females deaf students correct the mistake and there were (13) deaf students did not correct the mistake; including (4) males and (9) females.

The result of the post test showed there were (10) deaf students correct the mistake; including (2) males and (8) females and there were (6) deaf students did not correct the mistake; including (2) males and (4) females.

Item (18): Does child play football every day? **Table (18)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	8	11	2	7	9
Correct answer	1	4	5	2	5	7
Total	4	12	16	4	12	16

From the last table (18) **the result of the pre test** showed there were (5) deaf students correct the mistake; including (1) male and (4) females and there were (11) students did not correct the mistake; including (3) males and (8) females.

The result of the post test showed there were (7) deaf students correct the mistake; including (2) males and (5) females and there were (9) deaf students did not correct the mistake including (2) males and (7) females.

Item(19): She makes a noise every night. **Table (19)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	6	8	1	3	4
Correct answer	2	6	8	3	9	12
Total	4	12	16	4	12	16

From table (19) **the result of the pre test** showed there were (8) deaf students correct the mistake; including (2) males and (6) females and there were(8) deaf students did not correct the mistake; including (2) males and (6) females.

And the result of the post test showed there were (12) deaf students correct the mistake; including (3) males and (9) females. However, there were (4) deaf students did not correct the mistake; including (1) male and (3) females.

Item (20): Ahmad drank orange juice two hours ago. **Table (20)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	4	11	15	4	9	13
Correct answer	0	1	1	0	3	3
Total	4	12	16	4	12	16

From table (20) **the result of the pre test** showed there were (1) female student correct the mistake and there were (15) students did not correct the mistake; including (4) males and (11) females.

But the result of the post test showed there were (3) females students correct the mistake and there were (13) deaf students did not correct the mistake; including (4) males and (9) females.

The Fifth Question: Underline the correct answer:

Item (21): My mother did not visit her friend last week. **Table (21)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	1	5	6	0	7	7
Correct answer	3	7	10	4	5	9
Total	4	12	16	4	12	16

From table (21) we can conclude that:

The result of the pre test showed there were (10) deaf students underlined the correct answer; including (3) males and (7) females. But, there were (6) deaf students did not underline the correct answer; including (1) male and (5) females.

However, the result of the post test showed there were (9) deaf students underlined the correct answer; including (4) males and (5) females. And there were (7) females students did not underline the correct answer.

Item(22): Rabbits do not eat meat. **Table (22)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	5	7	2	2	4
Correct answer	2	7	9	2	10	12
Total	4	12	16	4	12	16

From table (22) **the result of the pre test** showed there were (9) deaf students underlined the correct answer; including (2) males and (7) females. But there were (7) deaf students did not underline the correct answer; including (2) males and (5) females.

Also, the result of the post test showed that there were (12) deaf students did not underline the correct answer; including (2) males and (10) females. However, there were (4) deaf students did not underline the correct answer; including (2) males and (2) females.

Item (23) : The cat caught a mouse last month. **Table (23)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	8	10	2	6	8
Correct answer	2	4	6	2	6	8
Total	4	12	16	4	12	16

From table (23) **the result of the pre test** showed there were (6) deaf students underlined the correct answer; including (2) males and (4) females. But, there were (10) deaf students did not underline the correct answer; including (2) males and (8) females.

But, the result of the post test showed there were (8) deaf students underlined the correct answer; including (2) males and (6) females. And there were (8) deaf students did not underline the correct answer; including (2) males and (6) females.

Item (24): Does your brother go to the sea every week? **Table (24)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	8	10	1	3	4
Correct answer	2	4	6	3	9	12
Total	4	12	16	4	12	16

From table (24) **the result of the pre test** showed there were (6) deaf students underlined the correct answer; including (2) males and (4) females. Also, there were (10) deaf students did not underline the correct answer; including (2) males and (8)females.

The result of the post test showed there were (12) deaf students underlined the correct answer; including (3) males and (9) females. But, there were (4) deaf students did not underline the correct answer; including (1) male and (3) female.

Item (25): It drinks milk every morning. **Table (25)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	9	11	2	7	9
Correct answer	2	3	5	2	5	7
Total	4	12	16	4	12	16

From table (25) **the result of the pre test** showed there were (5) deaf students underlined the correct answer; including (2) males and (3) females and there were (11) deaf students did not underline the correct answer; including (2) males and (9) females.

But, the result of the post test showed there were (7) deaf students underlined the correct answer; including (2) males and (5) females. Also, there were (9) deaf students did not underline the correct answer; including (2) males and (7) females.

The Sixth Question: Match the following questions with the answers:

Item (26): Does Eman listen to the radio? No, she does not. **Table (26)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Females**	**Total**
Wrong answer	3	7	10	1	2	3
Correct answer	1	5	6	3	10	13
Total	4	12	16	4	12	16

From table (26) **the result of the pre test** showed there were (6) deaf students matched the correct answer; including (1) male and (5) females. And there were (10) deaf students did not match the correct answer; including (3) males and (7) females.

In the result of the post test there were (13) deaf students matched the correct answer; including (3) males and (10) females. But, there were(3) deaf students did not match the correct answer; including (1) male and (2) females.

Item (27): Do you love your teacher? Yes, I do. **Table (27)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	2	5	7	0	2	2
Correct answer	2	7	9	4	10	14
Total	4	12	16	4	12	16

From table (27) we can conclude that:

The result of the pre test showed there were (9) deaf students matched the correct answer; including (2) males and (7) females. Also, there were (7) deaf students did not match the correct answer; including (2) males and (5) females.

According to the result of the post test there were (14) deaf students matched the correct answer; including (4) males and (10) females. And there were (2) females students did not match the correct answer.

Item (28): Did the sky rain last night? No, it did not. **Table (28)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	8	11	2	3	5
Correct answer	1	4	5	2	9	11
Total	4	12	16	4	12	16

From table (28) **the result of the pre test** showed there were (5) deaf students matched the correct answer; including (1) male and (4) females and there were (11) deaf students did not match the correct answer; including (3) males and (8) females.

In the result of the post test there were (11) students matched the correct answer; including (2) males and (9) females. And there were (5) deaf students did not match the correct one; including (2) males and (3) females.

Item(29): Did children like ice-cream? Yes, they did. **Table (29)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	4	7	11	2	5	7
Correct answer	0	5	5	2	7	9
Total	4	12	16	4	12	16

From table (29) **the result of the pre test** showed there were (5) females deaf students matched the correct answer and there were (11) deaf students matched the wrong answer; including (4) males and (7) females.

The result of the post test showed there were (9) deaf students matched the correct answer; including (2) males and (7) females. However, there were (7) deaf students did not match the correct one; including (2) males and (5) females.

Item(30): Does your father repair the car ? Yes, he does. **Table (30)**

	Pre Test			Post Test		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Wrong answer	3	9	12	0	2	2
Correct answer	1	3	4	4	10	14
Total	4	12	16	4	12	16

From table (30) **the result of the pre test** showed there were (4) deaf students matched the correct answer; including (1) male and (3) females. Also, there were (12) deaf students did not match the correct answer; including (3) males and (9) females.

According to the result of the post test there were (14) deaf students match the correct answer; including (4) males and (10) females. And there were (2) females students did not match the correct answer.

From the previous descriptions of the test items, the researcher in the following table (31) classified the scores of the pre - post test to four categories with referring to the number of the males and females deaf students in each category.

Table (31)

Pre-post Test Scores Categories	**Pre Test**			**Post Test**		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
0 < 15	3	8	11	1	0	1
15 < 20	1	4	5	1	7	8
20 < 25	0	0	0	1	3	4
25 ≤ 30	0	0	0	1	2	3
Total	4	12	16	4	12	16

From table (31) we can conclude that:

The result of the pre test showed there were (11) deaf students scored less than 15; including (3) males and (8) females. And there were (5) deaf students scored between 15 and less than 20; including (1) male and (4)females. Also, there was none of the deaf students scored more than 20 marks.

However, the result of the post test showed there was (1) male deaf student scored less than 15. Furthermore, there were (8) deaf students scored between 15 and less than 20; including (1) male and (7) females. In addition, there were (4) deaf students scored between 20 and less than 25; including (1) male and (3) females. And there were (3) deaf students scored more than 25; including (1) male and (2) females.

Appendix (C)

The Teacher's Guide

Teacher's Guide for Teaching Aspects of English Grammar Based on Computerized Educational Games for Deaf Ninth Graders

Introduction

Deaf are visual learners they learn information best by seeing it. Their eyes are the most important senses for learning. So, they prefer using pictures, text, graphics, animation and colors to organize information. The nature of students who have hearing loss is less confident, less attentive and less motivated. In the same time, English grammar is considered a boring material for them because they learn it by focusing on structures and forms. Fortunately, computerized educational games combine the focusing on form, visual input and motivation factor. Therefore, it can be considered an appropriate and effective means in teaching English grammar for deaf students.

The researcher designed a number of computerized educational games which takes the account of deaf student's characteristics, behavioral objectives and educational criteria of designing computerized games. Also, it's very important for us as teachers and educators to know not all English grammar rules are taught for deaf students.

Computerized Educational Games were designed according to the following points:

1. The capabilities and skills of deaf students.
2. Achieving the objective of the lesson.
3. Using video which translates the written words into the sign language.
4. Depending on the visual input on presenting the grammatical rules.
5. Can be used at any time.
6. Interactive and non-traditional.
7. Exciting and attractive for continuing to use.
8. Increasing students' motivation by limiting time for each game.
9. Displaying the result at the end of each game.

Dear Teachers,

This guide helps you to employ a new teaching method based on using computerized games to develop aspects of grammar for the deaf 9^{th} graders.

Definition of Computerized Educational Games:

Teaching aids based on competition and reinforcement, combine between entertainment and learning. They designed to help deaf ninth graders develop aspects of English grammar.

Teacher's role to use the Computerized Educational Games:

Teacher is the main factor in the success or failure of using computerized games as a teaching means in classroom and to achieve the purposed objectives. Therefore, the role of teacher should be clear in the classroom situations in which computerized games are used as a teaching means for deaf students. By using the sign language the teacher follows these steps:

1. Revising the previous lesson if there is need.
2. Explaining the new lesson and giving students examples.
3. Selecting appropriate time to implement the game.
4. Warming up students before starting the game to motivate them.
5. Telling them the objectives of game and how to play it.
7. Presenting the game clearly to create competition atmosphere.
8. Translating each unclear word for them to the sign language.
9. Helping and guiding the students while playing the game if they need.
10. Asking students about their results which showed at game end.
11. Discussing students about the difficulties which faced them during game playing to pass or overcome it.
12. Asking students to play the game other times.

The general objectives for using the Computerized Educational Games:

1. To teach deaf ninth students present simple and past simple tense.
2. To distinguish between the two tenses in the form of affirmative, negative and question.
3. To use both of the tenses correctly.

The following tables show the games and the lessons in each icon

Icon	Games	Lessons
Present Simple Tense	My way (1)	Rules
	Rocket	Affirmative form
	Frog	Negative form
	Catching	Question form
	Similar pictures	Answering question

Icon	Games	Lessons
Past Simple Tense	My way (2)	Rules
	Puzzle	Affirmative form
	Solitaire	Negative form
	Car	Question form

Icon	Games	Lessons
Revision	Key	Revision the three forms of present simple.
	Lights	Revision the three forms of past simple.

The following table shows the behavioral objectives of the Computerized Games and its levels on Bloom's Taxonomy

No	Behavioral Objectives	Objectives Levels
	Present Simple Tense Games	
1.	To know the present simple tense affirmative, negative and question form.	Recall
2.	To use the affirmative form of present simple tense.	Application
3.	To distinguish between the verbs which take (s) or (es).	Analysis
4.	To use the negative form of present simple tense .	Application
5.	To distinguish between the subjects which take do / does.	Analysis
6.	To use infinitive after do and does.	Application
7.	To make complete and meaningful questions using does/ do.	Synthesis
8.	To join the suitable subject (he/she/it) or (I/you/we/they) with does/do.	Analysis
9.	To make question using Do/Does.	Synthesis
10.	To use (do/does)with affirmative answer and (do not/does not) with negative answer.	Application

	Past Simple Tense Games	
11.	To know past simple affirmative, negative and question forms.	Recall
12.	To distinguish between the affirmative from of present simple and past simple tense.	Analysis
13.	To distinguish between regular and irregular verbs.	Analysis
14.	To use the negative form of the past simple correctly.	Application
15.	To make meaningful and complete questions using (Did).	Synthesis
16.	To answer the question with affirmative and negative answer.	Application
	Revision Games:	
17.	To practice present simple affirmative, negative and question forms.	Synthesis
18.	To distinguish between the three forms of present simple.	Analysis
19.	To practice past simple affirmative, negative and question forms.	Synthesis
20.	To distinguish between the three forms of past simple.	Analysis

Notes about the computerized games in this software:

1. All the computerized games based on the individual playing method which followed with discussion among the teacher and students.
2. The Duplicated pictures refer to plural (more than one).
3. The small picture 

or 

which is used with main picture refers to negative and action doesn't happen.
4. The small picture  which is used with main picture refers to the pronoun (I).
5. The small picture 

which is used with main picture refers to the pronoun (you).
6. Using two pictures in the same time with key word (e.g. yesterday) refers that one of them represents present simple and the second represents past simple.

Computerized educational games:

The behavioral objectives and the guide to use:

1. Present Simple Tense Games

1.1 Rules game: My way (1)

- **Objective:**

(1) To know present simple tense affirmative, negative and question forms.

- **Rules:** Affirmative Form**: (1)** With (he/ she/ it) we add (s) or (es) at the end of infinitive. **(2)** With (I /you /we / they) we use infinitive **without (s) or (es).**

Negative Form: (1) With (he/ she/ it) we use (does + not). **(2)**With (I/you/we/ they) we use (do + not).

Question form: (1) With (he/she/it) we use (Does + infinitive. **(2)**With (I/you/we/they) we use (Do + infinitive). **(3)**We use affirmative answer (yes, he/she/it does) or (yes, I / you /we / they do). **(4)** We use negative answer (No, he /she / it /does not) or (No, I /you /we /they do not).

- **Game idea:** Walking, running in a way and stopping to read the rules and examples.
- **Time:** 30 minutes.
- **Game playing buttons:** The arrows of keyboard and the left button of mouse.

- **Game Instructions:**

1. **To learn all the rules:** Student uses the arrows to walk, run the child to arrive to the persons who present the rules and examples and stop to read and learn it.
2. **To learn a certain rule:** Student clicks on the name of the rule which is written on a wood board at the beginning of the way.
3. After learning the rule, student clicks on the game board to play it.

- **Game Content:**

1. Usage:

We use present simple tense to express an action is repeated or usual. The action can be a habit, hobby, daily event, or something that often happens.

