The Islamic University – Gaza
Research and Postgraduate Affairs
Faculty of Education
Master of Curricula and Teaching Methods

الجامعـــــة الإسلاميـــــة – غـزة
شئون البحث العلمي والدراسات العليا
كليـــــــــــة التـــربيـــــــــــة
قســـم المناهـــج وطرق التـــدريس

The Effectiveness of Augmented Reality Applications on Developing Third Graders' English Vocabulary in Gaza Governorate

فاعلية تطبيقات الحقيقة المدمجة في تنمية مفردات اللغة الإنجليزية للصف الثالث في محافظة غزة

Tahani Ibrahim Rabea

Supervised by:

Prof. Awad Keshta
Prof. of English Teaching Methods

A Thesis submitted to the Faculty of Education in Islamic University in Partial Fulfillment of the Requirements for the Master Degree in Education

December - 2016

إقـــــرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

The Effectiveness of Augmented Reality Applications on Developing Third Graders' English Vocabulary in Gaza Governorate

فاعلية تطبيقات الحقيقة المدمجة في تنمية مفردات اللغة الإنجليزية للصف الثالث في محافظة غزة

أقر بأن ما اشتملت عليه هذه الرسالة إنما هو نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وأن هذه الرسالة ككل أو أي جزء منها لم يقدم من قبل الآخرين لنيل درجة أو لقب علمي أو بحثي لدى أي مؤسسة تعليمية أو بحثية أخرى. وأن حقوق النشر محفوظة الجامعة الإسلامية غزة –فلسطين

Declaration

I hereby certify that this submission is the result of my own work, except where otherwise acknowledged, and that this thesis (or any part of it) has not been submitted for a higher degree or quantification to any other university or institution. All copyrights are reserves toIslamic University – Gaza strip paiestine

Student's name:	تهاني إبراهيم ربيع	اسم الطالب:
Signature:	تهاني إبراهيم ربيع	التوقيع:
Date:	2017/02/04	التاريخ:

بسم الله الرحمن الرحيم

الجامعة الإسلامية غزة
The Islamic University of Gaza

مكتب نائب الرئيس للبحث العلمي والدراسات العليا هاتف داخلي 1150

الرقم: Ref: ج س غ/35/
التاريخ: Date: 2017/01/17

نتيجة الحكم على أطروحة ماجستير

بناءً على موافقة شئون البحث العلمي والدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحثة/ **تهاني ابراهيم محمود ربيع** لنيل درجة الماجستير في **كلية *التربية*/ قسم مناهج وطرق تدريس** وموضوعها:

فاعلية تطبيقات الحقيقة المدمجة في تنمية مفردات اللغة الإنجليزية للصف الثالث في محافظة غزة

The Effectiveness of Augmented Reality Applications on Developing third Graders' English Vocabulary in Gaza Governorate

وبعد المناقشة العلنية التي تمت اليوم الثلاثاء 19 ربيع الثاني 1438هـ، الموافق 2017/01/17م الساعة الحادية عشر صباحاً بمبنى اللديدان ، اجتمعت لجنة الحكم على الأطروحة والمكونة من:

أ.د. عوض سليمان قشطة	مشرفاً و رئيساً	.....
د. مجدي سعيد عقل	مناقشاً داخلياً	.....
د. جابر ابراهيم أبو شاويش	مناقشاً خارجياً	.....

وبعد المداولة أوصت اللجنة بمنح الباحثة درجة الماجستير في **كلية *التربية*/قسم مناهج وطرق تدريس**.

واللجنة إذ تمنحها هذه الدرجة فإنها توصيها بتقوى الله ولزوم طاعته وأن يسخر علمها في خدمة دينها ووطنها.

والله ولي التوفيق،،،

نائب الرئيس لشئون البحث العلمي والدراسات العليا

أ.د. عبدالرؤوف علي المناعمة

ABSTRACT

Study Title: ***The Effectiveness of Augmented Reality Applications on Developing Third Graders' English Vocabulary in Gaza Governorate.***

The study aims at investigating the effectiveness of Augmented Reality Applications (Aurasma and ZooBurst) on developing third graders' English vocabulary in Gaza governorate. To achieve the study goals, the researcher adopts the experimental approach on a sample of (69) pupils from Amir El Mansi Basic "B" School for Boys, who are selected and divided randomly into two groups (1) experimental group (34), and (2) control group (35).

The researcher uses (3) instruments to achieve the study aims: 1) content analysis, 2) pre and post vocabulary achievement test, and 3) Augmented Reality Applications. The experiment lasts for eight weeks (3 lessons per week) in which the researcher implements the study tools in the first semester at (2015 - 2016) scholastic year to investigate the effect of AR applications.

The study results reveal that Augmented Reality has a high effectiveness in developing vocabulary among the third graders in Gaza governorate schools. The findings indicate that there are significant differences in the mean scores of the experimental group and that of the control group in the post vocabulary achievement test in favor of the experimental group. The findings also point out that there are statistical significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control one in the post test. The study results also show that there are statistical significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control one in the post test. And all these differences are in favor of the experimental group.

Based upon the previous findings, the study recommends that it is necessary to integrate the Augmented Reality applications in the educational process. Curriculum designers and decision-makers should provide schools with the equipment (LCD, computers device connected with the internet access, IPad, and special room) which enable learners to learn through AR applications.

Likewise, there must be more cooperation among curriculum designers and decision-makers to produce guiding materials to equip teachers with the needed knowledge to use Augmented Reality applications and other new programs and applications.

ملخص الدراسة

عنوان الدراسة: فاعلية تطبيقات الحقيقة المدمجة في تنمية المفردات لدى تلاميذ الصف الثالث الأساس بمدارس محافظة غزة.

تهدف الدراسة التعرف إلى فاعلية تطبيقات الحقيقة المدمجة (الأورزما والزوبرست) في تنمية مفردات اللغة الإنجليزية لدى تلاميذ الصف الثالث الأساسي بمدارس محافظة غزة، ولتحقيق أهداف الدراسة اعتمدت الباحثة على المنهج التجريبي بالتطبيق على عينة بلغت (69) تلميذا من مدرسة أمير المنسي الأساسية "ب" للبنين، حيث تم اختيارهم وتقسيمهم بشكل عشوائي إلى مجموعتين الأولى تجريبية تكونت من (34) تلميذا ، والثانية ضابطة (35) تلميذا.

واستخدمت الباحثة ثلاث أدوات لتحقيق أهداف الدراسة و هي : 1) بطاقة تحليل المحتوى، و2) اختبار تحصيل المفردات القبلي والبعدي، و3) تطبيقات الحقيقة المدمجة، واستمرت التجربة مدة ثمان أسابيع بواقع ثلاث حصص لكل أسبوع. حيث تم تنفيذ الدراسة خلال الفصل الأول من العام الدراسي (2015-2016).

كشفت نتائج الدراسة أن تطبيقات الحقيقة المدمجة تتمتع بفاعلية كبيرة في تنمية المفردات لدى تلاميذ الصف الثالث الأساسي، حيث أظهرت النتائج أنه توجد فروق ذات دلالة إحصائية بين متوسط درجات المجموعة التجريبية ومتوسط درجات المجموعة الضابطة في الاختبار البعدي لصالح أفراد المجموعة التجريبية. وأظهرت النتائج أنه توجد فروق ذات دلالة إحصائية بين متوسط درجات مرتفعي التحصيل بالمجموعة التجريبية ومرتفعي التحصيل بالمجموعة الضابطة، وأظهرت النتائج أنه توجد فروق ذات دلالة إحصائية بين متوسط درجات منخفضي التحصيل بالمجموعة التجريبية ومنخفضي التحصيل بالمجموعة الضابطة ؛ وكانت جميع الفروق لصالح أفراد المجموعة التجريبية.

وبناء على نتائج الدراسة أوصت الباحثة بضرورة توظيف تطبيقات الحقيقة المدمجة في العملية التعليمية، وأوصت مصممي المناهج وصناع القرار بضرورة تزويد المدارس الفلسطينية بالأدوات اللازمة لتطبيقات الحقيقة المدمجة مثل (أجهزة عرض، أجهزة حاسوب، شبكة انترنت، أيباد). وضرورة التعاون في انتاج المواد التعليمية باستخدام تطبيقات الحقيقة المدمجة والتطبيقات التقنية الأخرى.

﴿ ٱقۡرَأۡ بِٱسۡمِ رَبِّكَ ٱلَّذِي خَلَقَ ١ خَلَقَ ٱلۡإِنسَٰنَ مِنۡ عَلَقٍ ٢ ٱقۡرَأۡ وَرَبُّكَ
ٱلۡأَكۡرَمُ ٣ ٱلَّذِي عَلَّمَ بِٱلۡقَلَمِ ٤ عَلَّمَ ٱلۡإِنسَٰنَ مَا لَمۡ يَعۡلَمۡ ٥ ﴾

[العلق : 1 – 5]

Dedication

I would like to dedicate my work to:

Our great teacher and messenger, Mohammed,(peace and blessing of Allah may be upon him),

My precious mother, who has taught me to be staunch whatever the circumstances have changed,

The soul of my kind father, who was and is still my model of Patience and success,

My dear brother, Abu Ibrahim, who has encouraged and supported me to continue my study,

My lovely sisters" Etimad" & "Fayza" who have lightened my way towards success,

My beloved nephews and nieces, who submerge me in their love and tenderness,

My sincere friends, who are the source of my promotion and my strength,

Everyone ,who touches my heart and shares me in the love of Allah

Acknowledgement

In the Name of Allah, the Most Gracious, the Most Merciful

All the praises and thanks be to Allah, the Almighty, the Giver of bountiful blessings and gifts. The blessing of Allah on us are innumerable, which we have to acknowledge and appreciate. By duly thanking Allah the most generous , in fact I express my deepest thanks and gratitude to Him in return for His kind favors, support, guidance and blessing throughout the development of this study.

As the Prophet, peace and blessings of Allah be upon him, said, "**He does not thank Allah who does not thank people**" "Abu Huraira". So, I would like to take this opportunity to express my warmest thanks and gratitude to all those who have supported me during this study journey.

First and foremost, I owe a great debt of gratitude to my supervisor Prof. Awad Keshta for his useful guidance and advice throughout this dissertation. Really, without his continuous encouragement and support, this study would hardly have been completed.

Second, I express my warmest thanks and gratitude to the teaching staff in the Faculty of Education at the Islamic University of Gaza especially Dr. Magdy Aqel who provided me with valuable advice and constructive guidance. I really appreciate every doctor who has taught me a letter.

It also gives me pleasure to appreciate Dr. Jaber Abu Shawish for accepting to be the external examiner of this study. Also, I would like to thank all the committee of referees for their considerable comments and expert directions, feedback.

Moreover, I would like to extend my sincere thanks and gratitude to Mrs. Zahra Araffat, Principal of Amir Al-Mansi Basic "B" school for boys as well as the school staff especially Mrs. Fatima Al-Qidwa, the teacher of English, who has provided me with sincere support and help throughout the implementation of the experiment at the school.