2. Affirmative:

2.1 With (he/ she/ it) we add (s) at the end of infinitive.

2.1.1 He **drinks** milk every morning.

2.1.2 She **drinks** milk every morning.

2.1.3 It **drinks** milk every morning.

2.2 With (he/ she/ it) we add (es) when infinitive ends with (sh/ch/ss/x/o)

2.2.1 He **watches** T.V every morning.

2.2.2 She **watches** T.V every morning.

2.2.3 It **watches** T.V every morning.

2.3 With (I /you/we/they) we use infinitive without (s) or (es).

2.3.1 I **drink** milk every morning.

2.3.2 You **drink** milk every morning.

2.3.3 We **drink** milk every morning.

2.3.4 They **drink** milk every morning.

2.3.5 I **watch** T.V every morning.

2.3.6 You **watch** T.V every morning.

2.3.7 We **watch** T.V every morning.

2.3.8 They **watch** T.V every morning.

3. Negative

3.1 With (he/ she/ it) we use (does+ not+ infinitive).

3.1.1 He **does not drink** milk every morning.

3.1.2 She **does not drink** milk every morning.

3.1.3 It **does not drink** milk every morning.

3.2 With (I/ you/ we / they) we use (do+ not+ infinitive).

.2.1 I **do not drink** milk every morning.

3.2.2 You **do not drink** milk every morning.

3.2.3 We **do not drink** milk every morning.

3.2.4 They **do not drink** milk every morning.

4. Question

4.1 With (he/she/ it) we use (Does + infinitive).

4.1.1 **Does** he **drink** milk every morning?

Yes, he does.

No, he does not.

4.1.2 **Does** she **drink** milk every morning?

Yes, she does.

No, she does not.

4.1.3 **Does** it **drink** milk every morning?

Yes, it does.

No, it does not.

4.2 With (I/ you/ we/ they) we use (Do + infinitive).

4.2.1 **Do** I **drink** milk every morning?

Yes, you do.

No, you do not.

4.2.2 **Do** you **drink** milk every morning?

Yes, I do.

No, I do not.

4.2.3 **Do** you **drink** milk every morning?

Yes, we do.

No, we do not.

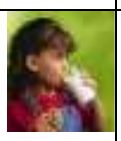
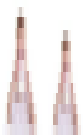
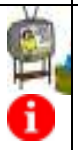
4.2.4 **Do** they **drink** milk every morning?

Yes, they do.

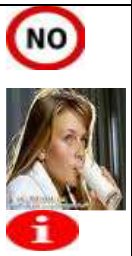
No, they do not.

- **Game pictures:**

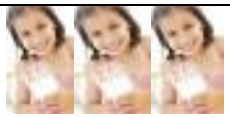
1. Affirmative

	1.	2.	3.	4.	5.	6.	7.	8.
2.1								
2.2								
2.3								

2. Negative

	1.	2.	3.	4.
3.1				
3.2				

3. Question

	4.1		4.2	
1.				
2.				
3.				
4.				

1.2 Games:

1.2.1 Game: Rocket

- **Objectives:**

(1) To use the affirmative form of present simple tense.

(2) To distinguish between the verbs which take (s) or (es).

- **Rules: (1)** With (he/ she/ it) we add (s) or (es) at the end of infinitive. **(2)**With (I /you /we / they) we use infinitive without (s) or (es).
- **Game idea:** Launching the rocket towards the answer before 30 seconds.
- **Time:** 25 minutes.
- **Game playing button:** The left button of mouse.

- **Game Instructions:**

1. Launching the rocket towards the target or the selected answer.
2. If the answer is correct, the word "Excellent" will appear.
3. If the answer is wrong, the correct target will appear in green color.

- **Game content:**

Choose the correct answer:

1. Ahmed.... his father every day.
   helps help helpes
2. You sometimes …. late.
   comes come comees
3. Ahmed and Yazan …. football.
   plays playes play
4. My father …. T.V every night.
   watches watch watchs
5. I …. to school every day.
   goes gos go
6. My brother and I …. each other.
   love loves lovees

7. We …. our friends every week.

visit visits visites

8. I …. my dinner.

cookes cook cooks

9. They ….. the truth.

knows knowes know

10. The cat sometimes …..the mouse.

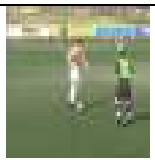
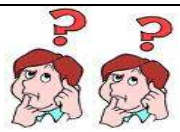
catch catches catchs

Answers:

1. helps 2. come 3. play 4. watches 5. go 6. love

7. visit 8.cook 9. know 10. catches

- **Game pictures:**

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10**
				

1.2.2 Game: Frog

- **Objectives:**

(1) To use the negative form of present simple tense.

(2) To use infinitive after do and does.

(3) To distinguish between the subjects which take do / does.

- **Rules: (1)** With (he/she/ it) we use (does + not).

(2) With (I/you/we/ they) we use (do + not).

- **Game idea:** clicking on (√) or (×) before passing 30 seconds to help the frog to jump and catch butterflies.
- **Time:** 25 minutes.
- **Game playing button:** The left button of mouse.
- **Game Instructions:**

1. Student clicks (√) on the correct sentence and (×) on the wrong one.
2. If the answer is wrong, the correct answer and the alternative question will appear.
3. The wrong answer of the alternative sentence turns back the student to the game beginning

- **Game content:**

The main questions:

Click (√) for the correct sentence or (×) for the wrong sentence

1. He does not make a noise.
2. I do not know what happened.
3. They learn do not English.
4. You does not write well.
5. Asma does not go to school.
6. Ahmed do not do his homework.
7. Rabbits do not drink milk.
8. Children break do not the window.
9. Enas does not plays football.
10. My father does not buy a new car.

The alternative questions:

1. Sami do not finish his work.
2. We do not accept his invitation to the party.
3. Doctors does not begins the operation.
4. This computer does not costing $ 200.
5. He does not give lectures at university.
6. My brothers does not liked orange juice.
7. Ali does not learn the American Sign Language.
8. The polite students do not eat in the classroom.
9. Cats do not eaten mice.
10. I do not find my keys.

Answers: The main questions:

1. √ 2. √ 3. × do not learn 4. × do not write 5. √

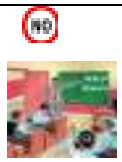
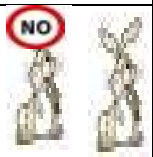
6. × does not do 7. √ 8. × do not break 9. × does not play 10. √

The alternative questions:

1. × does not finish 2. √ 3. × do not begin 4. × does not cost

5. √ 6. × do not like 7. √ 8. √ 9. do not eat 10. √

- **Game pictures: The main questions' pictures:**

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10.**
				

The pictures of the alternative questions:

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10.**
				

1.2.3 Game: Catching

- **Objectives:**

(1) To make complete and meaningful questions using does/do.

(2) To join the suitable subject (he/she/it) or (I/you/we/they) with does/do.

- **Rules: (1)** With (he/she/it) we use (Does + infinitive).

  (2) With (I/you/we/they) we use (Do + infinitive).

- **Game idea:** Catching the parts of the question (Do/Does+ subject + the complement) by clicking on each part.
- **Time:** 25 minutes.
- **Game playing button:** The left button of mouse.
- **Game instructions:**

1. Student looks at the picture which helps him / her in selecting the parts of the question (Do/Does, subject and the complement).
2. After forming the question, student clicks on (√) to check the answer.
3. If the answer is correct, the smiling face will appear.
4. If the student selects a wrong part, it will be light for correction.

- **Game content:**

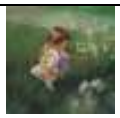
Make a complete and meaningful question:

Do	eggs	write his homework?
Does	my father	help ill people?
	your teacher	play football?
	they	explain the lesson?
	Ahmed	pick the flowers?
	cows	give us protein?
	cars	repair the car?
	Amal	pollute our environment?
	lions	eat grass?
	doctor	give us milk?

Answers:

1. Does doctor help ill people?
2. Does Ahmed write his homework?
3. Do they play football?
4. Does my father repair the car?
5. Do lions eat grass?
6. Does Amal pick the flowers?
7. Do cars pollute our environment?
8. Does your teacher explain the lesson?
9. Do cows give us milk?
10. Do eggs give us protein?

- **Game pictures:**

	2.	3.	4.	5.
					
6.	7.	8.	9.	10.
				

1.2.4 Game: Similar pictures

- **Objectives:**

(1) To make question using Do/Does.

(2) To use (do/does) with affirmative answer and (do/does not) with negative.

- **Rules: (1)** We use affirmative answer (yes, he/she/it does) or (yes, I/ you /we / they do). **(2)**We use negative answer (No, he /she / it /does not) or (No, I /you /we /they do not).
- **Game idea:** finding the similar pictures and matching them in order to present the question.
- **Time:** 25 minutes.

- **Game playing button:** The left button of mouse.

- **Game instructions:**

1. Student selects randomly one of the pictures and tries to find the similar picture.
2. In the case of, the two pictures are similar, the question will appear.
3. If the answer is correct, student will return to match a new picture.
4. If the answer is wrong, the correct one will be light then return to match a new picture.

- **Game content:**

Choose the correct answer:

1. Does your cat eat the meat?
   Yes, I do.
   Yes, it does.
   Yes, is not it.
2. Do Ahmed and Ali clean the car?
   No, they do not.
   No, he do not.
   No, do not they.
3. Does your mother work as a teacher?
   Yes, does your mother.
   Yes, she does.
   Yes, she does not.
4. Do you help your mother?
   Yes, I do not.
   Yes, you do.
   Yes, I do.
5. Does Ayman visit his uncle?
   No, she does not.
   No, he does not.
   No, does not he.
6. Do deaf students learn English?
   Yes, they do.
   Yes, deaf students do not.
   Yes, do they.

7. Does the boy break the vase?

No, she does not.

No, does the boy.

No, he does not.

8. Do workers finish their work?

No, do not workers.

No, they do not.

No, they do.

9. Do the two friends love each other?

Yes, they do.

Yes, do the two friends.

Yes, friends do not.

10. Does Ahmed learn the sign language?

No, he does.

No, does not he.

No, he does not.

Answers:

1. Yes, it does.
2. No, they do not.
3. Yes, she does.
4. Yes, I do.
5. No, he does not.
6. Yes, they do.
7. No, he does not.
8. No, they do not.
9. Yes, they do.
10. No, he does not.

- **Game pictures:**

1.	2.	3.	4.	5.
				
6.	7.	8.	9.	10.
				

2. Past Simple Tense Games

2.1 Rules game: My way (2)

- **Objective:**

(1) To know past simple tense affirmative, negative and question forms.

- **Rules: Affirmative Form:**

(1) Regular verb: With (he/she/it) or (I/you/ we/they) we use infinitive + ed.

(2) Irregular verb: With (he/she/it) or (I/you/we/they) we change the form of infinitive.

Negative Form: With (he/ she/ it) or (I/you/we/ they) we use (did + not). **Question Form: (1)** We use Did + subject + infinitive to make question. **(2)**We use affirmative answer (Yes, he/she/it did) or (yes, I / you /we / they did). **(3)**We use negative answer (No, he / she / it / did not) or (No, I/you /we /they did not).

- **Game idea:** Walking, running in a way and stopping to read the rules and examples.
- **Time:** 30 minutes.
- **Game playing buttons:** The arrows of key board and the left button of mouse.
- **Game Instructions:**

1. **To learn all the rules:** student uses the arrows to walk, run the child to arrive to the persons who present the rules and examples and stop to read and learn it.

2. **To learn a certain rule:** student clicks on the name of the rule which is written on a wood board at the beginning of the way.

3. After learning the rule, student clicks on the game board to play it.

- **Game content:**

1. Usage

We use the past simple tense to express an action happened and finished in the past.

2. Affirmative

2.1 Regular verb

With (he/ she/it) or (I/you /we /they) we use infinitive + ed

2.1.1 He **played** football yesterday.

2.1.2 She **played** football yesterday.

2.1.3 It **played** football yesterday.

2.1.4 I **played** football yesterday.

2.1.5 You **played** football yesterday.

2.1.6 We **played** football yesterday.

2.1.7 They **played** football yesterday.

2.2 Irregular verb

With (he/ she/it) or (I/you/we/ they) we change the form of infinitive.

2.2.1 He **drank** milk yesterday.

2.2.2 She **drank** milk yesterday.

2.2.3 It **drank** milk yesterday.

2.2.4 I **drank** milk yesterday.

2.2.5 You **drank** milk yesterday.

2.2.6 We **drank** milk yesterday.

2.2.7 They **drank** milk yesterday.

3. Negative

3.1 **With (he/ she/it) or (I/you/ we /they) we use did + not + infinitive**

3.1.1 He **did not play** football yesterday.

3.1.2 She **did not play** football yesterday.

3.1.3 It **did not play** football yesterday.

3.1.4 I **did not play** football yesterday.

3.1.5 You **did not play** football yesterday.

3.1.6 We **did not play** football yesterday.

3.1.7 They **did not play** football yesterday.

4. Question

4.1**With (he/ she /it) or (I /you /we /they) we use Did + infinitive.**

4.1.1 **Did** he **play** football yesterday?

Yes, he did.

No, he did not.

4.1.2 **Did** she **play** football yesterday?

Yes, she did.

No, she did not.

4.1.3 **Did** it **play** football yesterday?

Yes, it did.

No, it did not.

4.1.4 **Did** I **play** football yesterday?

Yes, you did.

No, you did not.

4.1.5 **Did** you **play** football yesterday?

Yes, I did.

No, I did not.

4.1.6 **Did** you **play** football yesterday?

Yes, we did.

No, we did not.

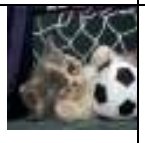
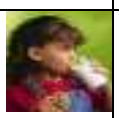
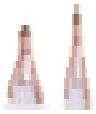
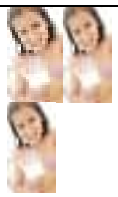
4.1.7 **Did** they **play** football yesterday?

Yes, they did.

No, they did not.

- **Game Pictures**

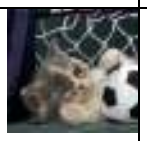
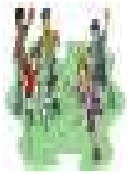
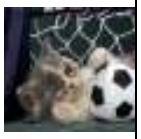
1. Affirmative:

	1.	2.	3.	4.	5.	6.	7.
2.1							
2.2							

2. Negative:

3.1.1	3.1. 2	3.1.3	3.1.4	3.1.5	3.1.6	3.1.7
						

3. Question:

4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	4.1.7
						
						

2.2 Games:

2.2.1 Game: Puzzle

- **Objectives:**

(1) To distinguish between the affirmative from of present and past simple tense.

(2) To distinguish between regular and irregular verbs.

- **Rules: (1)** Regular verb: With (her/she/it) or (I/you/we/they) we use infinitive + ed. **(2)** Irregular verb: With (her/she/it) or (I/you/we/they) we change the form of infinitive.

- **Game idea:** Clicking on the past simple of the verbs which present on the monitor in order to guess the missed word.
- **Time:** 25 minutes.
- **Game playing button:** The left button of mouse.

- **Game instructions:**

1. Student clicks on the past simple of the verbs which present on monitor.
2. To change the presented verb to another, student clicks on "new verb" button.
3. Click on (√) button to check the answer.
4. If the answer is correct the letters will be light.
5. If the answer is wrong, the student will be given opportunities until selecting the correct one.