Finally, special gratitude, appreciation and thanks are due to my closest friends in general for their continuous encouragement and emotional support and the beloved family members in particular for their unceasing attention and confidence and unconditional love. I sincerely thank my mother who has never forgotten me from her care and praying.

I would like to take this opportunity to present her these words "Thanks a lot my mother for giving me the best things in life, I love you so much and I pray to Allah, Almighty, to extends the life of you forever.

I am forever grateful to one and all, who directly or indirectly, have supported and encouraged me throughout this dissertation. The product of this research would not have been possible without all of them.

List Of Content

List of Tables

List of Appendixes

Abbreviation

ELT	English Language Teaching
EFL	English as a foreign language
AR	Augmented Reality
VR	Virtual Reality
SPSS	Statistical Package For Social Sciences
3D	Three-Dimensional
2D	Two-Dimensional
iOS	Internal Online System
KWL	Know- Want – Learn
QR	Quick Response

Chapter I

Background of the Study

Chapter I: Background of the Study

1-1 Introduction:

English as a mean of communication is currently the most widely spread language in the world. In today's global world, no one can deny or ignore the importance of English Language since it is the most common language spoken everywhere.

English is an international language that is spoken in many countries all over the world. It is the language of technology, science, computer, medicine, literature and commerce. In the age of globalization and internet, people are living in a small village in which they have no choices but dealing with English Language as the main means of communication (Alkhawaldeh , 2010, p. 2).

Keshta (2000, p. 4) explained that "English is a universal language; the language of communication across countries in the international world of trade, business, communication, air transportation and technology". Furthermore, it is used as a second official language next to the mother language, i.e. Arabic, and this gives the English language its importance in the Arab world in general and in Palestine in particular. Ediger and Rao (2007, p. 6) stated that English language is considered a window to the world and we can communicate almost in all places in the world with knowledge in English.

It is a known fact that English language is the most important foreign language taught in the Palestinian territories since it is a global language. Palestinian students start learning English language from the early beginning of their school. They start to study English language from the first grade when they are nearly six years old.

Verghese (2007, p. 1) stated the importance of English language by saying that of all the languages in the world today English deserves to be regarded as a world language; it is the world's most widely spoken language and it is the common means of communication between the people of different nations.

Communication is a key component in learning a second language (Shea, 2014, p. 1). Written or oral communication is best done with the

knowledge and understanding of the use of vocabulary (Elizabeth & Rao, 2006, p. 5).

Since communication is a main purpose of learning the English language and the basis of all human interaction , it is essential to focus on teaching it as a second language in general and to young learners in earlier stages, in particular.

Talking about learning a foreign language, the first thing to think about is words. Min (2013, p. 64) mentioned that a solid foundation of vocabulary knowledge is essential at every stage of the learner's second language development. Words are the building blocks of language and without them there is no language (Milton, 2009, p. 3).

Vocabulary plays an essential role in acquiring a language and it is also an important tool to express ideas, communicate effectively and construct new knowledge. Johnson (2012, p. 29) clarified that the more words we know, the faster we can organize and construct new knowledge structures. Also, Karmiloff and Karmiloff-Smith (2001, p. 67) assert, "a child's vocabulary level can also enhance or hamper her understanding of the world.

Moreover, vocabulary plays an essential role in acquiring a language and it is also an important tool to activate four language skills in English. Many researchers released the importance of vocabulary. In this concern, Wilkins (1972, p. 111) mentions that "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed". Moreover, a limited vocabulary can prevent learners from developing ideas or arguments effectively in writing. In addition, Al- Jarf (2007) notes that by acquiring new vocabulary words, students can increase their reading ability in their second language. This indicates that vocabulary is central to English language teaching because it paved the way for other skills to be mastered. It is unacceptable to understand a written text without knowing the vocabulary it consists (Abdulla, 2012, p. 21). Also, teaching and learning English vocabulary have crucial role in English language acquisition.

Mukoroli (2011, p. 8) stated that without some knowledge of vocabulary, neither language production nor language comprehension would be possible. So, the growth of vocabulary knowledge is the base of language acquisition and this growth of vocabulary can be possible when teachers employ effective vocabulary teaching and learning strategies.

However, vocabulary learning is a complex task that may require different strategies and techniques, and all students faced difficulties in understanding the meaning of 'unknown words' met in a reading text and especially in a listening text (Griva, Kamaroudis, & Geladari, 2009, p. 30). It is relatively difficult to learn new words, to keep words in mind and to recall them when needed (Tozcui & Coady, 2004, p. 98). Most EFL learners find difficulties in communicating with English language due to their limited number of vocabulary. In this sense, Saengpakdeejit (2014, p. 147) stated that insufficient vocabulary knowledge leads the learners to encounter difficulties in language learning.

Being a teacher for young learners for fourteen years, it is a hard task to have young learners involved and motivated completely for "45" minutes. Children of (8-10) can keep activities from (10 to 15) minutes long because they are quickly distracted with their surroundings. Shin (2007) stated that young learners tend to have short attention spans and a lot of physical energy. As a matter of fact, most of young learners face difficulties in learning English vocabulary; these difficulties include forgetting new vocabulary because they do not use them in the daily situations as English language is the second language. So, it is necessary to find more effective methods and strategies to improve learners' achievement and to make learning vocabulary enjoyable for children.

Technology can enhance literacy development, impact language acquisition, provide greater access to information, support learning, motivate students, and enhance their self-esteem. One source of technology that has proved to be beneficial in the classroom is Augmented Reality. Many educators and researchers investigated the impact of AR in education. AR is a valuable technology for students to acquire a richer learning experience and improve learning outcomes (Liu, Tan, & Chu, 2010 , p. 39). Also, Lee (2012, p. 19) stated that AR can make educational environments more productive, pleasurable, and

interactive than ever before. AR technology can add excitement and entertainment to the learning activities, thus increasing motivation among participants of the learning experience (Lazoudis, Salmi, & Sotiriou 2013, p. 18).

In addition, Augmented Reality technology provides the teaching and learning process with several benefits. One of the most important advantages of AR is the stimulation of several sensory modalities: touch, sight and hearing. As a consequence, it makes students actively involved in the learning process (Pérez-López & Contero, 2013, p. 26).

Augmented Reality enhances learning because it helps learners to see the real world with virtual objects such as 3D animation, video and images composited with the real world. Mahadzir & Phung (2013, p. 27) clarified that learning with realistic audio-visual contents in AR technology will motivate learners by providing a better learning environment especially for learners in primary school.

Augmented reality is a highly effective educational application owing to its ability to embed digital objects into a real environment (Liu et. al, 2010: 40). AR application is the ability to integrate digital media with the real world through the screen of a device such as a smart phone or a tablet.

Bringing Augmented Reality in the classroom, especially with English lessons, can create more positive interaction and motivation and enjoyable learning of vocabulary. Hsieh and Koong Lin (2010, p. 562) proved that AR English Vocabulary Learning System has positive usability and users enjoy the interaction with it.

The Augmented Reality English learning was novel and interesting for students learning (Hsieh et al., 2014, p. 45). Also, Lin, Hsiao, Tseng, & Chan (2014) conducted a study in which the findings suggest some promise for AR as a novel alternative in providing a vocabulary learning approach to supplement existing vocabulary instruction.

There is no doubt that students would enjoy an interactive Augmented Reality lesson because the subject would come alive and bring reality into the classroom. This motivates the researcher to utilize

AR applications to improve the third learners' English vocabulary achievement.

So, investigating the effectiveness of Augmented Reality applications may be the solution that will enhance and promote the learners' English vocabulary achievement in Gaza governorates.

1-2 **The Need for the Study**:

With the advanced technology nowadays, the traditional ways of learning vocabulary become dull and boring whereas there are so many entertainments out there which is much more interesting than the traditional methods . Therefore, the teachers have to come out with ideas which attract children attention and interest through bringing authentic and real world inside the classroom and making the learning process the more interesting. Accordingly, the researcher offers this research to help teachers and students to find a good technique to improve learners' achievement in English vocabulary by exploring the effectiveness of Augmented Reality applications.

1-3 **The Statement of the problem**:

Due to the researcher's experience in teaching the English for fourteen years , she has observed that students face a lot of difficulties in learning English vocabulary. Neither their performance in the achievement tests in English language, their motivation, nor their classroom level of participation seem to be improved. This problem lies behind the reason that young learners have short attention span in the classroom and they are quickly distracted. Also, the traditional methods and techniques that teachers implement in teaching English vocabulary do not attract learners towards practicing it effectively.

Hence it is so important to examine to what extend the use of Augmented Reality applications can help to provide effective learning that enhances students' achievement in the English vocabulary.

1-4 Research questions:

The problem of the study can be stated in the following major question:

What is the Effectiveness of Using Augmented Reality Applications on Developing Third Graders' Achievement in English Vocabulary in Gaza governorate?

Minor questions:

Accordingly, the problem can be more specific by deriving the following minor questions from the major one:

1. What are the Augmented Reality Applications used in this study?
2. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test?
3. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control group in the post test?
4. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control group in the post test?
5. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the pre and the posttest among pupils in the experimental group?

1-5 Research hypotheses:

Depending on the research questions , the researcher hypothesizes the following hypotheses :

1. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test.

2. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control group in the post test.
3. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control group in the post test
4. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the pre and the posttest among the pupils in the experimental group.

1-6 The purpose of the study:

This study mainly aims to examine if the use of Augmented Reality applications have an effect on developing the third graders' achievement on English vocabulary in Gaza governorate. This study aims at achieving the following objectives:

1. Investigating the effectiveness of using Augmented Reality applications on Palestinian third graders' English vocabulary.
2. Improving third graders' English vocabulary through the use of AR applications.
3. Familiarizing teachers with methods of implementing AR applications to help to facilitate teaching vocabulary inside their classrooms.
4. Measuring the change in third graders' achievement in English vocabulary as a result of implementing the AR applications in English language classes.

1-7 Significance of the study:

This study may:

1. Benefit English teachers in improving their performance in using technology specifically the Augmented Reality in teaching.
2. Create a positive class atmosphere and an increase in student motivation to learn.
3. Provide English supervisors with useful guidelines of incorporating technology in teaching when preparing for workshops and training courses.

4. This study paves the way for other researchers to conduct more studies about using technology especially Augmented Reality in developing other main skills as speaking , reading and writing.
5. Give an experimental model to show that more interactive technology needs to be brought into schools, in order to promote the process of teaching and learning.

1-8 Limitations of the study:

The current study had the following limitations:

Subject limit: The study was limited in teaching English vocabulary for units (2, 4, & 7) in " English for Palestine 3A " through using "Aurasma" & "Zooburst" applications.

Place limit: The study was applied in a governmental school in west Gaza.

Human limit: The study was applied to a sample of third graders studying in (Amir El Mansi Basic "B" School for Boys).

Time limit: The study was conducted in the first semester of the scholastic year (2015 / 2016).

1-9 Operational definition of terms:

1- Effectiveness:

The researcher defines effectiveness as the degree of improvement in learners' achievement level in English vocabulary as a result of implementing the Augmented Reality applications. It is measured by the achievement test designed by the researcher.