- **Game content:**

Find out and click on the letters which form the past simple of the following verbs

1. play 2. come 3. catch 4. walk 5. go 6. live 7. buy 8. help 9. open 10. drink 11. eat

d	**e**	**a**	**e**	**i**	**n**	**a**	**c**	**p**	**w**	**b**
r	**l**	**i**	**v**	**e**	**d**	**t**	**a**	**l**	**a**	**o**
a	**w**	**e**	**n**	**t**	**p**	**e**	**u**	**a**	**i**	**u**
n	**o**	**p**	**e**	**n**	**e**	**d**	**g**	**y**	**k**	**g**
k	**c**	**a**	**m**	**e**	**s**	**i**	**h**	**e**	**e**	**h**
h	**e**	**i**	**p**	**e**	**d**	**t**	**t**	**d**	**d**	**t**

Answers:

1. played 2. came 3. caught 4. walked 5. went 6. lived 7. bought 8. helped 9. opened 10. drank 11. ate

The missing ward: Palestine

- **Game pictures:**

1.	2.	3.	4.	5.	6.
					
7.	**8.**	**9.**	**10.**	**11.**	**missed word**
					

2.2.2 **Game:** Solitaire

- **Objective:**

  (1) To use the negative form of the past simple correctly.
- **Rules:** With (he/she/it) or (I/you/ we/ they) we use did+ not+ infinitive.
- **Game idea:** Selecting one card randomly and finding the similar card in the other side to show the question and answer it.
- **Time:** 25 minutes
- **Game playing button:** The left button of mouse.
- **Game instructions:**

1. Student clicks on any card then tries to find the similar one to show the sentences.
2. If the answer is correct, true symbol (√) will appear on the card.
3. If the answer is wrong, false symbol (×) will appear on the card.

Notes:

1. The researcher used two pictures because it's the common method which used to explain the negative form of the past simple tenses in most schools of deaf students in Gaza.
2. Each sentence has two pictures and each picture has one meaning.
3. The picture in right side represents that the action usually happens. In other words, it represents the affirmative meaning of the sentence (with out negative).

4. And, the picture in left side represents that the same action did not happen.

According to the key words in the sentences such as, yesterday or last month.

- **Game content:**

Choose the correct negative of the past simple for the following sentences:

(1) 1. My daughter did not help me yesterday.
2. My daughter not did help me yesterday.
3. My daughter helped me did not yesterday.

(2) 1. He did not phoned Ahmed last week.
2. He did not phone Ahmed last week.
3. He did phone not Ahmed last week.

(3) 1. My brother did not travelled three years ago.
2. My brother did travel not three years ago.
3. My brother did not travel three years ago.

(4) 1. Sara did not cook the food yesterday.
2. Sara cook did not the food yesterday.
3. Sara did not cooked the food yesterday.

(5) 1. Our cat drink did not the milk last week.
2. Our cat did not drink the milk last week.
3. Our cat does not drink the milk last week.

(6) 1. Workers did not finished their work last month.
2. Workers do not finish their work last month.
3. Workers did not finish their work last month.

(7) 1. Ali did not study hard two days ago.
2. Ali does not study hard two days ago.
3. Ali not did study hard two days ago.

(8) 1. We not go did to school yesterday.
2. We did not go to school yesterday.
3. We did not went to school yesterday.

(9) 1. Eman did not draw picture two months ago.
2. Eman does not draw picture two months ago.
3. Eman not did drew picture two months ago.

(10) 1. My uncle did not drove the bus yesterday.
2. My uncle did not drive the bus yesterday.
3. My uncle does not drive the bus yesterday.

Answers:

(1) My daughter did not help me yesterday.

(2) He did not phone Ahmed last week.

(3) My brother did not travel three years ago.

(4) Sara did not cook the food yesterday.

(5) Our cat did not drink the milk last week.

(6) Workers did not finish their work last month.

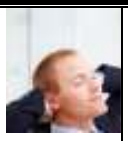
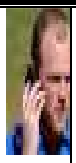
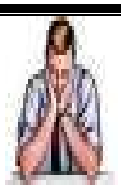
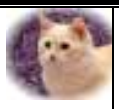
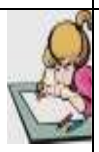
(7) Ali did not study hard two days ago.

(8) We did not go to school yesterday.

(9) Eman did not draw picture two months ago.

(10) My uncle did not drive the bus yesterday.

- **Game pictures:**

1.		2.		3.		4.		5.	
Yesterday		last week		3 years ago		Yesterday		Last week	
									
6.		**7.**		**8.**		**9.**		**10.**	
Last month		2 days ago		Yesterday		2 months ago		Yesterday	
									

2.2.3 Game: Car

- **Objectives:**

(1) To make meaningful and complete questions using (Did).

(2) To answer question with affirmative and negative answer.

- **Rules: (1)** We use (Did + subject + infinitive) to make question. **(2)**We use affirmative answer (Yes, he/she/it did) or (yes, I /you /we / they did). **(3)**We use negative answer (No, he / she / it / did not) or (No, I/you /we /they did not).
- **Game idea:** Passing the obstacles of the road by answering questions in order to reach to the road end.
- **Time:** 25 minutes.
- **Game playing buttons:** The left button of mouse and the arrows of key board.

- **Game Instructions:**

1. Student chooses the correct answer to pass the obstacles of the road and reach the end.
2. If the answer is wrong, student will be given an alternative sentence.
3. In the case of the wrong answer of the alternative question the game will finish.

- **Game content:**

Choose the correct answer:

The main questions:

1. Did the girl draw a picture yesterday?

Yes, she did not.

Yes, you did.

Yes, she did.

2. Yes, she did.

Did Asma wash the dishes last week?

Did children wash the dishes last week?

Did Ahmed wash the dishes last week?

3. Did Ahmed write his homework yesterday?

No, he did.

No, he did not.

No, he not did.

4. Did your teacher help you yesterday?

Yes, she did.

Yes, she did not.

Yes, you did.

5. No, they did not.

Did your friend use your computer two days ago?

Did your friends use your computer two days ago?

Did their friend use your computer two days ago?

6. No, he did not.

Did Ahmed went to a doctor last week?

Did Ahmed go to a doctor last week?

Did Ahmed not go to a doctor last week?

7. Did your cousin arrive to Palestine last night?

No, he did not.

No, did not he.

No, my cousin did arrive.

8. Yes, it did.

Did your cat eat fish last month?

Did your cat ate fish last month?

Did your eat fish last month?

9. Did Ali watch cartoon one hour ago?

Yes, he did.

Yes, he not did.

Yes, he did watched.

10. No, I did not.

Did you clean your room last night?

Did you cleaned your room last night?

Did your clean you room last night?

The alternative questions:

1. Did the child break the vase last week?

Yes, he did.

Yes, they did.

Yes, he did not

2. Yes, he did.

Did Ahmed visit library last month?

Did Ahmed visited library last month?

Did visit Ahmed to library last month?

3. Did the girl cook the food yesterday?

No, she did.

No, she did not.

No, did the girl not.

4. Did Ahmed switch off the T.V last night?

Yes, it did.

Yes, he did.

Yes, Ahmed did not.

5. Did the students learn Arabic two hours ago?

Yes, they did.

Yes, he did.

Yes, the students did not.

6. No, it did not.

Did the telephone rang an hour ago?

Did the telephone ringed an hour ago

Did the telephone ring an hour ago?

7. Yes, they did.

Did the workers finished their work yesterday?

Did the worker finish their work yesterday?

Did the workers finish their work yesterday?

8. Did you pray half an hour ago?

Yes, I did.

Yes, you did.

Yes, I pray did.

9. Did your friends play football last year?

No, they did play.

No, you did not.

No, they did not.

10. Yes, they did.

Did Ahmed and Ali learn the sign language last year?

Did Ahmed and Ali learnt the sign language last year?

Did Ahmed learnt the sign language last year?

Answers:

The main questions:

(1) Yes, she did.

(2) Did Asma wash the dishes last week?

(3) No, he did not.

(4) Yes, she did.

(5) Did your friends use your computer two days ago?

(6) Did Ahmed go to a doctor last week?

(7) No, he did not.

(8) Did your cat eat the fish last month?

(9) Yes, he did.

(10) Did you clean your room last night?

The alternative questions:

(1) Yes, he did.

(2) Did Ahmed visit the library last month?

(3) No, she did not.

(4) Yes, he did.

(5) Yes, they did.

(6) Did the telephone ring an hour ago?

(7) Did the workers finish their work yesterday?

(8) Yes, I did.

(9) No, they did not.

(10) Did Ahmed and Ali learn the sign language last year?

- **Game pictures:**

The pictures of the main questions:

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10.**
				

The pictures of the alternative questions:

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10**
				

3. Revision Games:

3.1 Game: Key

- **Objectives:**

  (1) To use present simple affirmative, negative and question forms.

  (2) To distinguish between the three forms of present simple.

- **Rule:** Present simple affirmative, negative and question forms.
- **Game idea:** Exploding the animated objectives to find the lost key and open the door to present the question.
- **Time:** 30 minutes.
- **Game playing buttons:** The left button of mouse and Enter.
- **Game instructions:**

1. Student looks at the picture which helps him/her to correct the mistake in the sentence.
2. Student uses keyboard to write the answer in the space then press on Enter to check it.
3. If the answer is correct, the animated objectives will appear to find the key.
4. If the answer is wrong, the correction then the animated objectives will appear.

- **Game content:**

Correct the mistake in the following sentences:

1. Our cat drink the milk.

2. Do Ahmed phone my father?

3. We given flowers for our teacher every day.

4. Emad playing with his friends every week.

5. Does Eman finishing her homework?

6. Does they watch the program on T.V?

7. Do they played computer games?

8. Students learns Arabic every day.

9. Polite people does not eats in streets.

10. The visitors does not arriving at 5: 30

Answers:

1. drinks 2. Does 3. give 4. plays 5. finish 6. Do 7. play 8. learn 9. do not eat 10. do not arrive

- **Game pictures:**

1.	2.	3.	4.	5.
				
6.	**7.**	**8.**	**9.**	**10.**
				

3.2 **Game:** lights

Level (1)

Level (2)

- **Objectives:**

(1) To practice past simple affirmative, negative and question forms.

(2) To distinguish between the three forms of past simple.

- **Rule:** Past simple affirmative, negative and question forms.
- **Game idea:** Passing the first level and moving to the second level of game**.**

- **Time:** 30 minutes.
- **Game playing button:** The left button of mouse.
- **Game Instructions:**

1. To pass the first level to second level, student should correct more than four mistakes.
2. Student clicks on one of the letters randomly to present the sentence and correct the mistake.
3. Student clicks on (√) to check the answer.
4. If the answer is correct, the green lights will be light.
5. If the answer is wrong, the red lights will be light.

- **Game content:**

Correct the mistake of the following sentence:

The main questions:

1. They finish the work last week.
2. The cat catches a mouse last night.
3. My sister does not sleep last night.
4. Do you buy a new car last year?
5. Did Asma wrote the lesson yesterday?
6. Children not started the race yesterday.
7. The two girls not did cleans the room last week.
8. Did your grandma send a letter last month? No, your did.

The alternative questions:

1. My mother cooks the food two hours ago.
2. Ahmed goes to the sea with his friend yesterday.
3. Did she met her friend last week?
4. The sky did not rained yesterday.
5. The man did carried not two boxes last week.
6. Did his mother gave him a gift last month? Yes, she did.
7. My friends not use my computer three hours ago.
8. Did the nurse help you in a hospital last night? Yes, they did not.

Answers:

The main questions:

1. finished 2. caught 3. did not sleep 4. Did 5. write
6. did not start 7. did not clean 8. she did not

The alternative questions:

1. cooked 2.went 3. meet 4. rain 5. did not carry

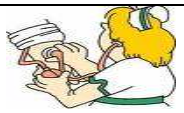
6. give 7. did not use 8. she did

- **Game Pictures:**

The pictures of main the questions:

1.	2.	3.	4.
			
5.	**6.**	**7.**	**8.**
			

The pictures of the alternative questions:

1.	2.	3.	4.
			
5.	**6.**	**7.**	**8.**
			

Appendix (D)

Referring Sheet of Computerized Educational Games

بسم الله الرحمن الرحيم

فاعلية استخدام الألعاب التعليمية المحوسبة في تنمية مفاهيم قواعد اللغة الانجليزية لدى طلبة الصف التاسع الصم في محافظات غزة

أعزائي الأساتذة والأخصائيين الكرام في مجال أساليب تدريس اللغة الانجليزية , تقنيات التعليم وتعليم الصم .

الموضوع: تحكيم ألعاب تعليمية محوسبة

تطبق الباحثة دراسة بعنوان فاعلية استخدام الألعاب التعليمية المحوسبة في تنمية مفاهيم قواعد اللغة الانجليزية لدى طلبة الصف التاسع الصم في محافظات غزة, كمتطلب تكميلي للحصول على درجة الماجستير في التربية .

تسعى الباحثة للاستفادة من وجهات نظركم و تعليقاتكم لتقديم البرمجية بأفضل صورة.

في حالة وجود تعليقات إضافية, يرجى كتابتها في الاقتراحات.

شكرا جزيلا لتعاونكم

الباحثة

داليا عمر أبو شقة

The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders in Gaza Governorates

Dear specialists and experts in teaching methods of English language, instructional techniques and deaf teaching,

Subject: Refereeing Computerized Educational Games

The researcher is carrying out an MA research on The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders in Gaza Governorates.

The researcher has designed set of computerized games consisted of eleven games to examine its effectiveness, to achieve the study objectives and to investigate the hypotheses. This set is designed not for the self study. It will be used with the teacher's assistance.

The researcher is seeking to obtain your point of view and comments through the following domains in order to get the best for this software. All your contributions are highly valued. If you have any comment, please write it in suggestions.

The following is a diagram for some included aspects in this sheet.

Please, tick (✓) according to your own point of view.

I Software characteristics				
No.	**Items**	**Yes**	**No**	**Edition**
1	Is it easy to enter to the software content?			
2	Is the software title clear?			
3	Are the general objectives of the software clear for users (deaf students and teachers)?			
4	Is the target group of the software determined?			
5	Are the educational objectives of the software determined?			
6	Are the instructions of games clear?			
7	Is the designing of the software appropriate for the deaf students' characteristics?			
8	Is the feedback available after each wrong question?			
9	Is the reinforcement in terms of  appropriate for the deaf students?			
10	Is it easy to move between the icons of software?			
11	Is it easy to exit from the software?			
12	Is it easy to get back to the main page (home)?			

II The characteristics of the content and presentation in the software:				
No	**Items**	**Yes**	**No**	**Edition**
1	Is the amount of the displayed information appropriate for the deaf ninth students?			
2	Are the statements and questions of the content grammatically correct?			
3	Are the distances between the words enough in each line?			
4	Are the used colors and backgrounds appropriate for the deaf ninth students?			
5	Is the font size of printing suitable for users?			
6	Are the used pictures appropriate for the statements in the			

	software?			
7	Are the videos of the sign language clear?			
8	Is the position of the sign language videos appropriate ?			
9	Is each presentation of content (rules or instructions) coincides with its' sign language video?			