2- Application:

For the researcher, it is the (Aurasma and ZooBurst) programs downloaded on computer or tablet and prepared by the researcher to be used for augmenting the learners' reality.

3- Augmented Reality:

The researcher defines AR as the technique in which the virtual objects such as video, mage and 3D animation are immingled with the

real world through applications downloaded by the researcher in order to improve the learners' vocabulary achievement.

4- English vocabulary

Vocabulary as defined by the researcher is a group of words included in units (2 – 4 - 7) in the textbook "English for Palestine 3A", which was taught through using Augmented Reality applications.

5- Third graders:

They are (male or female) students whose ages are between (8 - 9) years and study "English for Palestine 3A" in the governmental schools.

6- High achiever:

Students whose total score in the achievement test in English vocabulary lies among the highest (27%) of other students' score.

7- Low achiever:

Students whose total score in the achievement test in English vocabulary lies among the lowest (27%) of other students' score.

Chapter II

Literature Review

Chapter II: Literature Review

According to the purpose of this study which aimed at investigating the effectiveness of using Augmented Reality applications on learning English vocabulary for the third graders in Gaza, this chapter is divided into two sections. The first section is the theoretical framework which includes two domains: the first domain is the AR and the second domain is English vocabulary learning. The second section deals with some previous studies that other researchers conducted in concern with Augmented Reality and Vocabulary Learning.

2-1 Section I: Theoretical Framework.

2-1-1 The First Domain: Augmented Reality.

2-1-1-1 Background of Augmented Reality.

To "augment something" means to increase the amount, value, size, etc. of something (Oxford Advanced Learner's Dictionary, 2015). To “augment reality” is to “intensify” or “expand” reality itself. So, Augmented Reality has been used to describe the technology behind the expansion or intensification of the real world.

Although Augmented Reality has been around for forty- five years, its rapid growth has increased at higher rates in recent years. The first AR system called "The Sword Damocles" was created in (1968) by Ivan Sutherland. It used an optical see-through-head mounted dis-play ([1]) (Kipper & Rampolla, 2013, p.8).

Also, Schmalstieg, Langlotz, & Billinghurst (2011, p. 13) confirm that the first Augmented Reality experience was developed over (40) years ago by Sutherland in (1968) and early AR applications ran on stationary desktop computers and required the user to wear bulky head mounted displays.

([1]) see-trough HMD is a device used to let the user see the real world with virtual objects superimposed by optical or video technologies.

2-1-1-2 **Definitions of Augmented Reality**:

Some researchers have proposed different definitions of Augmented Reality. However, all these definitions are based on one of the features of AR that is the possibility of superimposing virtual information to real objects. AR is a variation of Virtual Reality. VR technology completely immerses users within a synthetic environment where users cannot see the real world around him, whereas AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. AR supplements reality, rather than completely replacing it (Azuma, 1997).

Salmi, Kaasinen & Kallunki (2012, p. 285) define Augmented Reality as " a modern computer-assisted learning environment that combines the observed real world phenomena with graphically added information or images, even spatially positioned sounds can be used". Moreover, Cascales, Pérez-López & Contero (2013, p. 421) assert that AR is a technology which introduces virtual contents such as 3D computer-generated objects, texts and sounds, onto real images and video all in live time. Supporting this definition, Malik (2002) points out that AR technology generates 2D and 3D computer graphics which are accurately integrated into the real environment in real-time.

Additionally, Olalde and Guesalaga (2013, p. 323) mentioned that Augmented Reality is a live, direct or indirect, view of a physical, real-world environment whose elements are supplemented by computer-generated sensory input such as sound, video, graphics or GP data. McMahon (2014, p. 4) states that AR is a medium using technology that combines a live view of the physical world, overlaid with digital information, which can include text, pictures, audio, and video.

According to Bonsor (2001) Augmented Reality is a new technology that allows the users to see, hear, feel, and smell the computer-generated objects, which are integrated in the real world. Miyosawa, Kahane, Hara& Shinohara (2014, p. 278) also clarify that AR is the ability to superimpose digital media on the real world through the screen of a device such as a personal computer or a smart phone, to create a world full of information. Moreover, Kysela and Storkova (2015, p.

927) define AR as a way of displaying digital content in an image of the real world and its possible inter-action with the environment and the user.

The researcher believes that Augmented Reality is a technology that allows for digital information such as videos, 3D models, images or sounds to be overlaid with the real world environment through the screen of a personal computer, a tablet or a smart phone, to create a world full of information. And it can be used in teaching English language vocabulary.

2-1-1-3 **Using AR in Education**:

Augmented Reality applications can be a complement of a standard curriculum. Text, graphics, video and audio can be superimposed into a student's real time environment. Textbooks, flashcards and other educational reading material can contain embedded "markers" that, when scanned by an AR device, produce supplementary information to the student rendered in a multimedia format (Stewart-Smith, 2012).

Students can participate interactively with computer generated simulations of historical events, exploring and learning details of each significant area of the event site.

There are some applications that can be used. For instance, Construct3D, a Studiers-tube system, allows students to learn mechanical engineering concepts, math or geometry. This is an active learning process in which students learn to learn with technology (Lubrecht, 2012).

Augmented Reality can aid students in understanding chemistry by allowing them to visualize the spatial structure of a molecule and interact with a virtual model of it that appears, in a camera image, positioned at a marker held in their hand (Cadavieco, Sevillano, & Ferreira Amador, 2012, p. 202). It can also enable students of physiology to visualize different systems of the human body in three dimensions (Maier, Tönnis, & Klinker, 2009, p. 5).

Augmented reality technology also permits learning via remote collaboration, in which students and instructors not at the same physical location can share a common virtual learning environment populated by

virtual objects and learning materials and interact with another within that setting.

This resource could also be of advantage in Primary School. Children can learn through experiences, and visuals can be used to help them learn. For instance, they can learn new knowledge about astronomy, which can be difficult to understand, and children might better understand the solar system when using Augmented Reality devices and being able to see it in 3D. Further, learners could change the illustrations in their science books by using this resource. Mobile apps using AR are emerging in the classroom. The mix of real life and virtual reality displayed by the applications using the mobile phone's camera allows information to be manipulated and seen like never before. Many such apps have been designed to create a highly engaging environment and transform the learning experience. Examples of the mobile apps that leverage AR to aid learning, include Sky-View for studying astronomy (Hannes, 2016), and AR Circuits for building simple electric circuits.

2-1-1-4 Augmented Reality applications:

Augmented reality is a growing field of technology where real life is modified and enhanced by computer-generated sights and sounds**.** The most common use of AR can be seen through mobile apps**.** AR as a modern technology has a wide selections of interesting applications such as Wikitude, Augment, Aurasma, WallaMe, Quiver, Layar and ZooBurst. There are not only the above mentioned applications, but there are still more AR applications which can be used in classroom.

The researcher chose the two most important applications to be used in this study, i.e. Aurasma and ZooBurst.

A) Aurasma application:

Definitions of Aurasma application:

One of the most important Augmented Reality applications is Aurasma, which is a free mobile application available for download from the Appliction Store or Google Play. Hai-Jew (2014, p. 97) defines Aurasma as a relatively new AR application that allows users to generate visual markers within live objects and scenes. Also, Aurasma is a free

application that lets users discover, create and share amazing virtual content, integrated into the real world (Taskiran & Yilmaz, 2015, p. 136).

Moreover, Younie, Leask, & Burden (2015, p. 111) stated that Aurasma is a free application that can be downloaded on iPad or iPhone. It allows the user to blend real-world images with interactive content such as videos and other animations, referred to as auras. Carter (2013, p. 88) adds that Aurasma is a free mobile application for iOS and Android to create "auras" for Augmented Reality based on simple image recognition.

The researcher defines Aurasma as an Augmented Reality application downloaded on her tablet device and used to overlay videos, images or 3D animations that the device can scan with its camera.

Aurasma Review Background:

Aurasma's Augmented Reality technology was created in Cambridge by a British software company called Autonomy, and first demonstrated in early 2011 by Matt Mills. On May 5, 2011 Aurasma Lite was launched as an application for iPhone, and a version for Android followed on June 10, 2011(Wikipedia, 2015).

Many developers of the Aurasma Augmented Reality application refer that it is the top AR platform in the world, with more than 70,000 users in 100 countries. This means that Aurasma application is used widely through a short period of time. Also, it has a large and established user bases who are already familiar with AR.

Aurasma is characterized as the only mobile or tablet application that allows users to generate and share their Augmented Reality experiences. The application allows users to create or view AR experiences by pointing a mobile or a tablet device at a “trigger” (image or object) that has an “aura” (interactive experience featuring an animation, video, or image) attached to it.

Important Terms:

Trigger Image: A trigger image is what the Aurasma camera will recognize and show its content. This image can be a picture found online or real objects.

Overlay Content: An overlay is the image, the video or the 3D animation that will be activated when Aurasma's image-recognition software identifies a trigger image.

Aura: It means the Augmented Reality presentation that is created through the overlay Content and the trigger image. It refers to images, videos or 3D animations that appear when the tablet device is pointed to a real world image or object (http://www.aurasma.com/aura).

Benefits of using Aurasma application in Education:

In fact, applying Augmented Reality is still at its beginning in education, however, the most successful AR application that has evident effect in the process of teaching and learning is Aurasma. The benefits of using Aurasma application are listed as the following:

- Aurasma which is a marker-less can be used as a powerful tool for developing language in primary students, and as a way to augment and modify the use of a word wall in a classroom(Aurasma, 2016).
- It enables teachers to bring curriculum to life, enabling the lesson to be increasingly dynamic and interactive.
- It allows the educator to create a more independent environment for the learner
- It is able to engage students through technology and also add extra dimensions to the educational content and the learning experience.
- The Aurasma application gives an opportunity to deliver key vocabulary in a more creative way (Younie et. al, 2015, p. 111).

B) ZooBurst application

Definitions of ZooBurst application:

Mahadzir & Phung (2013, p. 27) define ZooBurst as an educational digital storytelling tool that is designed to let anyone easily create their own Augmented Reality 3D pop-up books. Also, ZooBurst is some kind of project based learning platform designed and developed for AR based e-learning approach. The application allows users to design and create their own 3D objects for developing digital stories collaboratively(Khosrow-Pour, 2015, p. 7510).

Additionally, Churchill, Lu, Chiu& Fox (2016, p. 103) point out that ZooBurst is another system which allows students to design their own 3D pop-up books whereas storytellers choose one of the books on the website and then simply hold the ZooBurst marker in front of their webcam. Repman & Dickinson (2015, p. 309) add that Zooburst is the wonderful storytelling resource that offers students the opportunity to create their own 3Dpop books that can include sound, narration and images.

The researcher defines Zooburst as an Augmented Reality educational application that creates interactive 3D pop- up books on the computer screen using a webcam and an internet connection. This application was signed in by the researcher with a teacher's account and used to teach English vocabulary.

Zooburst application Background:

ZooBurst application which was first launched in 2011 by Craig Kapp, was named an AASL Best Website for teaching and learning way. It was conceived in the purpose of facilitating learning opportunities by providing access to unique resources such as creating 3D pop-up book with Augmented Reality technique.