Suggestions

……..……

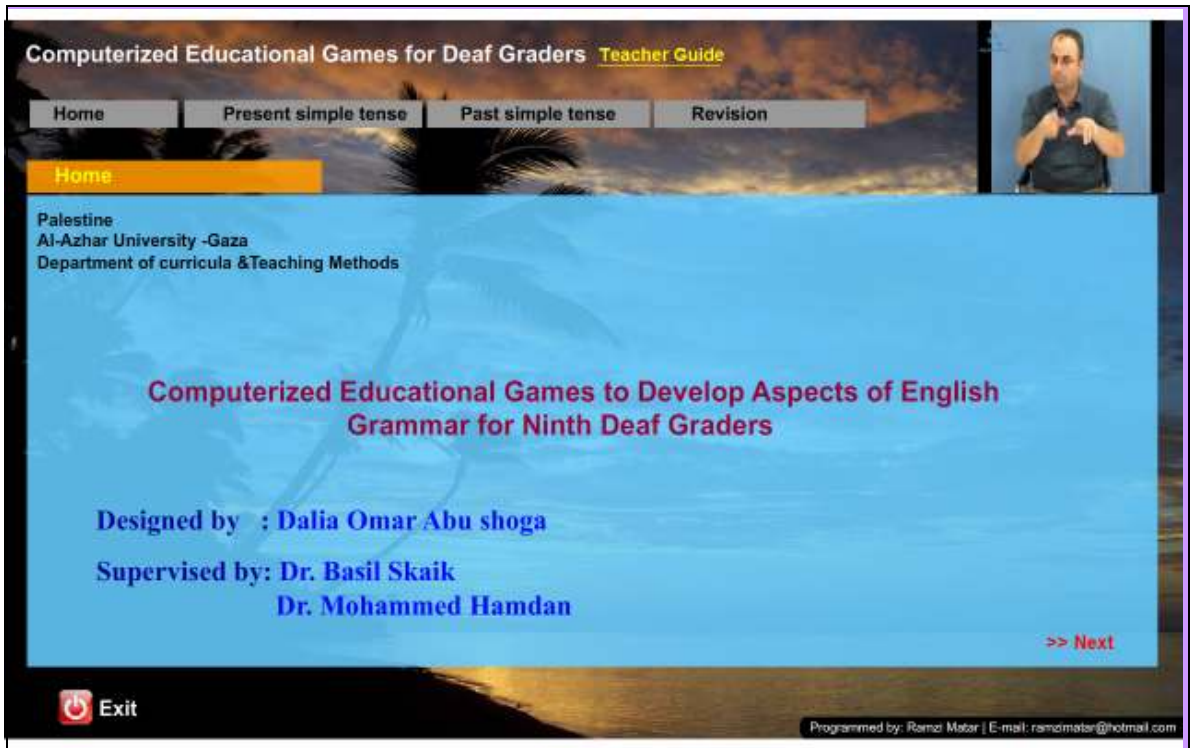
……

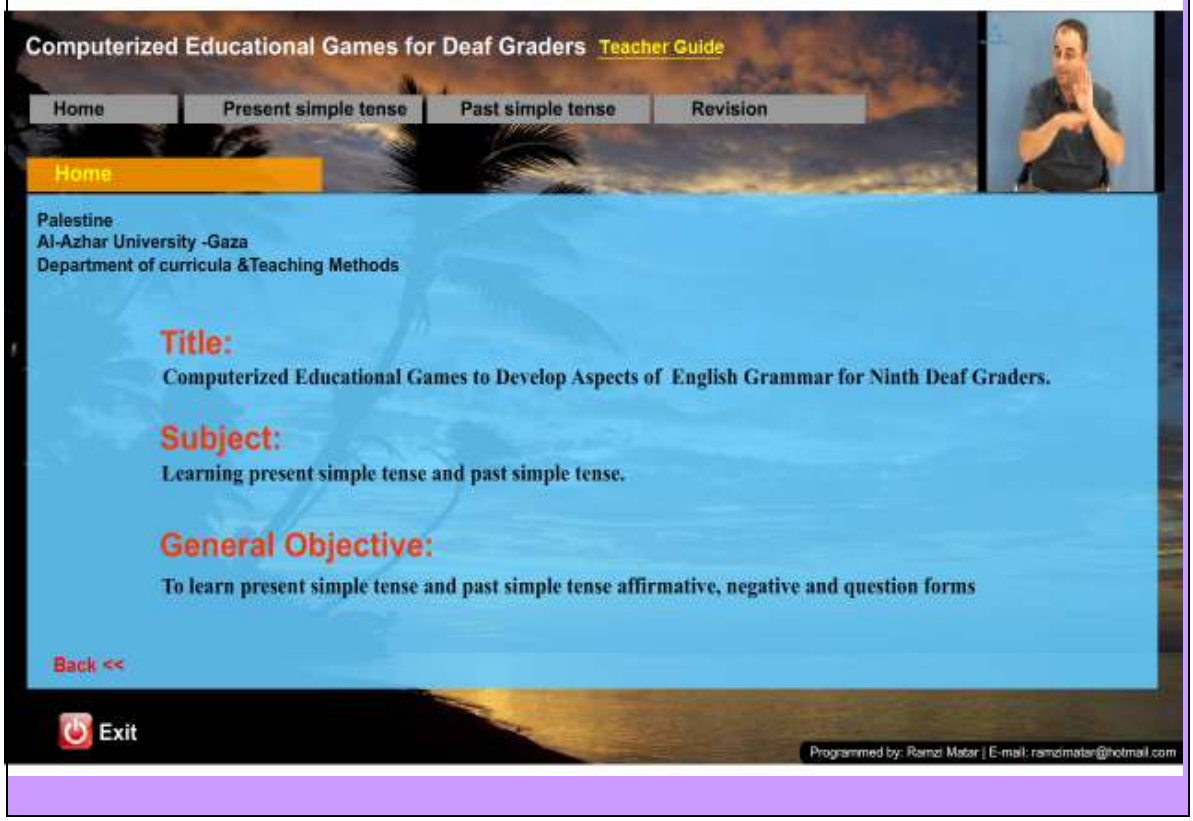
Thank you very much for collaboration

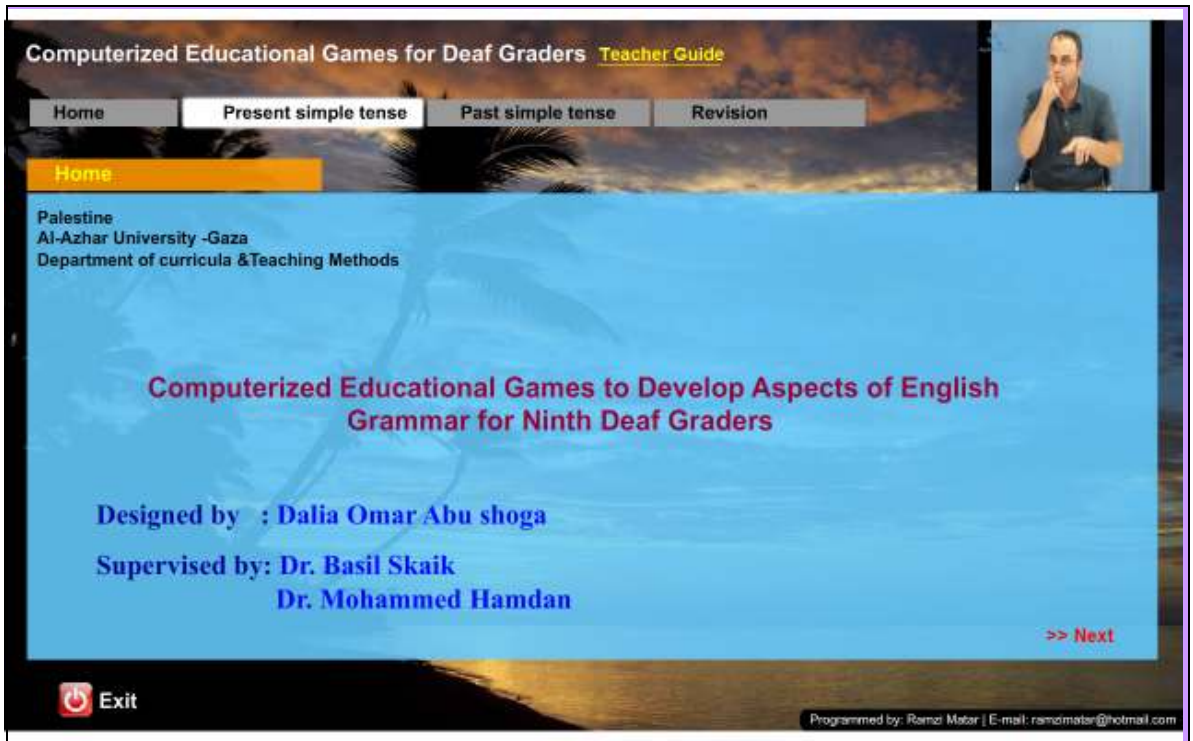
Researcher,

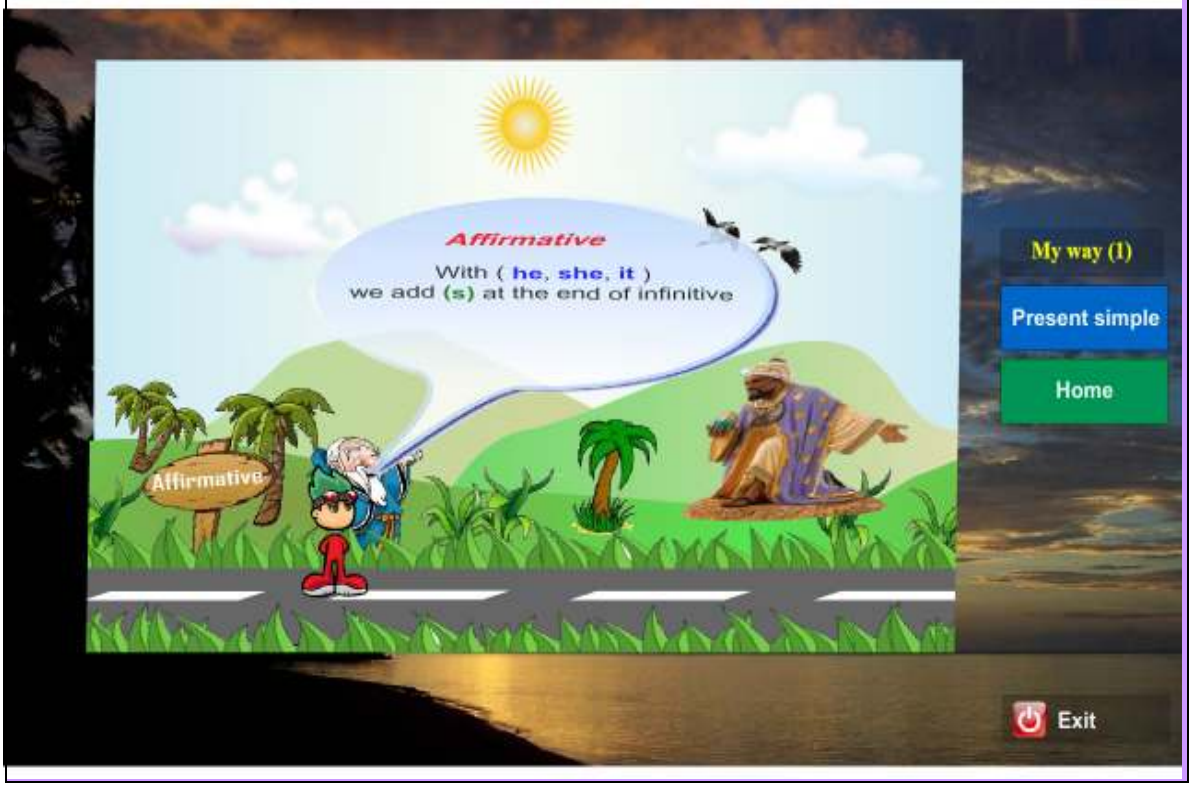
Appendix (E)

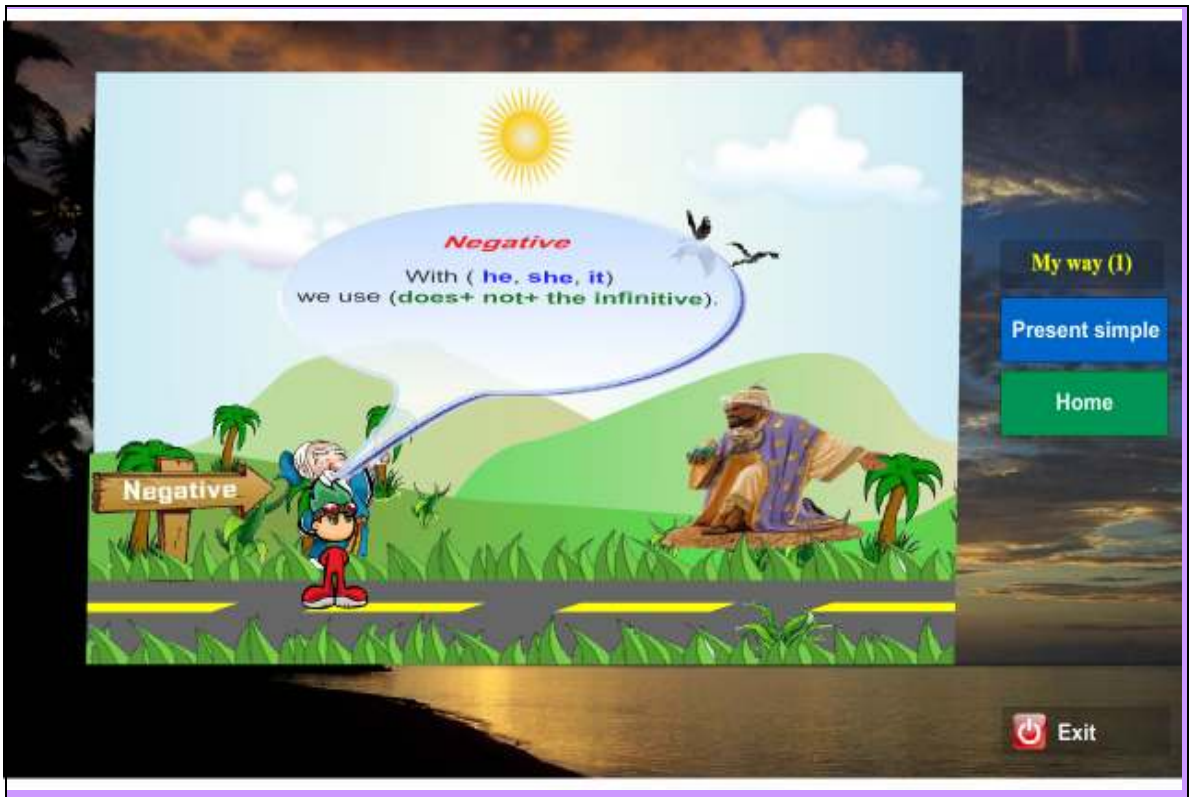
Computerized Educational Games

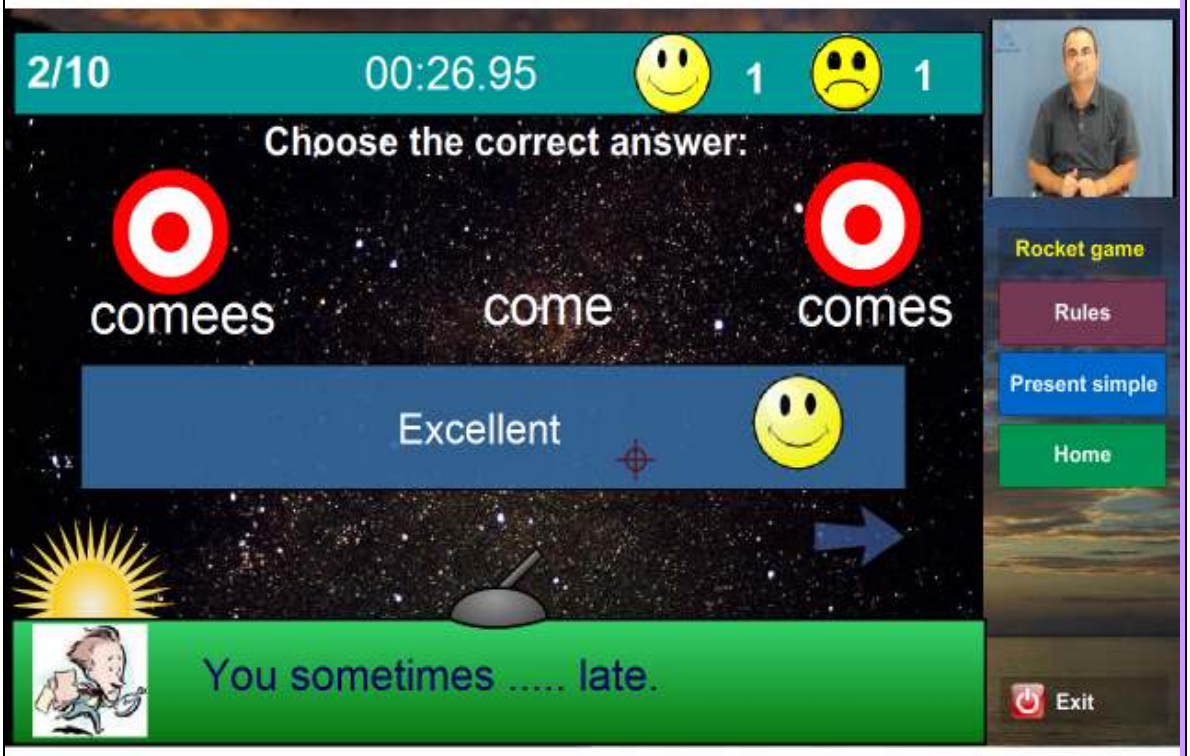


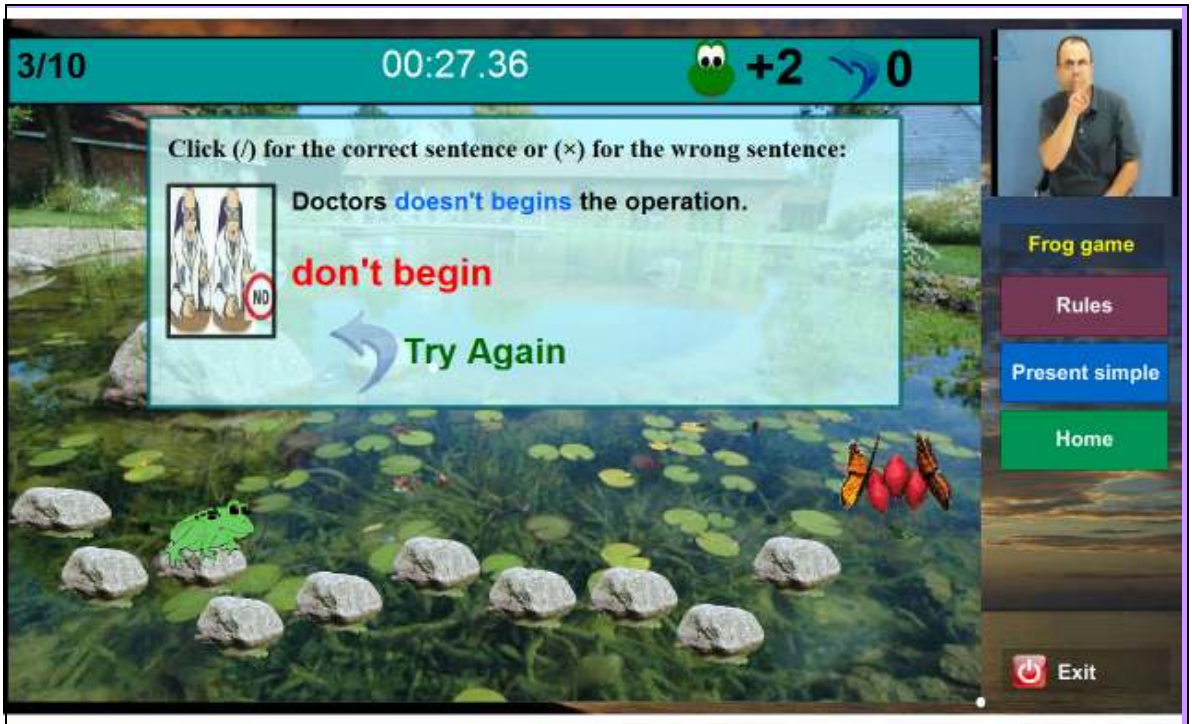


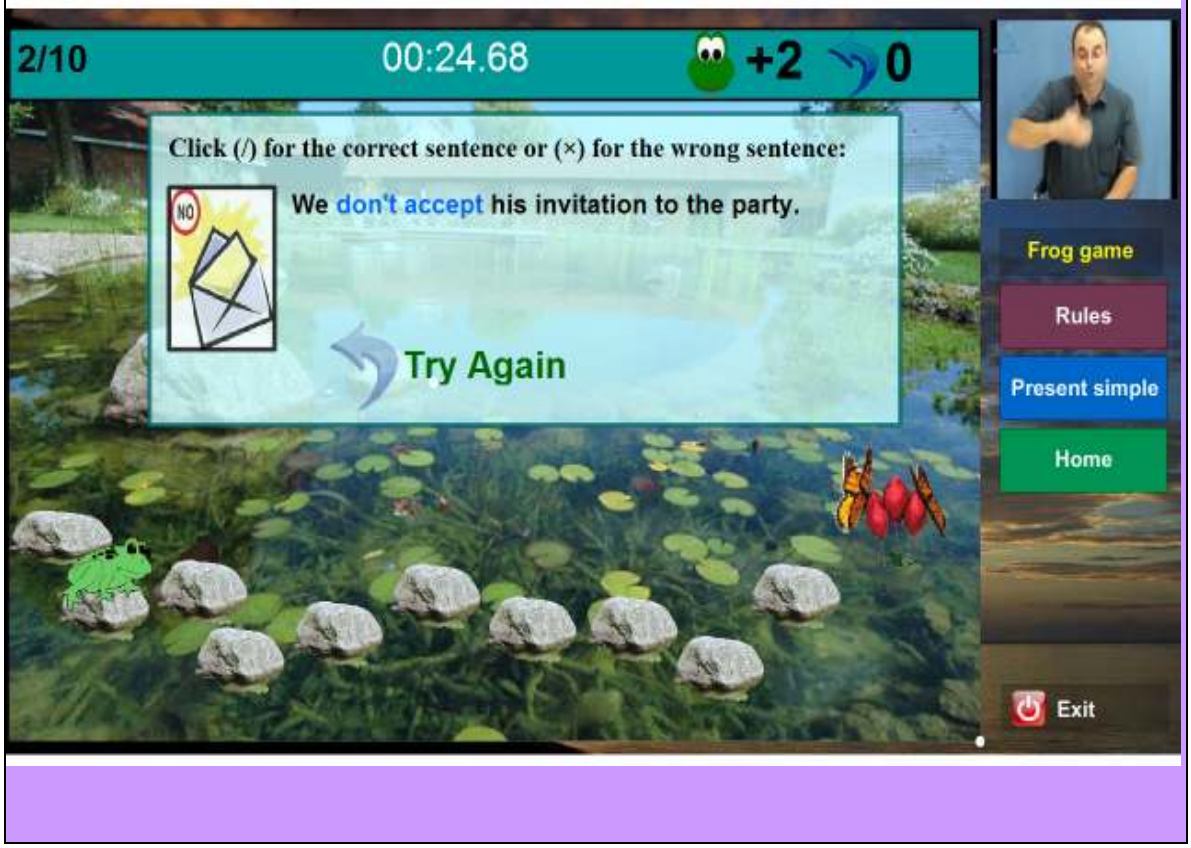


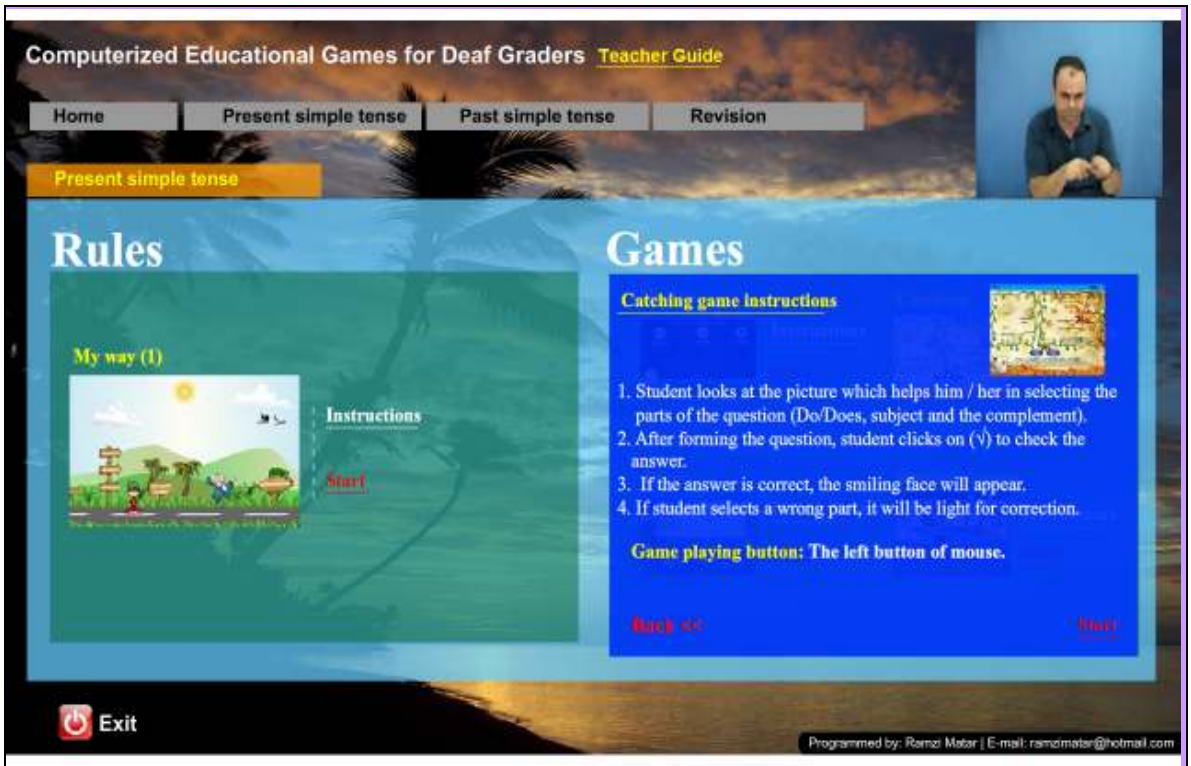


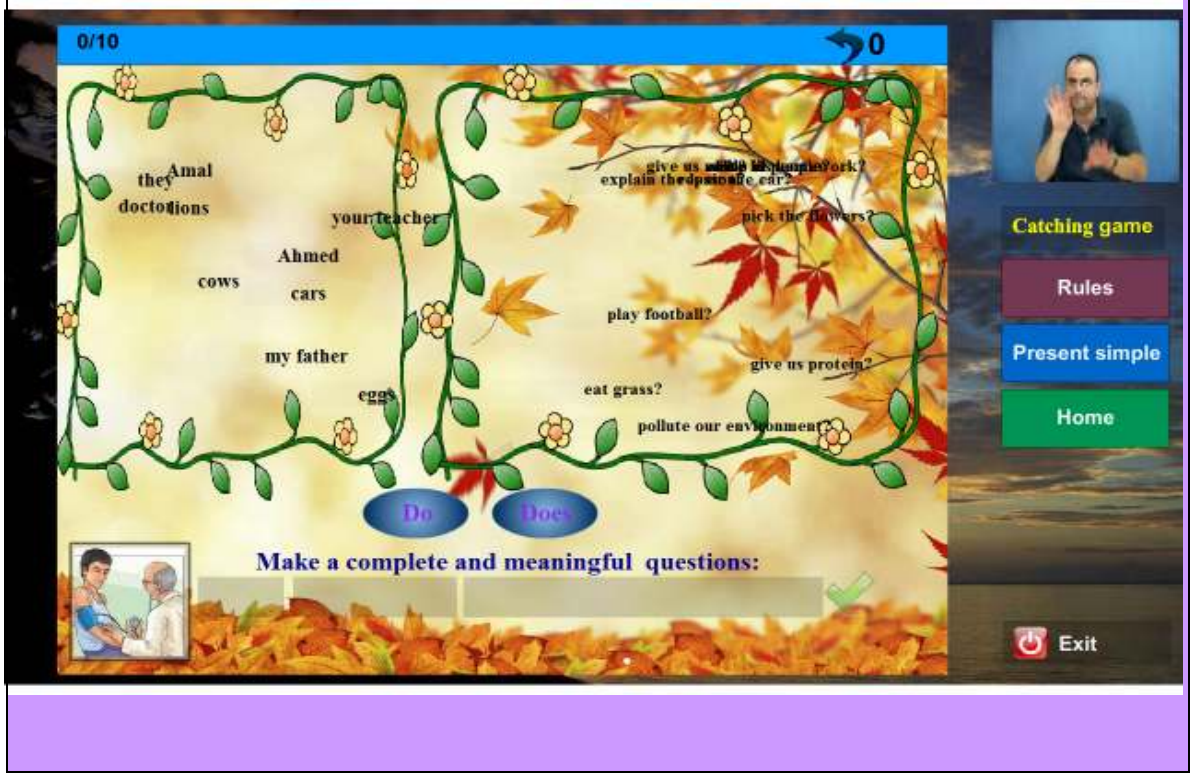


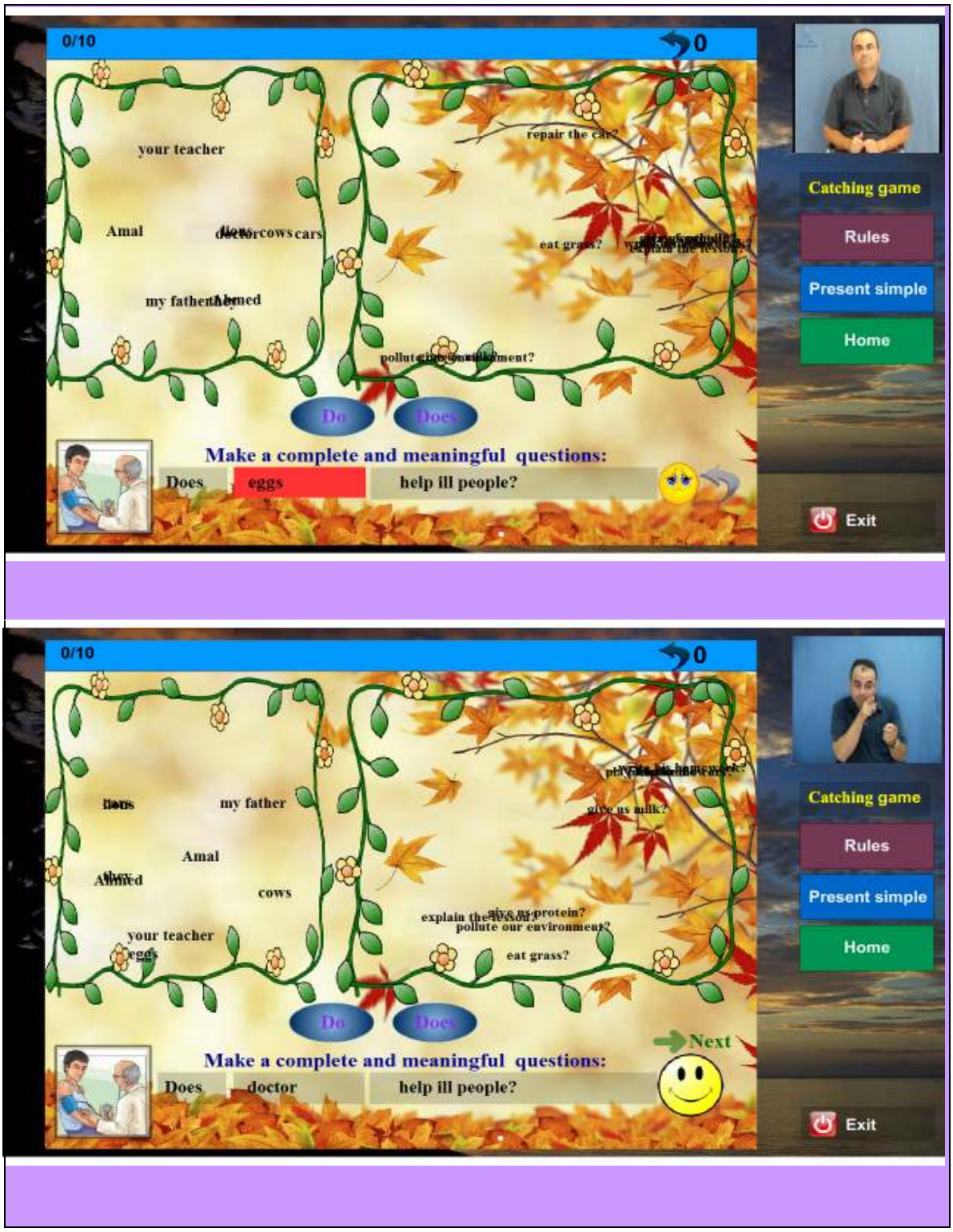


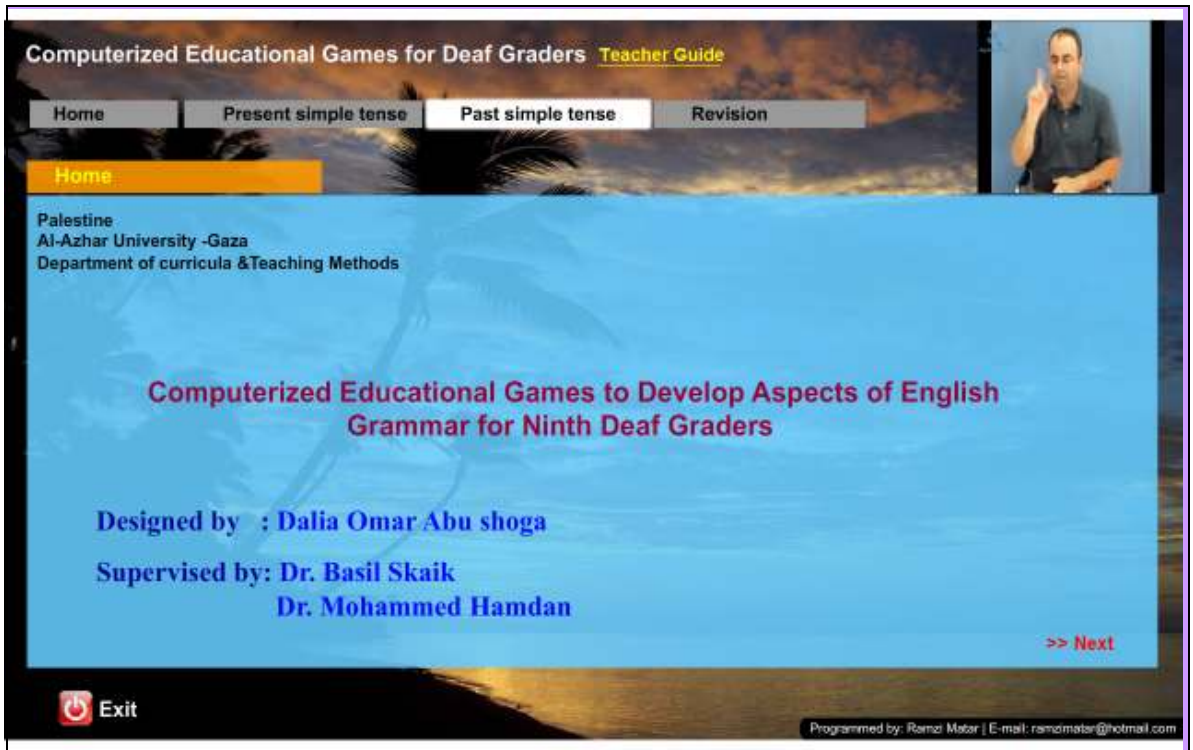


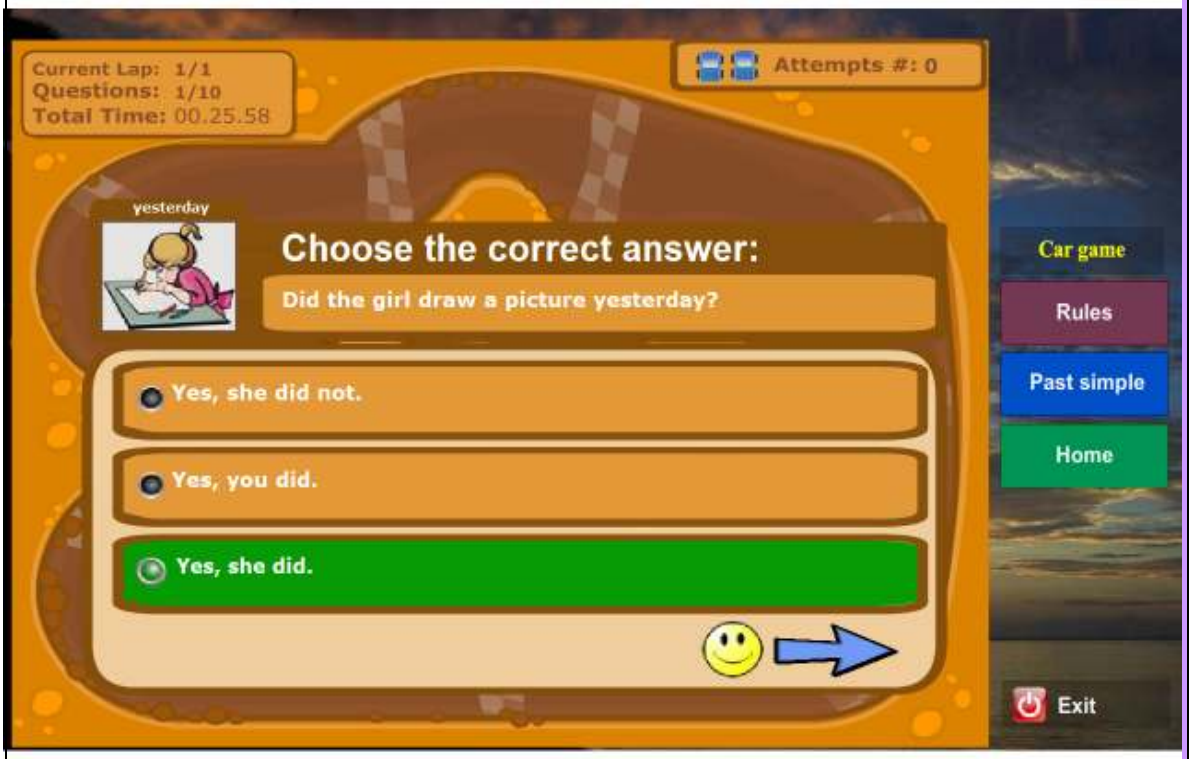


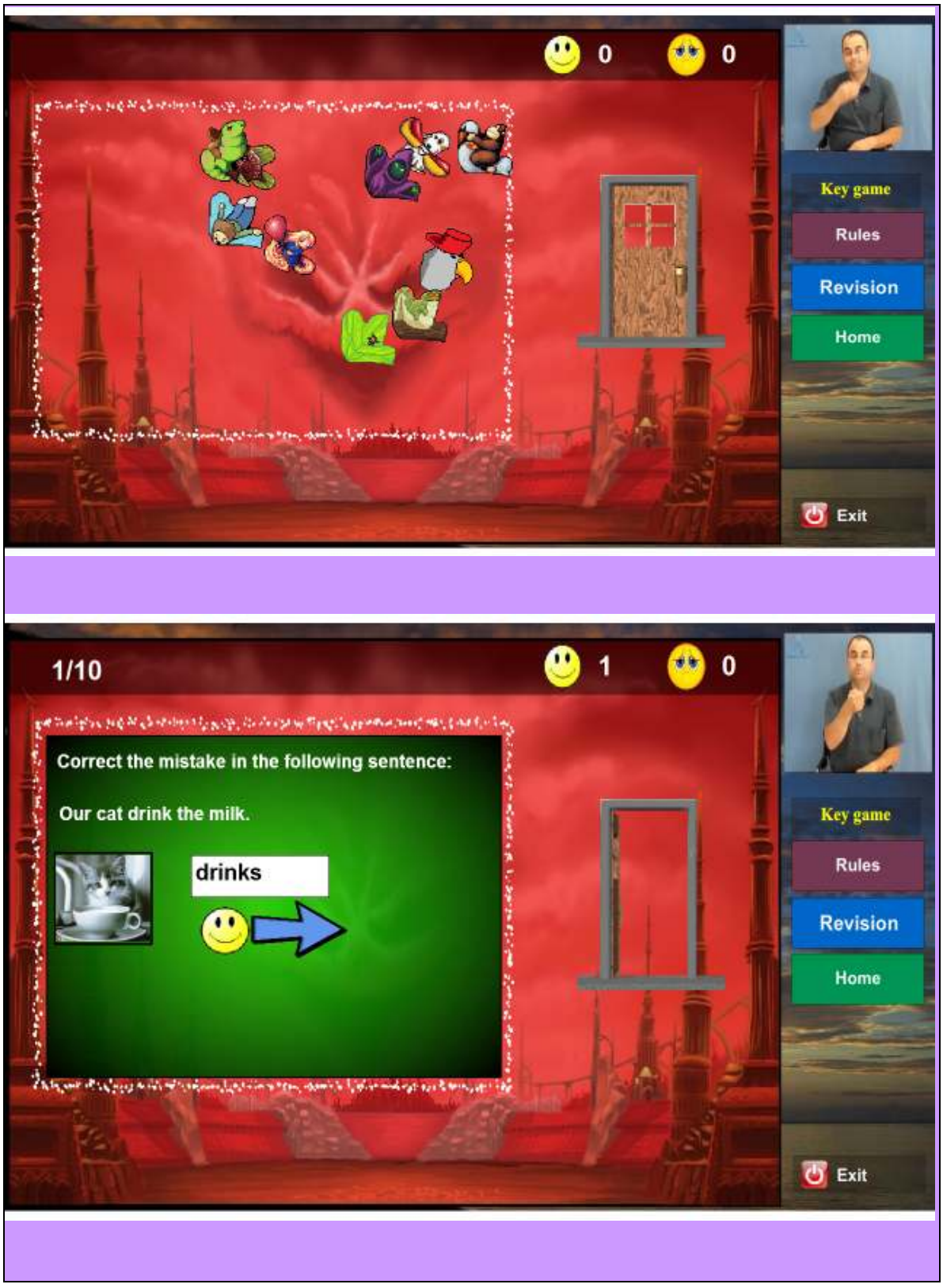












Appendix (F)

List of References

List of Reference

This list includes the names and titles of the referees who refereed the Pre-Post Test and the computerized where **(1)** refers to those who refereed the test and **(2)** refers to those who refereed the educational games .

Name	Field	Institution	1	2
Dr . Hasan Mahdy	Faculty of Education	El Aqsa University		√
Dr . Kamal Mortaja	Faculty of Education	IUG	√	
Dr. Sana'a Abu Dagga	Faculty of Education	IUG	√	
Dr. Ramadan Hussen	Supervisor of Special Education	ASDC		√
Mr. Kamal Abu Shamla	Supervisor of English	MEHE	√	
Mr. Hasan Abu Obaid	Supervisor of Special Education	MEHE	√	√
Mr. Khaled Feda	Head of Special Education Department in Education Ministry	MEHE		√
Na'eem Kabaja	The director of Atfaluna Society for Deaf Children	ASDC	√	√
Samera El Saiagh	Head of Atfaluna School for Deaf Children	ASDC	√	√
Jehad Abu Ghaza	Head of El Hanan School for Deaf Children	DBRSDS	√	√