In fact, ZooBurst application is used by over 150,000 educators and teachers across the world. It is used widely in education since it provides students with new ways in which they can tell stories, deliver presentations, write reports and express complex ideas.

Types of ZooBurst Accounts:

There are two types of ZooBurst accounts; these accounts are "Basic" and "Premium"

Basic account:

This account is completely free that anyone with a valid e-mail address can sign up and interest working with ZooBurst application. It also allows users to make up to 10 books, and the books can have up to 10 pages. However, it has limited features compared to the paid versions.

Premium account:

This account is a monthly or yearly paid version that offers a much larger range of features such as integrating audio and speech, creating unlimited number of 3D pop-up books and accessing to the ZooBurst classroom management system.

Benefits of using ZooBurst application in Education:

Another Augmented Reality application that proved its effectiveness in education and could be used in the classroom even in the elementary grades is the ZooBurst application. Although ZooBurst has not been specifically designed for language teaching and learning; it is a flexible tool that it could be used for this purpose and it is already widely available in schools. The benefits of using ZooBurst application are listed as follows:

- The Augmented Reality 3D pop-up book played an important role in learning selected aspects of the English language (Vate-U-Lan, 2012, p. 894).
- ZooBurst is a promising application for language teaching and learning; it enables the integration of all of the language skills. It also allows pupils to build on the skills they already have in an interactive, meaningful way (Salmon & Nyhan, 2013, p. 62).
- ZooBurst app gives students an opportunity for total immersion that increases motivation as well as allows students to improve performance.
- ZooBurst provides students with new ways in which they can tell stories, deliver presentations, write reports and express complex ideas.

2-1-1-5 **Augmented Reality Mode**:

Augmented reality mode allows users to merge the virtual book with the real world using a standard webcam. Users can click on the 'Webcam Mode' button and hold up a special symbol (the black and white ZB) to the webcam to watch as a 3D pop-up book "jumps" out of the paper.

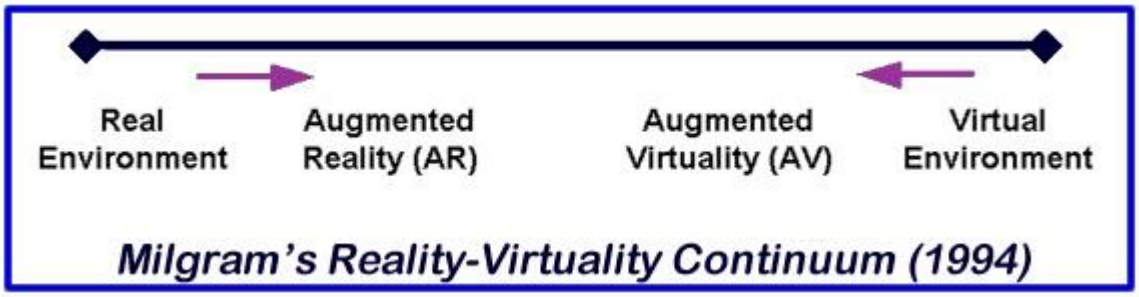
Moreover, the users have the ability to interact with a book using simple gestures by clicking on the "Always on Screen" button and

waving your hand left and right to turn the pages of your book back and forth. The book will appear on the screen without holding up the printed ZB symbol(www.zooburst.com).

2-1-1-6 **Similarities and Differences between Virtual Reality and Augmented Reality**:

Most scientists believe that Virtual Reality is not the same as Augmented Reality, there are more differences between VR and AR than similarities. VR is the complete immersion into a digital world either based on a real model or completely fabricated, however, AR is the blending of digital information within a real-world environment (Kipper & Rampolla, 2013, p. 22).

Augmented reality and virtual reality are inverse reflections of one in another with what each technology seeks to accomplish and deliver for the user. VR offers a digital recreation of a real life setting, while AR delivers virtual elements as an overlay to the real world (http://www.augment.com).



This means that Virtual Reality differs from Augmented Reality and the only similarity between VR and AR is that both can use different digital information, visual programing and simulation to create the experience.

Virtual Reality is a computer simulated reality in which a user can interact with replicated real or imaginary environments. The experience is totally immersive by means of visual, auditory and haptic (touch) stimulation, so the constructed reality is almost indistinguishable from the real deal. You are completely inside it.

Marked by clunky beginnings, the idea of an alternate simulated reality took off in the late 80s and early '90s, a time when personal

computer development exploded and a lot of people became excited about what technology had to offer. These attempts, like the disastrous Nintendo Virtual Boy which shut down after only one year, were marked by failure after failure, so everyone seemed to lose faith in VR (http://www.zmescience.com).

While Virtual Reality completely immerses the user in a simulated reality, Augmented Reality blends the virtual and real. Like VR, an AR experience typically involves some sort of goggles through which you can view a physical reality whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data. In AR, the real and the non-real or virtual can be easily told apart (http://www.zmescience.com).

Also, Augmented Reality is a technology that layers computer-generated enhancements atop an existing reality in order to make it more meaningful through the ability to interact with it. AR is developed into apps and used on mobile devices to blend digital components into the real world in such a way that they enhance one another, but can also be told apart easily.

How are Virtual Reality and Augmented Reality Similar?

***Technology*:** Augmented and Virtual Realities both leverage some of the same types of technology, and they each exist to serve the user with an enhanced or enriched experience.

***Entertainment*:** Both technologies enable experiences that are becoming more commonly expected and sought after for entertainment purposes. While in the past they seemed merely a figment of a science fiction imagination, new artificial worlds come to life under the user's control, and deeper layers of interaction with the real world are also achievable. Leading tech moguls are investing and developing new adaptations, improvements, and releasing more and more products and apps that support these technologies for the increasingly savvy users.

How do Augmented and Virtual Realities Differ?

***Purpose*:** Augmented Reality enhances experiences by adding virtual components such as digital images, graphics, or sensations as a new layer

of interaction with the real world. Contrastingly, Virtual Reality creates its own reality that is completely computer generated and driven.

***Delivery Method*:** Virtual Reality is usually delivered to the user through a head-mounted, or hand-held controller. This equipment connects people to the VR, and allows them to control and navigate their actions in an environment meant to simulate the real world. Augmented Reality is being used more and more in mobile devices such as laptops, smart phones, and tablets to change how the real world and digital images, graphics intersect and interact.

How do they work together?

It is not always Virtual Reality vs. Augmented Reality– they do not always operate independently of one another, and in fact are often blended together to generate an even more immersing experience. For example, haptic feedback-which is the vibration and sensation added to interaction with graphics-is considered an augmentation. However, it is commonly used within a VR setting in order to make the experience more lifelike though touch.

Virtual Reality and Augmented Reality are great examples of experiences and interactions fueled by the desire to become immersed in a simulated land for entertainment and play, or to add a new dimension of interaction between digital devices and the real world. Alone or blended together, they are undoubtedly opening up worlds-both real and virtual alike (http://www.augment.com).

2-1-2 The Second Domain: Vocabulary.

For a large majority of learners, the ultimate goal of studying is to be able to communicate in a new language. If you do not wish to learn completely on non-verbal skills, mastering vocabulary is not just important, but crucial in a foreign language environment.

Vocabulary represents one of most important skills necessary for teaching and learning a foreign language. It is the basis for the development of all the other skills: reading comprehension, listening comprehension, speaking, writing, spelling and pronunciation. Vocabulary is the main tool for the students in their attempt to use English effectively (Laraba, 2007, p. 136).

2-1-2-1 Vocabulary definitions:

Harmer (1993, p. 33) defines vocabulary as: a list or collection of signs or symbols constituting a mean or system of non-verbal communication. Nash & Snowling (2006, p. 336) describe vocabulary as the knowledge of words and their meanings.

Beck, McKeown, & Kucan (2008, p. 1) define vocabulary as words that a reader recognizes in print and learning meanings of new words. Michael (2013, p. 5) notes that English vocabulary having two main appearances, orthographical and phonological: a stand- alone language items, which possesses meaning, or a combination of stand- alone items often called a multiword which may or may not consist of morphological components such as; acronyms that can carry meaning in an unusual way

Al- Faleet (2013, p. 12) defines vocabulary as a collection of words in the language, every word has its own meaning and is understood by others.

In the light of above definitions, the researcher defines English vocabulary as a set of words and often phrases that make up a language that helps people to communicate with each other and it is words that people arrange together to make sentences, conversation, discourses of all kinds.

2-1-2-2 Knowledge of words:

Many linguists point out the same components of word knowledge, only the diagrams used by them are a little bit different. According to Fromkin, Rodman, & Hyams (2010, p. 5) knowing a language means knowing that certain sequences of sounds signify certain concepts or meanings. When you know a language, you know words in that language, that is, which sequences of sounds are related to specific meanings and which are not. Thornbury (2002, p. 15) mentions that knowing a word involves knowing: its form and its meaning. Also, foreign language vocabulary learning is determined by the similarities that may exist, at different levels, between the first language and the second or foreign language learnt (Laraba, 2007, p. 136).

Harmer (2007, p. 35) indicates that the least problematic issue of vocabulary is meaning.

Nagy & Scott (2000) indicate five aspects of the concept of vocabulary knowledge. These aspects are:

1- Incrementally: it means that one's knowledge of words grows gradually and takes place in many steps.
2- Polysemy: meaning that words have more than one meaning. The more frequent a word is in the language, the more meanings it is likely to have.
3- Multidimensionality: it means that word knowledge consists of several qualitative aspects of knowledge.
4- Interrelatedness: means that the knowledge of any given word is not independent of the knowledge of other words.
5- Heterogeneity: meaning that knowing a word depends on the kind of word and the knowledge that a person already has about the word.

Lin (2002) indicates three points for acquiring a word:

1- Recognizing the form of the word, i.e. it's part of speech; verb, noun, adjective, adverb, or a preposition.
2- Retrieving the meaning of the word, i.e. being able to know a word’s meaning and remember it.
3- Using the word appropriately in other contexts.

The researcher agrees with Harmer (1991, p. 158) because it is the most comprehensive and distinguishes four main areas of word knowledge:

Word	**Meaning**	Meaning in context
		sense relations
	Word use	Metaphor
		Collocations
		Style and register
	Word information	Parts of speech
		Prefixes and suffixes
		Spelling and pronunciation
	Word grammar	Nouns: countable and uncountable
		Verb comprehension and phrasal verb
		Adjectives, adverbs, and prepositions

2-1-2-3 The importance of learning vocabulary:

Vocabulary can be a key factor for success, central to a language, and paramount to a language learner. In such a situation, the lexicon may be the most important component for learners (Al Farra, 2014, p. 2).

Harmer (1992) said that if language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh. An ability to manipulate grammatical structures does not have any potential for expressing meaning unless words are used.

Vocabulary knowledge may make the meaning of grammatical functions more transparent to learners.