Ehab El Madhoon	Expert of Sign Language	ASDC		√
Medhat Mossa	Teacher for deaf students	ASDC	√	√
Amany Ramadan	Teacher of English for deaf students	ASDC	√	√
Yousry Abu Bleema	Teacher of English for deaf students	DBRSDS	√	√

MEHE stands for Ministry of Education and Higher Education.

ASDC stands for Atfaluna Society for Deaf Children.

DBRSDS stands for Dear El Balah Rehabilitation Society for Deaf Children.

IUG stands for the Islamic University of Gaza.

Appendix (G)

Permission Received from Atfaluna Society for Deaf Children

Ref :
Date:

الرقم :
التاريخ : ج ز/ع/١٢/٢٠١١
١٥/١٢/٢٠١١

جـامعة الأزهـر - غـزة

غزة - فلسطين

عمادة الدراسات العليا والبحث العلمي

Deanship of Postgraduate studies & scientific Research

الأخ/ مدير مؤسسة أطفالنا للصم **حفظه الله،،،**

السلام عليكم ورحمة الله وبركاته،،،

الموضوع: تسهيل مهمة

تهديكم عمادة الدراسات العليا والبحث العلمي - جامعة الأزهر - غزة أطيب تحياتها، وتدعماً منها لبرامج الدراسات العليا يُرجى التكرم بتسهيل مهمة الباحثة/ داليا عمر أبو شقة المسجلة لدرجة الماجستير في التربية تخصص المناهج وطرق التدريس، وذلك بتطبيق أدوات الدراسة على أطفال مدرسة أطفالنا للصم، وعنوان رسالتها:

The Effectiveness of Using Computerized Educational Games on Developing Aspects of English Grammar for Deaf Ninth Graders' in Gaza Governorates

مع الاحترام

والسلام،

عميد الدراسات العليا والبحث العلمي

١٥/١٢/٢٠١١

أ.د. جهـاد محمـد أبو طويـلة

نسخة إلى ملف الطالب.

جمعية أطفالنا للصم. غزة
وارد رقم: ٢٠١٢/٣٥٠
التاريخ: ٢٤/١/٢٠١٢

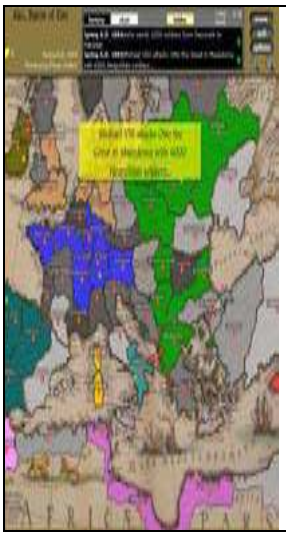
Al-Azhar University
Gaza - Palestine
P.O.Box : 1277 - Gaza
Telephone: +970 8 2832 925
+970 8 2824 010
+970 8 2824 020
Fax : +970 8 2823 180
E-mail :
Graduate Studies:
pgs@alazhar.edu.ps
Scientific Research:
jasg@alazhar.edu.ps
www.alazhar.edu.ps

Appendix (H)

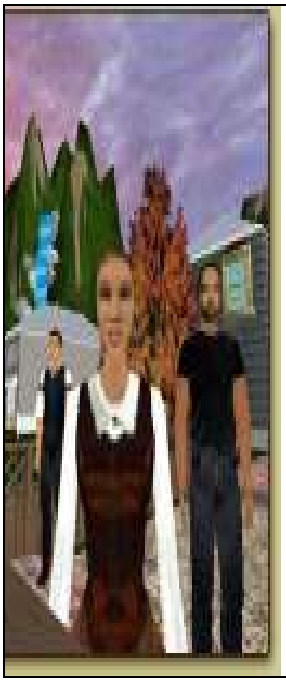
Examples of the Types of Computerized Games

Examples of the Types of Computerized Games

Game	**Virtual 20Q**
Type	Exercises game
Description	Play digital form of game 20 questions in a choice of over 20 languages.
Age	13- 16 years old.
Retrieved from	http://www.20q.net/



Game	**Conqueror!**
Type	Strategy game
Description	Multiplayer strategy game that takes place on a map of medieval Europe. Play against as many as 16 human or AI opponents, for games as short as 30 minutes or as long as 4 hours.
Age	13-16 years old.
Retrieved from	http://www.conquerorgame.com/index2.php

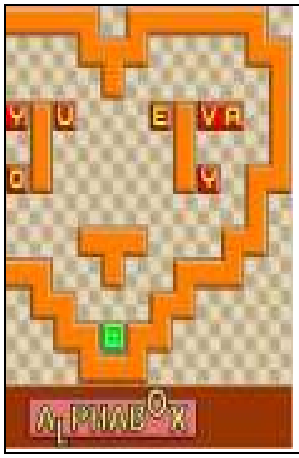


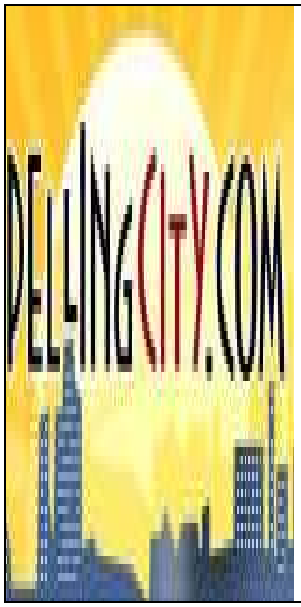
Game	**River City**
Type	Simulation game
Description	As visitors to River City, students travel back in time, bringing their 21st century skills and technology to address 19th century problems. River City is a town besieged with health problems. Students work together to help the town understand why residents are becoming ill.
Age	11- 14 years old.
Retrieved from	http://muve.gse.harvard.edu/rivercityproject/

Game	**Hurricane Katrina**
Type	An adventure game
Description	It's about the aftermath of Hurricane Katrina where students can experience the ongoing relief efforts in New Orleans.
Age	11- 17 years old.
Retrieved from	http://tempestincrescentcity.ning.com/

Game	**Against All Odds**
Type	Role- playing game
Description	A game created to increase students' awareness and knowledge about refugee situations by putting players in the position of a refugee.
Age	9 - 16 years old.
Retrieved from	http://www.playagainstallodds.com/

Game	**Eyewitness (Nanking)**
Type	Action game
Description	This Interactive and action software lets users experience the Nanking Massacre personally.
Age	16-18 years old.
Retrieved from	http://www.mic.polyu.edu.hk/nanjing/index.asp

	**Game**	**Puzzle**
	Type	Puzzle game
	Description	Is a combination of block pushing and word jumble, the game requires that you create words by arranging block letters.
	Age	13- 16 years old.
	Retrieved from	Alphaboxhttp://jayisgames.com/archives/2008/05/alphabox.php

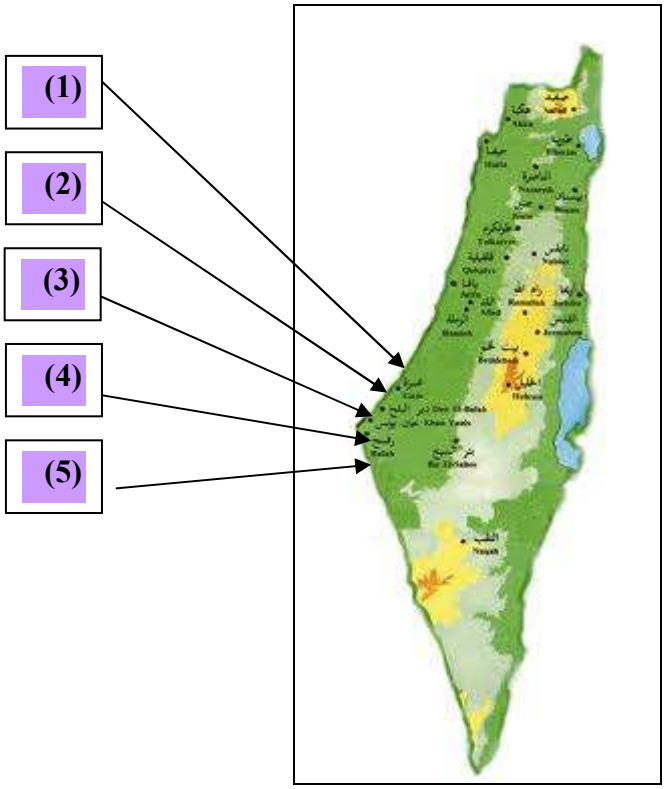
	**Game**	**Spelling City**
	Type	Didactic game
	Description	Using the sample lists from the site or your own list of word, you learn, play, and then test your spelling ability. It teaches the word in the context of an audio sentence.
	Age	4 years old.
	Retrieved from	http://www.spellingcity.com/index.php?option=com_frontpage&Itemid=1

	**Game**	**Game Goo**
	Type	Reductive game
	Description	Games that help develop early reading skills identified as important language arts building blocks.
	Age	4-6 years old.
	Retrieved from	http://www.earobics.com/gamegoo/gooey.html

Appendix (I)

The Sites of Deaf Rehabilitation Societies in Gaza Governorates

The Sites of Deaf Rehabilitation Societies in Gaza Governorates



No.	Sites	Deaf Rehabilitation Societies	Logo
1	Jabalia	Jabalia Rehabilitation Society	
2	Gaza	Atfaluna Society for Deaf Children	
3	Deir El Balah	Deir El Balah Rehabilitiation Society	
4	Khan-Yonis	The Red Crescent Society of Gaza Strip	
5	Rafah	Rafah Rehabilitation Society	

A . Deaf Rehabilitation Societies in Gaza Governorates

It is worth to mention that deaf rehabilitation societies/ schools are certified by the Ministry of Education .

1. **Atfaluna Society for Deaf Children**

This society is considered the first one for the deaf children in Gaza. It has been working in the field of the deaf education services since 1992. Thousands of deaf children and adults and their families are served at Atfaluna through deaf education, audiology, speech therapy, income generating programs for the deaf, vocational training, parents, teachers and community training and awareness programs, and a host of other services and programs. By 2012, the academic education is offered to (270) deaf students at pre-school, kindergarten, primary, and middle school levels. The main teaching method in the Atfaluna School is the Sign Language and Total Communication Approach. Atfaluna is the main referral and resource center for most institutions, clinics, and hospitals in Gaza. The Society serves as the Gaza coordinator of the Community Development Society for the Hearing Impaired, a coordinating body of (21) member organizations in the West Bank and Gaza working in the field of hearing loss.

2. Deir El Balah Rehabilitation Society

Deir El Balah Rehabilitation Society is a non–governmental society established in 1997. Also, it is known by El Hanan School for Deaf Children. It provides a number of services for deaf in Deir El Balah and the surrounding areas. The society serves (125) deaf students at pre-school, kindergarten, primary and middle school levels. Its educational program aims at rehabilitating, educating, preparing the deaf to deal with the other people who are deaf or hearing, developing the deaf capacities and raising the cultural awareness within the community.

3. Rafah Rehabilitation Society

It is considered the biggest society/school for the deaf in the South government. It is called El -Amal School for the deaf children. Its services are provided for the deaf children since 1991. This school serves (135) deaf students at pre-school, kindergarten, primary and middle school levels. The school is equipped with modern equipments to meet deaf students' educational needs through plans and curricula appropriate their hearing loss degree, abilities and skills.

4. Jabalia Rehabilitation Society

The society established in the first of August 1991 in Jabalia camp. It's the first community rehabilitation center which was established in partnership with UNRWA as a project to apply in the other camps in Gaza. Jabalia Rehabilitation Society serves (73) deaf students through the primary school, and middle school levels; acquiring the sign language and repairing hearing aids.

5. The Red Crescent Society of Gaza

The Red Crescent Society of Gaza is a non-governmental society. It is an independent, developmental and non-profit society. By this year, there are (81) deaf students in the society which started its activities in 1972 as one of the earliest NGOs in Gaza. From the starting, the society encountered challenges which the Israeli occupation imposed upon the Palestinian, and upon all domains of life. From that time on, the society is a nationalist and independent NGO, with a democratic, developmental and relief nature. It aims at providing health, cultural, educational, and humanistic services for the citizens especially for the deaf in Gaza.

B. Main Objectives of the Deaf Rehabilitation Societies

Deaf rehabilitation societies seek to achieve a number of the objectives like:

- Applying an educational program aims to develop psychological, emotional, social, mental and motor aspects for the deaf.
- Acquiring the communication approaches specially the sign language.
- Supporting the deaf people psychologically and socially.
- Training the parents of the deaf on how to deal with their deaf child and increasing community awareness through courses, lectures, seminars and workshops.
- Training the remains of hearing to the maximum extent possible.
- Measuring the hearing loss degrees and providing with hearing aids.

As the researcher sees that these objectives play a role in designing computerized games which should be an attempt to

1.develop psychological, emotional, social, mental and motor aspects.

2. acquire the Total Communication Approach as mainly used in the societies of the deaf.

3. support the deaf learners psychologically by dealing with them friendly not according to their disability.

C. Services and Educational Program of Deaf Rehabilitation Societies

Most of the rehabilitation societies of the deaf are providing the same services and educational program such as the following:

- Academic education at pre-school, kindergarten, primary, and middle school levels.
- Vocational training for the deaf women and men.
- Clinical audiology.
- Measuring the degrees of hearing loss for the deaf.
- Speech and language pathology.
- Better parenting courses.
- Sign language acquiring and training.
- Social work services and counseling.
- Community awareness.
- Teachers training programs.
- Literacy training for the deaf adults.
- Early intervention programs for the deaf children who are under the age of four years.

The societies/ schools of the deaf use the same educational program which used for the hearing students. The deaf students learn the same curriculum at Arabic, English, Geography, Mathematics, Technology, Civics, and Science. However, the difference is in the teaching methods and approaches.

Teaching the deaf students depends on the visual aids which are appropriate and facilitate their learning like using computer, OHP, pictures, diagrams, maps, and video.

The teachers of the deaf use different ways to evaluate the progress of their students during and after the course . They use achievement tests, observation, monthly reports and following up students in learning the sign language and communication approaches.

D. Registration Requirements at Rehabilitation Societies

It is natural that not all children can join with these societies. In other words, only the child who has the following requirements can be joined with one of the societies of the deaf:

- The child should be deaf and does not suffer from another disabilities.
- The child should be able to take care of himself, especially urination.
- The child should be between(4-14) years old because the services of the societies are limited for these ages.

These requirements of registration at the societies of the deaf, makes the researcher to be ensured that the study sample consists of deaf children without any another disability and they were taught by the same methods.

Appendix (J)

The Teacher's Observations & the Deaf Student's Comments

29, Nov, 2011.

Our Dear Miss Dalia Abu shaqa.

Befor your experiment " Using Computer games to develop English grammer for the deaf 9th graders", You surely noticed the main difficulties which the deaf faced during their learning using the Sign language.

However, during the application, It was noticed that the deaf children/learners became more motivated to learn English and waited the period of English.

Your experiment with the deaf Students, benefited us as teacher for the deaf to know how we can use the new techniques in teaching our learners, also encouraged our students to learn grammar and changed their thought that English grammar is so difficult school subject.

We're the teacher of English language in the different societies of the deaf who were invited too notice the behavioral changes for the deaf learners while they were taught using Computerized games, ensured that using this technique (computer games) is an effective teaching aids for the deaf maybe because it based on the visual enhancement (eyes).

And, Our Dear researcher we want to be in collaboration in order to design an assimilar set of Computer games to teach our deaf children more grammatical rules / tenses.

The teacher of english language in the society of the deaf in Gaza.

25, Nov, 2011

I want to thank you Miss Dalia Abo Ghaga for all your efforts to help the deaf students to learn the grammatical rules.

It's not secret that English as a school subject is one of the most difficult subjects for the deaf.

However, during your application of the experiments which based on using computer games to teach the deaf 9th graders the present and the past simple tense.