Read (2000) states that words in a given language are the most basic units of meaning and users of the language form phrases, sentences and larger units of meaning by using words. Vocabulary is also the foundation for reading comprehension. The relationship between reading and vocabulary size is a complex and dynamic one. This relationship can be viewed from two different points of view: the effect of vocabulary size on reading comprehension, and the effect of reading on vocabulary size.

Vocabulary has much effect on other English skills: writing, speaking, listening and reading. Wafi (2013, pp. 25 – 26) supports that by saying a good command of many words will make you a better writer,

speaker, listener and reader. Also Lewis (1993, p. 88) asserts that giving attention to vocabulary is unavoidable. Even the most formal or communication- directed approaches to language teaching must deal with needed vocabulary in one way or another.

To exemplify, McCarthy (1990, p. VIII) claims that, even if learners manage to master grammar and sounds of the second language, without words to express a wide range of meanings, communication in the second language just cannot happen in any meaningful way.

Vocabulary is central to English language teaching because without sufficient vocabulary students cannot understand others or express their own ideas. While without grammar very little can be conveyed, without vocabulary nothing can be conveyed. This means that if a person has some useful words and expressions without having knowledge of grammar, he can often manage to communicate. Lewis (1993, p. 89) went further to argue, lexis is the core or heart of language. Particularly as students develop greater fluency and expression in English, it is significant for them to acquire more productive vocabulary knowledge and to develop their own personal vocabulary learning strategies.

Students often instinctively recognize the importance of vocabulary to their language learning. As Schmitt (2010, p. 4) noted, learners carry around dictionaries and not grammar books. Teaching vocabulary helps students understand and communicate with others in English.

The researcher concludes that concept vocabulary is the most important part for learning any language. It is impossible for the learners to read, write, speak and listen to any foreign language without having enough knowledge of vocabulary.

2-1-2-4 Types of vocabulary:

There are many vocabulary classifications, the researcher collected the most important of these classifications:

Milton (2009, P. 227) classifies vocabulary related semantics to into Notional words and Functional words. Notional words are nouns, pronouns, adjectives, numerals, verbs, adverbs; they name objects,

actions, quality and so on, whereas, functional words are articles, prepositions, conjunctions, interjections, and so forth.

Wafi (2013, p. 27) classifies vocabulary related to communicative language teaching into receptive and productive vocabulary. The receptive vocabulary refers to learner's understanding of vocabulary when he hears or reads it. In other words, it is words that learners recognize while hearing, listening or reading. Receptive vocabulary denotes the understanding of words or phrases in verbal or written scenarios.

Before we are able to use a word correctly and fully, we have to know quite a bit about it. An important distinction exists, therefore, concerning the words that you have locked in your brain. To capture this distinction, we use the terms receptive and productive: in receptive control of the words that you understand when we hear them or read them. but in productive control of the words that we use to express yourself, in speech or in writing (Benjamin & Crow, 2012, p. 4).

This difference in vocabularies is easy to understand. When you read or listen, the words have already been used in context; your primary job is to extract meaning from them. You are not required to know everything about a word in order to understand it fully.

According to wafi (2013, pp. 28 – 29), Martin Sims' (1989) put the following classification:

1- **Reading vocabulary:** A literate person's reading vocabulary is all the words he or she can recognize when reading. This is generally the largest type of vocabulary simply because a reader tends to be exposed to more words by reading than by listening.
2- **Listening vocabulary:** A person's listening vocabulary is all the words he or she can recognize when listening to speech.
3- **Speaking vocabulary:** A person's speaking vocabulary is all the words he or she uses in speech. It is likely to be a subset of the listening vocabulary. Due to the spontaneous nature of speech, words are often misused. This misuse though slight and unintentional – may be compensated by facial expressions, tone of voice, or hand gestures.
4- **Writing vocabulary:** Words used in various forms of writing from formal essays to Twitter feeds. Many written words do not

commonly appear in speech. Writers generally use a limited set of words when communicating.

5- **Focal vocabulary:** Focal vocabulary is a specialized set of terms and distinctions that are particularly important to a certain group, those with a particular focus of experience or activity.

2-1-2-5 The task of vocabulary learning:

One way to see the overall task of vocabulary learning is through the distinction between knowing a word and using it. In other words, the purpose of vocabulary learning should include both remembering words and the ability to use them automatically in a wide range of language contexts when the need arises (Yongqi, 2003, p. 4).

In fact, evidence suggests that the knowledge aspect (both breadth and depth) requires more conscious and explicit learning mechanisms whereas the skill aspect involves mostly implicit learning and memory (Ellis, 1994, p. 40). Vocabulary learning strategies, therefore, should include strategies for "using" as well as "knowing" a word.

Another way to view vocabulary learning is to see it as a process of related sub-tasks. When learners first encounter a new word, they might guess its meaning and usage from available clues. Some learners might proceed to look it up in the dictionary. Others might take down notes along the margins, between the lines, or on separate vocabulary notebooks. Some learners will repeat the new word a number of times until they are comfortable with it. Others will go beyond simple rote repetition to commit the word to memory. Some would even try to use the word actively. Each of these task stages demands metacognitive judgment, choice, and deployment of cognitive strategies for vocabulary learning. And each strategy a learner uses will determine to a large extent how and how well a new word is learned (Yongqi, 2003, pp. 4 – 5).

Renatha (2009, p.45) also adds "The success of the students in learning English vocabulary depends on the strategy used by teachers in teaching English vocabulary because the method of English language teaching is one of the very important parts which will give influence to the children for increasing their ability." There are many traditional pedagogical methods for vocabulary acquisition. They include word-lists,

dictionary use, workbooks, teacher-made materials, group discussion, and visuals such as pictures and real objects. Yet developing effective pedagogical methods for vocabulary acquisition continues to demand attention and exploration (Iheanacho, 1997, p.72).

Furthermore, Brummitt-Yale (2009, p.127) states some effective explicit and implicit strategies that can be employed with students of any age as follows:

1- Explicit Vocabulary: Instruction which includes: (Pre-teaching Vocabulary Words, Repeated Exposure to Words, Keyword Method, Word Maps.
2- Implicit Vocabulary: Instruction which includes: Incidental Learning, Context Skills.

2-1-2-6 Techniques in vocabulary teaching:

Learners acquire vocabulary in various ways. Students are exposed to a lot of new vocabulary during lessons, by the teacher, by texts or by other materials they work with. A lot of this vocabulary is automatically absorbed (Harmer 1993, p. 159). Besides this incidental acquisition, there are "pre-planned lesson stages in which learners are taught pre-selected vocabulary items" (Thornbury 2004, p. 75). Various techniques and activities are aimed directly at learning vocabulary, which is usually put into sets of somehow related words, often by topic or meaning. As McCarty (1992) suggests, before presenting new language, pre-teaching activities might be beneficial to activate existing knowledge to make the encounter with new words more meaningful (McCarthy 1992, p. 108). Pre-teaching activities often arouse students' attention and desire to explore a particular topic or subject in greater detail. Both McCarthy (1992, p. 110) and Thornbury (2004, p. 76) suggest two general possibilities of arranging vocabulary presentation. The teacher provides the learners with the meaning of the words and then progresses to introduction of their forms or vice versa – the form is introduced first, followed up with illustration of the meaning.

In the latter, forms are often presented in text or another form of context and students are encouraged to discover meanings and other properties of words themselves. This type of activity is called the discovery technique (Harmer, 1993, p. 160). There are many possibilities

concerning how to explain or illustrate the meaning of the words. In the first place, it is necessary to mention techniques typical for" the Direct Method" as Thornbury (2004, p. 78) specifies them “using real objects (called realia) or pictures or mime”. The same author continues that these means are especially appropriate for teaching elementary levels, where many concrete objects are taught. These types of presentation are usually supplemented with the use of TPR (Total Physical Response), which is a technique where the teacher gives commands and students perform the actions. In TPR, “the intention is to replicate the experience of learning one's mother tongue” (Thornbury 2004, p. 79). As Harmer (1993, p. 161-162) suggests, sense relations, definition and direct translation of words might function as yet another helpful tool for clarifying the meaning. Thornbury (2004) lists these options as well and furthermore includes an idea of clarifying the meaning by examples, such as “providing an example situation” or “giving several example sentences” (Thornbury, 2004, p. 81).

All these techniques are more or less useful for a particular situation, level and vocabulary. The best way would be in many cases to combine them and use several together. Besides explaining the meaning in vocabulary presentation, it is also important to focus on forms, since the sound of words is one of the aspects influencing the organization of the mental lexicon (Thornbury, 2004: 84; McCarthy, 1992, p. 110). This is arranged by various drilling activities. From experience, songs and chants are very suitable for drills, providing rhythm, catchy rhymes and an element of fun. As Thornbury (2004, p. 7-86) suggests introducing the written form of the word should follow not long after the presentation of the pronunciation. After presentation, learners should be provided with plenty of opportunities to practice the newly gained language since it is crucial for successful remembering.

Furthermore, as Thornbury (2004, p. 93) calls for the necessity of integrating new vocabulary into existing knowledge in the mental lexicon, which is done by types of activities, where students make judgments about words, e.g. matching, comparing. This mechanical practice is then followed by more open and communicative activities “where learners are required to incorporate the newly studied words into some kind of speaking or writing activity.” (Thornbury 2004, p. 100). This is often provided by various pair-work or group-work activities.

2-2 Section II: Previous studies

The study includes three domains which are reviewing previous studies to the current study. The first domain presents the studies related to Augmented Reality with English language which is considered the essential part in the study. The second one presents the studies related to AR with other school subjects. The third domain tackles the studies related to vocabulary learning.

2-2-1 Previous studies related to Augmented Reality with English language.

Solak & Cakır (2015) adopted a descriptive research model which aimed to determine the motivational level of the participants in a language classroom towards course materials designed in accordance with Augmented Reality technology and to identify the correlation between academic achievement and motivational level. The participants of this study were 130 undergraduate students from a state-run university in Turkey. Also, a Turkish version of Material Motivational Survey was used to determine the undergraduate students' motivational level about the materials which were designed with AR technology to teach English words at the elementary level. In this study, the material was designed with AR technology with an animation and the pronunciation of the word embedded into the program. The results of this study suggested that AR technology materials had positive impact on increasing undergraduate students' motivation towards vocabulary learning in language classroom. Also, there was a positive significant correlation between academic achievement and the motivation in the use of AR technology in language classroom.

Likewise**, Ghasemi & Javidan (2014)** presented a model for development of Augmented Reality in English training for children in Iran. This paper provided a model for application of Augmented Reality (AR) in mobile learning in order to teach children English as a second language. The major idea of this model is to provide data to the student via cell phone and AR technology that covers teaching materials which is referred to recognized images. Students in their English classrooms might learn (e.g. name, spell, Synonymous, and 3D picture of objects) with simply pointing to the targets. In this model 20 students with different

ages were asked to work with this software, and learn object ‘s name using this application. After explanation of software and work with model, questionnaire survey was given to twenty students to get their points. Also, a one-sample t-test was applied to analyze the answers to the questionnaires to determine the degree of satisfaction. Finally, results showed that AR could be helpful for children and make the way easier in writing, grammar, and conversation, Even this kind of training could be used not only for learning second language but also for other skills training to children.

Moreover, **Hsieh, Kuo and Koong (2014)** aimed to develop a Mobile Augmented Reality English Learning Application that assist students in English learning by themselves. In this study , the course content was based on English prepositions of place with multimedia formats including text, voice, graphic, movie and interaction based on Augmented Reality. The participants in the experiment were (106) seventh-grade students from 6 classes at a junior high school in Southern Taiwan. Two questionnaires were administered to the students; instructional materials and motivation survey (IMMS), and acceptance questionnaire . The results indicated that students highly recognized the ease-of-use and usefulness of the mobile AR English learning application. The Mobile AR English learning environment and the effectiveness of AR technology on enhancing the learning environments were significant.

Also**, Li et. al (2014)** conducted a study that focused on how an Augmented Reality application might influence the motivation of English vocabulary learning in a group of Chinese students. The researchers adopted a qualitative approach and collected data through a semi-structured interview with open-ended questions after user testing. All participants were graduate students at Purdue who had been learning English for several years. Only one user had prior experience using AR technology. This study used a free-to-download AR application named "Aurasma" to investigate AR’s influence on students’ English vocabulary learning motivation. The results of this study indicate that AR may have potential to increase students’ motivation toward English vocabulary learning. Also, the researchers recommended that future studies should be expanded to different non-native English speaking countries and compared to those of native English speaking countries.

Likewise, **Mahadzir and Phung (2013)** described the use of Augmented Reality in enhancing English language learning which focuses on English grammar among Malaysian primary school students. In this research study ,the AR pop-up book is developed using the ZooBurst application tool through the step by step of ARCS motivational design process The researcher adopted the qualitative method. The data was collected in the forms of observations checklist and semi-structured interviews and analyzed using content analysis procedures through SPSS program. Results showed that through augmented reality (AR) technologies and motivation, classroom can be even more immersive and inspiring for students, thus enhance their performance.

Furthermore**, Salmon and Nyhan (2013)** created an evaluative framework aiming to provide a more learner-centred approach to the analysis, evaluation and implementation of Augmented Reality technology for language teaching and learning in the classroom. This framework was tested by using a series of case studies dealing with existing AR applications for language teaching and learning and those which could be repurposed. The researchers suggested a number of software tools that are suitable for language teaching and learning included: ZooBurst and Second Sight. The researchers found that the case studies of AR applications for language teaching and learning have demonstrated that the applications with the most potential for language teaching and learning are those which state their pedagogical aims explicitly: ZooBurst, Campus Life, Mentira and SmashCards. This study concluded that the evaluative framework created in this study has established a potentially useful baseline for making decisions about the possible use of AR applications for teaching and learning in the classroom. Moreover, the researchers hold that the integration of such a framework with existing digital humanities and computer science methods of evaluation may result in a more objective and interdisciplinary framework that can be used for the evaluation of such software.

Additionally, **Beder (2012)** adopted quantitative and qualitative research to ensure that the use of Augmented Reality can facilitate language learning and explore the actual performance differences in language vocabulary learning between a traditional method and an AR

tool. This AR Language Learning Tool facilitated vocabulary learning by displaying 3D objects along with their spelling and providing audio of pronunciation. In this study, the researcher included (20) Participants in Sweden who were divided into two equal groups; the control group learned new vocabulary through classic flashcards and the other group used the developed AR learning device. To collect data a vocabulary knowledge scale questionnaires were provided for both groups right after learning and one week later. Findings showed that there is a positive improvement in long term recall rate in the AR Language Learning Tool group when compared with the flashcards learning group. Participants' answers were very positive and provided proof that mobile AR is a viable method of learning vocabulary.

Moreover, **Vate-U-Lan (2012)** conducted a quasi-experimental research on an Augmented Reality curriculum materials (3D pop-up book) and development project which employs storytelling as a teaching technique in a blended learning environment for Grade Three students in Thailand learning English .There were (99) students who purposively selected for piloting and testing in the research and development process. The researcher designed a pre and post-test to collect data .The research found that the AR 3D pop-up book played an important role in learning selected aspects of the English language. Also, the results have confirmed the potential of AR for academic purposes especially in enhancing the learning of Grade Three students.

In addition, **Hsieh and Koong Lin (2010)** aimed to present the Augmented Reality English Vocabulary Learning System (AREVLS) with immersive English Vocabulary learning in Taiwan. The program consists of two components: (1) Magic Book, and (2) Card Matching System. Participants were teachers in elementary schools and kindergartens, English-learning beginners, and householders who were asked to receive the task assignment and started using the system. To collect the data, the researchers used interviews with the users and System Usability Scale questionnaire. The findings of the evaluation results show that AREVLS has positive usability and users enjoy the interaction with it. Presenting the AR in English Vocabulary Learning will be the same aim of both studies. Results may be similar to those in

the one above. By contrast, the program of AR and the sample of participants and procedures of collecting data will be different.

Likewise**, Chang and Chen (2011)** used Augmented Reality technology to implement an AR-learning system for English vocabulary learning. This study was conducted to investigate learners'satisfaction and behavioral intention, as well as the effectiveness of the AR-learning system. The proposed AR-learning system allowed the learner to see the text word and composited it with the 3-D virtual object of the word when learning English vocabulary. Data were gathered by means of a paper-and-pencil survey and questionnaires were distributed randomly to 140 university students in Taiwan, all of whom answered the questionnaire. The results of this study have revealed that the AR-learning system is a potential learning tool for learners. The 3D virtual object can attract students' attention while learning, thus enhancing learning effectiveness.

Furthermore**, Hsieh and Lee (2008)** conducted a study that proposed a system that can support children to learn English, providing different kinds of learning stimulation through the application of Augmented Reality. This study mainly proposed an idea on reducing complexity and increasing capacity of designing AR markers in Hong Kong . The researchers presented an AR English Learning System which helped kindergarten children to learn English. ARELS can present formats such as texts, images, music, animation, movies, and 3D models by user controlling English word marker. Each AR English word card corresponds to each 3D virtual object respectively. In conclusion, ARELS not only offers different learning stimulation but also supports traditional education to achieve a human-computer interaction learning purpose. Also, students can have more fun in learning and interact better with teachers than before in the AR learning environment.

Also, **Liu et al. (2007)** conducted a pilot study to construct a 2D barcode and handheld Augmented Reality supported learning system called (Handheld English Language Learning Organization), to improve students' English level in Taiwan. The proposed system consists of two subsystems: an English learning management system and a mobile learning tools system. A four-week experiment was conducted with twenty college students and a questionnaire survey was administered at

the end of experiment. The evaluation results indicate that 2D barcodes and AR technology are useful for English learning.

2-2-2 **Previous studies related to Augmented Reality with other subjects**.

Cai, Wang and Chiang (2014) aimed to develop an inquiry-based Augmented Reality learning tool for junior high school chemistry courses, examine its effect on students' cognitive performance, compare its effects on high-achieving and low-achieving students and investigate students' attitudes toward the software. This study involved 29 students in Grade 2 including 16 boys and 13 girls. The experiment of the software's impact was conducted in a junior high school in Shenzhen, China. To collect data, the researchers used pre-test and post-test scores that represented the AR tool's learning effect and a questionnaire that surveyed students' learning attitudes toward this AR learning tool. The experiment result showed that the AR tool is beneficial in improving middle school students' cognitive test performance on corresponding content, and has relatively larger influence on low-achieving students. Also, students generally hold a positive attitude toward the AR tool and enjoyed the exploration experience.

Moreover**, Chiang et. al (2014)** tried an experiment to examine the effectiveness of the Augmented Reality-based mobile learning approach. The participants of this experiment were 57 fourth graders from two classes taught by the same teacher in an elementary school in northern Taiwan. The material used in this study was a fourth grade natural science unit on aquatic animals and plants. The researchers conducted a pre and posttest to assess the students' learning achievements, learning motivation questionnaire and a cognitive load survey. The experimental results showed that the proposed approach is able to improve the students' learning achievements. Also, it was found that the students who learned with the AR-based mobile learning approach showed significantly higher motivations in the attention, confidence, and relevance dimensions than those who learned with the conventional inquiry-based mobile learning approach.

Likewise**, Matcha & Rambli (2013)** aimed to explore the affordance of Augmented Reality technology to support collaborative

science learning process in Malaysia. In this experiment, electricity topic was chosen as a case study. The prototype called AR Circuit was developed by using ARToolkit tracking libraries. Black and white squared paper called" marker" was used for interaction. There were (16) participants voluntarily participated in the study, they were grouped into pair to conduct the science experiment. The data was collected from the analysis of video recording of students' behavior as well as from the survey questionnaire on the user awareness of communication and interaction. This study showed positive evidence to strengthen the raised conjuncture that AR could be one of the effective tools to support collaborative learning.

In addition**, Pérez-López & Contero (2013)** presented a study to analyze the use of Augmented Reality for delivering multimedia content to support the teaching and learning process of the digestive and circulatory systems at the primary school level, and its impact on knowledge retention. The participants of this study were 39 fourth grade Spanish students of two different classes during a period of two months. The data was collected by direct observation of children behavior and through a questionnaire. Results showed that the use of AR system provides several benefits over traditional teaching methods. One of the most important advantages is the stimulation of several sensory modalities: touch, sight and hearing. Also, it makes students actively involved in the learning process.

Also**, Salinas et. al (2013**) conducted a qualitative case study to apply Augmented Reality technology in the educational process through a didactic prototype that promotes visualization skills related to the learning of mathematical content. In this study, 30 students invited to participate, all of them coursing Mathematics for Engineering. Data collection consist on the video sessions and a survey designed in order to compare the information obtained in both the video analysis and the survey analysis. Results confirmed that AR technology in education increases the current motivation to learn by students. Also, students considered that AR application was practical, simple and attractive. It is a friendly app, and the video is a nice addition.

Furthermore, **Shelton & Hedley (2002)** investigated the potential of Augmented Reality through utilizing ARToolkit to help teach

undergraduate geography students about earth-sun relationships. This research explored the potential of AR to advance visualization tools in education and for the design and development of learning technologies. The participants of the AR exercise were thirty-four students enrolled in Geography 205 at the University of Washington. The data collection was Pre- and post-assessment worksheets and videotaped AR exercise. The findings demonstrate the potential benefits of using AR visualization interfaces in education and training. Also , there was a significant overall improvement in student understanding after the AR exercise, as well as a reduction in student misunderstandings.

2-2-3 **Previous studies related to Vocabulary learning**.

Yunus et. al (2016) attempted to explore the effect of using CALL on vocabulary acquisition of EFL learners. This study reviewed the efficacy of CALL-based method on English vocabulary knowledge of EFL learners. This study gave an overview of previous international and Iranian researches on CALL-based vocabulary instruction. Then, it discussed the use of different tools and software which have already been applied in vocabulary learning process. The results confirmed that CALL users benefited from CALL and CALL-based method had the potential to greatly improve EFL Learners' English vocabulary competence. From reviewing many studies, the researcher found that CALL application in vocabulary learning is more beneficial and helpful for the learners in comparison to other methods and techniques.