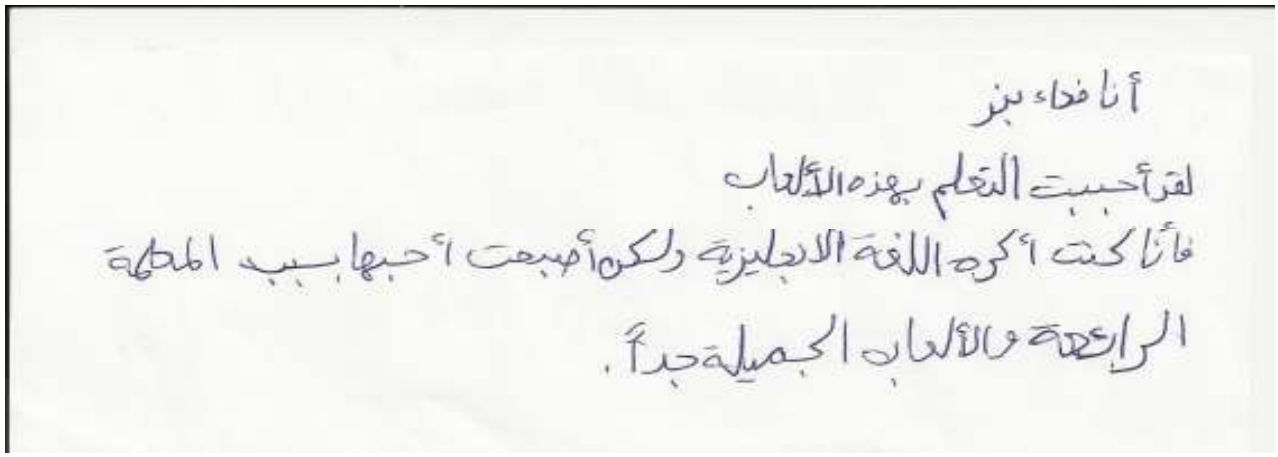
I noticed new and different things for the deaf learners; they are motivated, need to learn more and more, participated, cooperated, work together, helped for each other and engaged.

In fact, all the previous notices are new things in the class of English language for the deaf. In my opinions, this is the real effect of using computer games for the deaf.

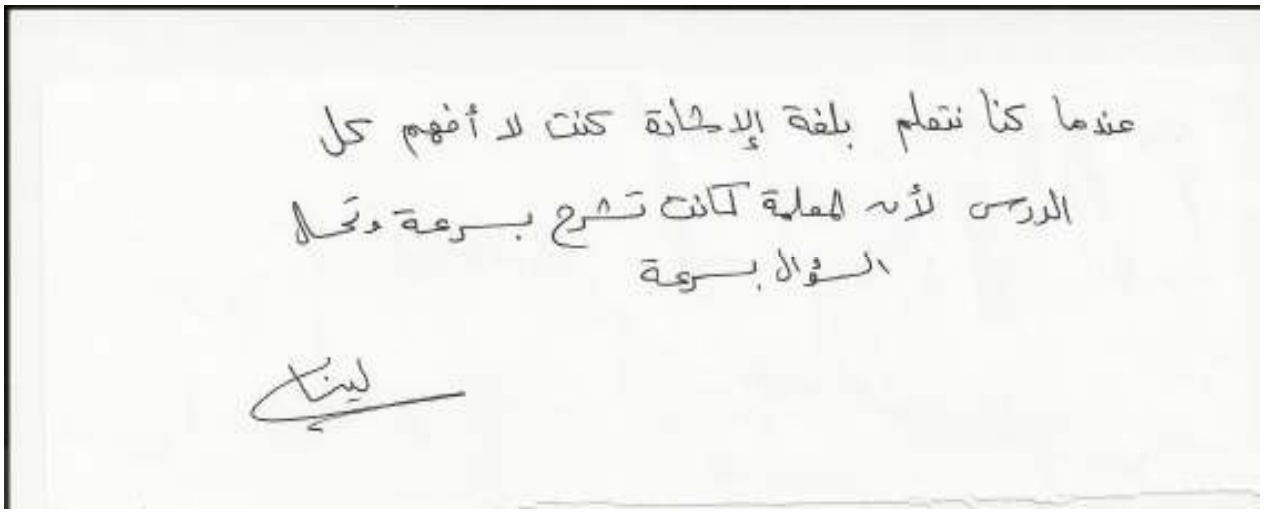
With all my thanks for your efforts

Miss Amani Ramadan

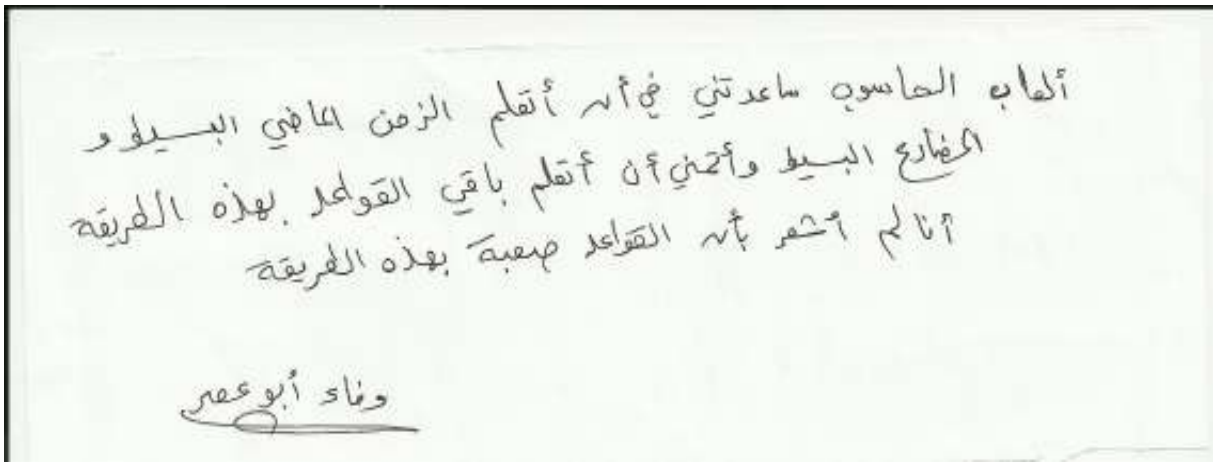
At Fatima Society for the Deaf Children


أنا فداء بنر
لقد أحببت التعلم بهذه الألعاب
فأنا كنت أكره اللغة الانجليزية ولكن أصبحت أحبها بسبب الطريقة
الرائعة والألعاب الجميلة جداً.

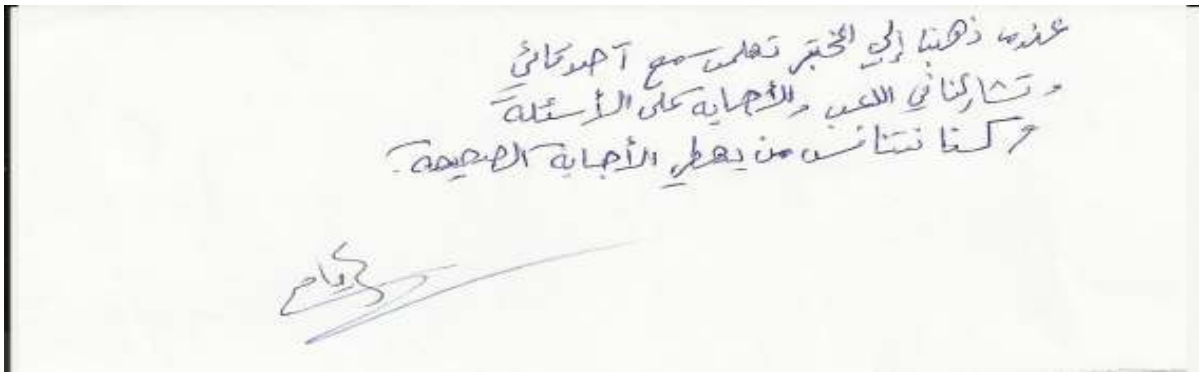
Feda' Banar said, "I became like to learn English. Because I learnt through these amazing computer games."


عندما كنا نتعلم بلغة الإشارة كنت لا أفهم كل
الدرس لأنه العملية كانت تشرح بسرعة وتحل
السؤال بسرعة
لينا

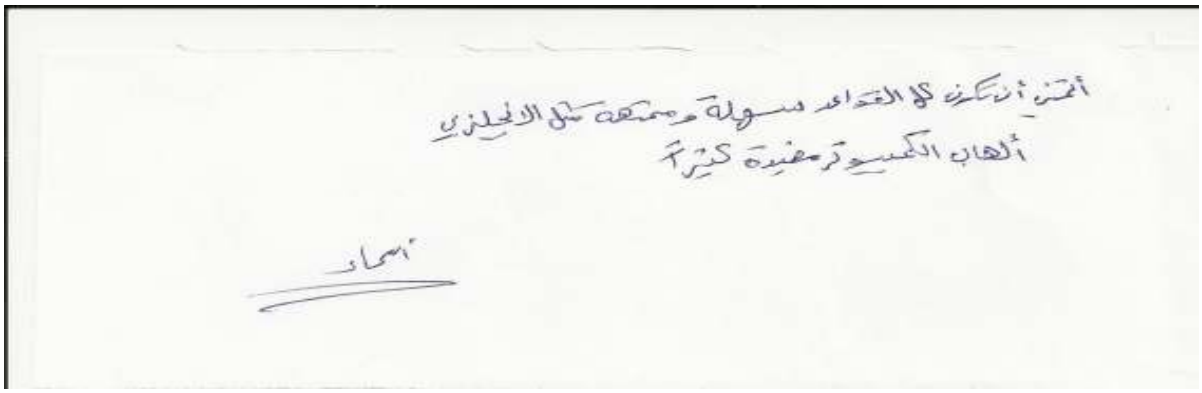
Leena said "When the teacher explained the lesson by using the sign language, I didn't understand the lesson because the lesson and the exercise were explained quickly. However, when the teacher explained the lesson by using computer games, we learn better."



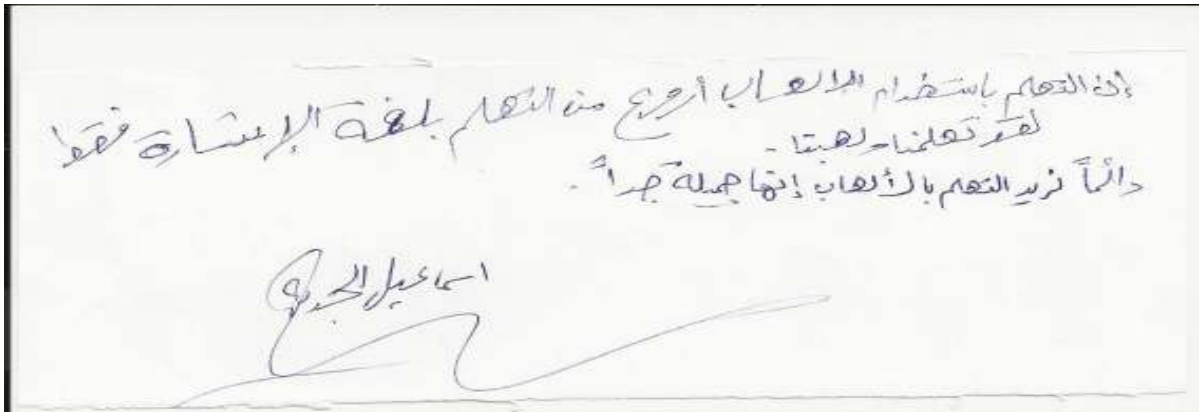
Wafa' Abu Aser said, "Computer games helped me to learn the present and the past simple tense. I hope to learn more grammatical lessons by using these games which facilitated my learning."



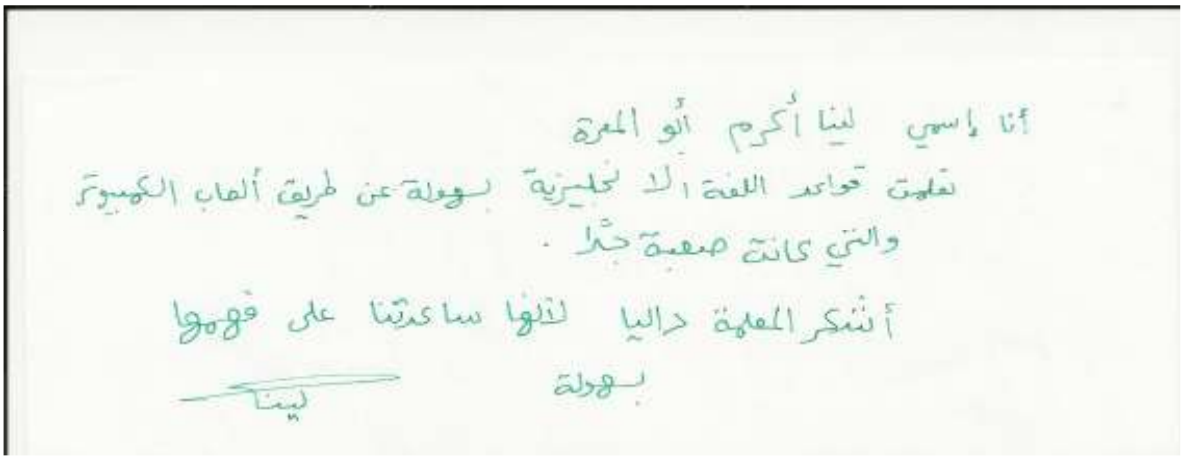
Akram said, " I learnt, played and competed with my classmates to show the correct answer."



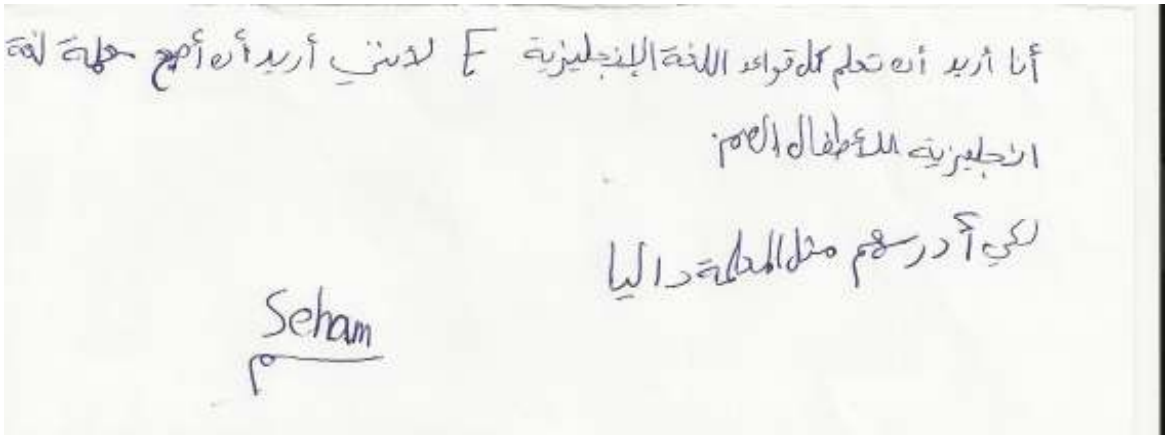
Asma said, " I hope to be the other grammatical rules are easy to learn like English grammar (present and past simple tense) which we learnt by using computer games."



Esmaeel El-Gadba said, "Learning grammar by using computer games is more interesting than using the sign language . We learnt and played in the same time. We want to learn through computer games because they are a wonderful way in learning."



Leena Abu El Ma'za said, " through using computer games, I learnt English grammar more easily . I want to thank miss Dalia who helped us to understand the grammatical rules (present and past simple tense)."



Seham said, " I want to learn all the grammatical rules of English because I want to be a teacher of English language for the deaf children in order to teach them by using computer games like miss Dalia."

Appendix (K)

Pictures of the Application