Likewise**, Abdal Rahim (2015)** investigated the effectiveness of KWL strategy on Palestinian eleventh graders' reading comprehension, vocabulary and its retention and students' attitudes towards English. To achieve the study aims, the researcher adopted the experimental approach on a sample of (64) male students from the scientific stream at Al Manfalouti Secondary School for Boys. The participants were divided into two equivalent groups. The researcher used (5) instruments to achieve the study aims: 1) a checklist for teachers to determine the five most important reading comprehension skills, 2) a pre and post reading comprehension test, 3) a pre and post vocabulary test, 4) a delayed vocabulary retention test, and 5) a pre and post attitude scale towards English language. The researcher used the KWL strategy in teaching the

experimental group, while the traditional method was used in teaching the control.

The study results revealed that the KWL strategy was effective in developing reading comprehension, vocabulary and its retention and in enhancing the attitudes of students towards English language. The findings indicated that there were significant differences in the mean scores of the experimental group and that of the control group in the post reading comprehension test in favor of the experimental group, which was attributed to the effectiveness of KWL strategy. The findings also pointed out that there were statistically significant differences in the mean scores of the experimental group and that of the control group in the post vocabulary test in favor of the experimental group, which was ascribed to the effectiveness of KWL strategy.

Moreover**, Arikan and Ozen (2015)** focused on the process of developing a learning environment that uses tablets and Quick Response codes to enhance participants' English language vocabulary knowledge. The researchers conducted the study at a private school in Turkey with (22) participants who possessed mobile devices. In this study, the learning environment integrated digital learning materials and real learning objects using QR codes. After the activities, students' knowledge of English vocabulary was again tested using the VCL, and the participants' opinions about the learning environment were solicited using semi-structured interviews. Then, the research's qualitative data were analyzed using a descriptive analysis. Finally, The results of the VCL post-test indicated that participants' English language vocabulary knowledge had increases significantly. Also, participants' opinions regarding the learning environment were analyzed, and it was determined that they experienced a general feeling of curiosity and excitement while using the environment. They found the environment entertaining and reinforcing, stating that learning environments of this kind should be used in other courses.

Furthermore**, Jingjit (2015)** adopted a quasi-experiment to obtain a more insight regarding the effect of multimedia learning on third grade of Thai primary pupils' achievement in size and depth Vocabulary of English. The researcher-design multimedia program was developed to present the learning material in three modes; such as text, picture, and

sound The participants of this study consist of (42) pupils derived from the third grade of Municipal School 2 located at southern Thailand. Also, three assessment instruments were applied in this study; pretest instrument, time series instrument, and posttest Experiment. This study found that implementation of multimedia learning is able to promote pupils' achievement in size of vocabulary knowledge but not to depth of vocabulary knowledge. Moreover, the researcher found that multimedia learning was perceived as an effective instructional media in English learning for the third grade of Thai primary pupils.

Also**, Al-Farra (2014)** investigated the effectiveness of using Smart Boards in developing tenth graders' vocabulary achievement, retention and attitudes towards English. To achieve the study aims, the researcher adopted the experimental approach with two groups' pre and post-test design (experimental and control). To collect data, the researcher prepared these tools: 1) An achievement test (pre, post and delayed) 2) An attitude scale (pre and post) to determine the students' attitudes towards English language 3) A teacher's guide using the Smart Board. After examining the validity and reliability of the tools, the tools were implemented on the study sample represented in (85) male students from Khalid EL-Hassan School who were randomly selected from the original population of (1743) students in West Khanyounis Directorate of Education 2013-2014. The sample was divided into two groups: the experimental group consisting of (44) students and the control one consisting of (41) students. The two groups were similar in their age, previous learning, achievement in general and achievement in English language.

The study revealed that there were significant differences in the scores of the control and the experimental groups in favor of the experimental group on the vocabulary post- test which was attributed to the effectiveness of the Smart Board. The findings also pointed out that there were statistically significant differences in the students' post attitudes towards English before and after implementing the Smart Board in favor of the experimental group. Additionally, there were statistically significant differences in the students' achievement level of the control and the experimental groups (in the retention test) in favor of the experimental group.

Furthermore**, Lin et. al (2014)** intended to investigate whether computer-assisted collaborative learning is comparable with computer-free and individual learning; it examined each of their effects on learning English vocabulary in a junior high school in northern Taiwan. There were (76) students who participated in this study. Those participants were asked to finish five review activities of the target English vocabulary and assigned to one of the following groups: the learning for the group of computer-supported collaboration took place in the technology-supported classroom whereas that of computer-free collaboration and that of computer-free non-collaboration in a normal classroom. This study adopted a non-equivalent control group quasi-experimental research design with the only instrument for the study was an achievement test of English vocabulary. The three classes of the same English teacher were randomly assigned to computer-supported collaboration group (experimental group A), computer-free collaboration group (experimental group B), and computer-free non-collaboration group (control group) The results showed that those learning English vocabulary collaboratively in a technology-enhanced environment outperformed the other two groups in vocabulary retention. The learning effects of collaborative learning in the technology-supported classroom were competitive with those of other two groups; it helped the participants to learn and retain the target words.

In addition**, Al-Faleet (2013)** investigated the effectiveness of using puzzles in developing tenth graders vocabulary achievement. It also examined the long-term effect of the puzzles on the retention of the vocabulary. Furthermore, it measured the effect of the puzzles on the students' attitudes towards English. The researcher purposively chose (80) tenth graders from Abdul Kareem Al-Aklook secondary School for boys in Dair Al Balah for the experiment and randomly chose two classes from the tenth grade classes. The sample of the study was (80) students, (40) students in each one. They were equally divided into two groups, experimental and control. And to achieve the study goals the researcher used many tools: (an achievement test (Pre, Post and delayed), an attitude scale (pre & post) to determine the students' attitudes towards English, and teacher guide (puzzles).

The results of the study revealed that there were significant differences in mean scores of vocabulary test in favor of the experimental group in the post application. It also showed that there were no significant differences in mean scores between the posttest and delayed test of the experimental group. It indicated that there were significant differences in the mean scores of the post attitude scale in favor of the experimental group. And this was due to the method of using puzzles in teaching vocabulary.

Moreover**, Awad (2013)** examined the effectiveness of using animation in teaching English Vocabulary for the third graders in governmental schools. The sample of the study consisted of (58) female students from Awni El- Hertanie Primary School for Girls in North Gaza governorate.

The researcher divided the sample of the study into two groups, experimental and control group. Animation was used with the experimental group only, while the ordinary method was used with the control one in the first term of the academic school year (2012 – 2013). A vocabulary test of eight questions with (22) items was designed to be used as a pre & post-test. The results indicated that there were statistically significant differences in mean scores of vocabulary test in favor of the experimental group in the post application.

Also**, Demir (2013)** aimed to provide insight into the understanding of teaching and learning vocabulary and explored if the vocabulary instruction through In-class vocabulary strategies developed by the researcher were helpful for Turkish 8th grade EFL students' English vocabulary retention in comparison to traditional vocabulary instruction. The experimental group consisted of (66) students from two different classes and the control group was comprised of (63) students from two classes. From the data collected through the post-test and retention-test design.

The study results showed that both in the short and medium term, there was a significant difference between the vocabulary retention scores of the students who were instructed with in class vocabulary strategies (Experimental Group) and those of the students who were given

traditional instruction (Control Group) in favour of the experimental group.

Additionally**, Wafi (2013):** aimed to investigated the effectiveness of using animated pictures program in learning English vocabulary among the fifth graders in Gaza. The target domains were productive and receptive .To answer the questions of the study, the researcher adopted the quasi experimental approach. The sample of the study consisted of (64) students distributed into two groups. One of the groups represented the control group of (32) students, and the other represented the experimental one of (32) students. The groups were randomly chosen from a purposive sample from Haifa primary school for girls. The animated pictures program was used in teaching the experimental group while the traditional method was used with the control one in the second term of the school year (2012-2013). An achievement vocabulary test was designed and validated to be used as a pre and post-test in acquiring vocabulary in the English language for the fifth graders.

The results indicated that there were statistically significant differences between both groups in favor of the experimental one, in receptive vocabulary, productive vocabulary and the total score due to the animated pictures program. Effect size technique indicated a large effect of the Animated pictures program in improving receptive vocabulary، productive vocabulary and the total score for the experimental group. This result reflects the effectiveness of using animated pictures program in developing vocabulary.

Likewise**, Azabdaftari & Mozaheb (2012)** investigated the effectiveness of using two vocabulary techniques, i.e. m-learning and flashcards, on the level of vocabulary learning of EFL students. The participants were 80 students studying English literature and Translation at BA level in a non-profit, non-governmental university in Iran. New vocabularies were taught to the students in the experimental group (those who used m-learning) and the control group (those who used flashcards) within a 7-week period. In this study, both qualitative and quantitative methods of data collection were used, the researchers conducted a multiple-choice test and semi-structured interviews to assess the newly-learned vocabularies for both group. The results of the present study demonstrated that using m-learning in vocabulary learning is more

effective than using flashcards and it can foster the process of vocabulary learning in EFL settings.

Moreover**, Al-Zahrani (2011)** investigated the effectiveness of keyword-based instruction in enhancing English vocabulary achievement and retention of intermediate stage pupils with different working memory capacities. The study adopts a quasi-experimental design employing two groups (experimental and control). The design included an independent variable (keyword method), two dependent variables vocabulary achievement and vocabulary retention which were measured by the achievement vocabulary test and a classification variable (working memory capacity) which was measured by working memory tasks. The sample of the study consisted of 3rd intermediate grade pupils from two intermediate schools in Taif (N=96). The pupils were divided into two groups experimental and control. The experimental group (N=47) was taught the vocabulary of the first term of English language book of 3rd intermediate grade through keyword method. The control group (N=49) was taught the same vocabulary through traditional method.

Results revealed that keyword method had a positive effect on the learners' vocabulary achievement and retention. Also, results showed that pupils with high WMC were better than pupils with medium and low WMC in both vocabulary achievement and retention. Finally, the results revealed that the interaction between keyword method and WMC had a main effect on both dependent variables (Vocabulary achievement and retention).

Furthermore**, Cheng (2011)** investigated the impact on Taiwanese students' English vocabulary retention, task difficulty ratings, and task utility ratings under varied task load conditions (reading only, fill-in-the-blanks, writing) when controlling for level of trait anxiety. The task loads were based on the Involvement Load Hypothesis. The effects of task load on state anxiety were also examined. The participants in this study were (111) Taiwanese students, who were not English majors, from three English classes taught by the same teacher and using the same textbook at a university located in Northern Taiwan.

The research findings included the following: students in the reading only group (with the lowest task load) generated higher

vocabulary retention than the fill-in-the-blanks group (with a medium task load) when controlling for trait anxiety; after the learning tasks were completed, all students reported reduced state anxiety; the reading only group, which had the lowest task load, reported the highest difficulty ratings; students did not report higher utility ratings in higher task load conditions compared to lower ones when controlling for trait anxiety. One implication of this study is that the Involvement Load Hypothesis was able to distinguish between the lowest and highest load tasks, but did not adequately describe the moderate task.

Also**, Stager (2010)** investigated the effects of using flashcards on developing automaticity (rapid word recognition) with key vocabulary words and phrases in order to improve fluency and reading comprehension skills for participants with and without diagnosed learning disabilities enrolled in a high school Spanish course. The study sample was (93) students. Eighty-seven students without learning disabilities and six students with learning disabilities, all between 16-18 years of age, (sample of convenience) were given single-word and phrase training within the context of the curriculum. Participants learned to decode key words and phrases quickly and accurately in Spanish using flashcards. Once training was determined to be sufficient, as measured through Curriculum-Based Measures (CBM's), reading comprehension scores were then obtained through end-of-unit exams.

The study results suggested an emphasis on the development of automaticity (rapid word recognition), within the context of the curriculum, benefits all students of foreign language study. The findings also indicated that students with learning disabilities were able to achieve comprehension rates comparable to students without learning disabilities as a result of the intervention.

2-2-4 **Commentary**:

General Commentary on the Previous Studies:

In accordance with the above-mentioned studies, the researcher divided them into three domains; The first tackled studies that examined the effectiveness of using Augmented Reality in developing English language learning. The second tackled the studies that examined the effectiveness of using Augmented Reality in developing the achievement

in different school subjects. The third tackled the studies that examined the effectiveness of using technology and different strategies in developing English vocabulary.

Commentary on the previous studies: (The first domain)

This study agreed with all pre-mentioned studies in the independent variable which is the Augmented Reality applications, but the dependent variable was the same in some studies and was different with other studies.

The current study agreed with some previous studies such as Solak &Cakır (2015), Li et. al (2014), Beder (2012), Chang & Chen (2011) and Hsieh & Koong Lin (2010) in finding out the effectiveness of using Augmented Reality in learning vocabulary.

However, the current study disagreed with the other studies in the dependent variable. These studies discussed the effectiveness of using Augmented Reality in different skills such as Ghasemi & Javidan (2014) in writing, grammar, and conversation, Mahadzir & Phung (2013) in English grammar, Hsieh et al.(2014), Salmon & Nyhan (2013) and Vate-U-Lan (2012) in English Language Learning in general.

According to the methodology; the current study agreed with Some of the previous studies in using the experimental method as Hsieh et al.(2014), Beder (2012),Vate-U-Lan (2012), Chang & Chen (2011) and Liu et al. (2007). However, some of the previous studies utilized the descriptive method as Solak & Cakır (2015), Li et. al (2014), Mahadzir & Phung (2013)and others adopted a case study as Salmon & Nyhan (2013).

Moreover, this study is similar to Li et. al (2014) in using AR application "Aurasma" and the same to Mahadzir & Phung (2013), Salmon & Nyhan (2013) and Vate-U-Lan (2012) in using AR application "Zooburst".

The current study agreed only with Vate-U-Lan (2012)in using a pre and post-test. Unlike this study, Some of the previous studies used different tools as Ghasemi & Javidan (2014), Hsieh et al.(2014), Beder (2012), Chang & Chen (2011) and Liu et al. (2007) used questionnaires, Li et. al (2014) and Hsieh & Koong Lin (2010) used interviews and

Mahadzir & Phung (2013) used observations checklist, interviews and content analysis.

Additionally, population and sample of the previous studies were different from one study to another in number, gender and age. Some of these studies applied their experiment on a graduate or colleges students as Solak & Cakır (2015), Li et. al (2014), Chang & Chen (2011) and Liu et al. (2007), while the sample of other studies was students from elementary and preparatory like Hsieh et al.(2014), Mahadzir & Phung (2013),and Vate-U-Lan (2012).

To sum up, the researcher benefited from Vate-U-Lan (2012) in many important issues; first, using AR application "Zooburst", preparing the tool which is the pre and the post-test and choosing the third graders as a population. Likewise, she benefited from Li et. al (2014) in using AR application "Aurasma".

Commentary on the previous studies: (The second domain)

The current study agreed with all pre-mentioned studies in using Augmented Reality as an independent variable. However, these studies differed from the current one in the dependent variable which is learning English vocabulary. All previous studies in this section investigated the effectiveness of using Augmented Reality in various subjects such as Chiang et. al (2014) and Matcha & Rambli (2013) in Science, Cai et. al (2014) in Chemistry, Salinas et. al (2013) in Mathematics and Shelton & Hedley (2002) in Geography.

According to the methodology; ; the current study agreed with Some of the previous studies in using the experimental method as Cai et. al (2014), Chiang et. al (2014) and Matcha & Rambli (2013). However, it differed from other studies that utilized the descriptive method as Pérez-López & Contero (2013).

Moreover, this study agreed with some studies such as Cai et. al (2014) and Chiang et. al (2014) in using a pre and post-test. However, these studies differed from the current one in using questionnaires. Other studies in this section used different tools, for example, Matcha & Rambli (2013) used video recording and survey questionnaire, Pérez-López & Contero (2013) used direct observation and questionnaire, Salinas et. al (

2013) used video sessions and survey analysis and Shelton & Hedley (2002) used pre-post assessment and videotaped.

In addition, the current study agreed with Chiang et. al (2014) and Pérez-López & Contero (2013) in choosing the population and the sample of the study which are elementary students. However, it differed from Cai et. al (2014) which applied the experiment on high school students , also, it differed from Shelton & Hedley (2002) and Salinas et. al (2013) which applied their experiments on university students.

The researcher concluded by saying that this study agreed with the other studies in this section; First, it agreed with all studies in investigating the AR as an independent variable. Second, it agreed with some studies in the methodology, the tools and the population.

Commentary on the previous studies: (The third domain)

The current study agreed with all the previous studies in the dependent variable which is developing English vocabulary, but the independent variable varies and is different with all studies.

According to the methodology; ; the current study agreed with most of previous studies in using experimental method as Abdal Rahim (2015), Al-Farra (2014), Al-Faleet (2013), Awad (2013) and Demir (2013). Other studies used quasi-experimental such as Jingjit (2015), Lin et. al (2014), Wafi (2013) and Al-Zahrani (2011). However, it differed from Yunus et. al (2016) which used the descriptive method.

Additionally, this current study agreed completely with Awad (2013), Lin et. al (2014) and Wafi (2013)in using one tool which is pre-posttest. Also, it agreed partly with Abdal Rahim (2015), Al-Farra (2014), Al-Faleet (2013) and Demir (2013) in using pre-posttest, but it differed from them in using delayed test.

Moreover, this study agreed with Al-Farra (2014) and Al-Faleet (2013) in preparing a teacher's guide. However, it differed from them in using attitude scale.

The current study agreed with Jingjit (2015) and Awad (2013) in choosing the third grader as the population and the sample of the study. However, it differed from other studies which used different population

and samples such as Abdal Rahim (2015) which used secondary students, Al-Farra (2014), Lin et. al (2014) and Al-Faleet (2013) which used high school students, Demir (2013) and Al-Zahrani (2011) that used preparatory students and Azabdaftari & Mozaheb (2012) which used university students.

The most important issue that the researcher benefited from the previous studies was the procedures of preparing the teacher's guide and choosing the tool of the study.

From the previous studies, the researcher concluded the following:

- All the previous studies in sections (A & B) dealt with the AR as an independent variable in general in different materials and in the English language in particular.
- All the previous studies did not deal with the effectiveness of applying AR on developing English vocabulary in Arab countries.
- None of the previous studies in sections (A&B) used both applications (Aurasma & Zooburst) together in one study.
- All the previous studies in section (A) indicated that there was a strong relationship between AR and its positive effect on the students' achievement toward EFL.
- To the best knowledge of the researcher, the current study is the first study in Palestine that investigated the effectiveness of using AR applications on developing the third Graders' English vocabulary.
- None of the previous studies dealt with the questions and the hypotheses
  of this current study. This indicates the importance of this study in dealing with new questions ,test and hypotheses.
- Some of the previous studies used a delayed test as a tool. However, the researcher did not used this tool.

Summary:

Chapter II deals with two sections: The first section is the theoretical framework which includes two domains: the first domain is the Augmented Reality and the second domain is English vocabulary learning. The second section deals with some previous studies that other researchers conducted in concern with AR and Vocabulary Learning.

Chapter III

The Methodology

Chapter III: The Methodology

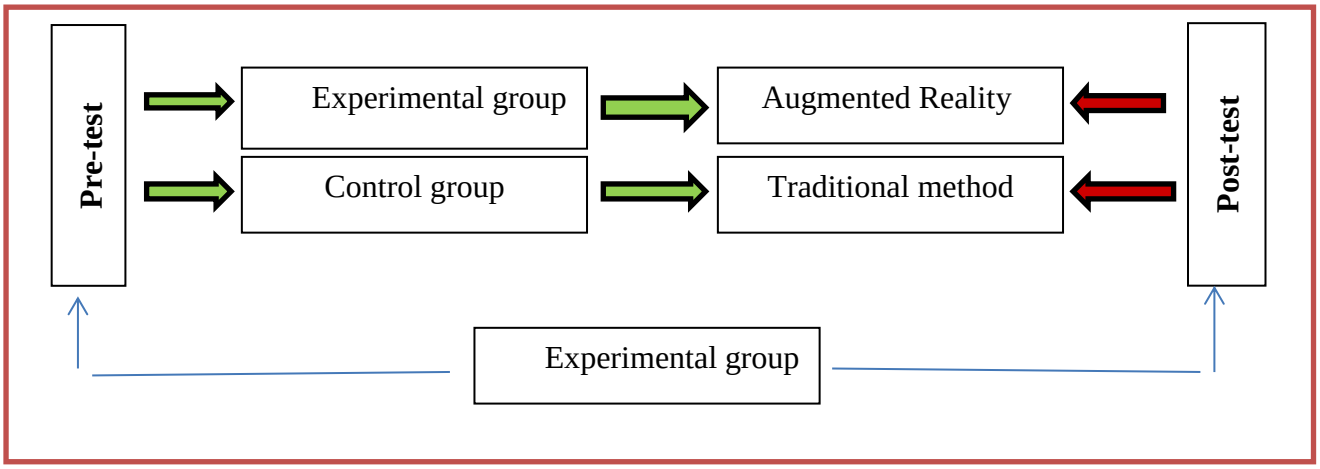
This chapter discusses the procedures followed throughout the study. It introduces a complete description of the methodology of the study, the population, the sample, instrumentation, the pilot study, the research design and the statistical treatment of the study findings.

3-1 Research Design:

To achieve the aim of this study, the researcher adopted the experimental approach. Such an adoption was due to the nature of the current research, which aimed at finding the effectiveness of using Augmented Reality applications on developing third graders' English vocabulary. For this purpose, two groups were chosen, an experimental group and a control one. Both groups were pre-tested. Then the experimental group was taught vocabulary by using Augmented Reality applications. The control group was taught vocabulary through the traditional method.

The research included two variables; the first variable was Augmented Reality applications. The second variable was vocabulary contained in English language curriculum scheduled at third grades students in Gaza schools. The experiment lasted for eight weeks.

The researcher chose (Units 2, 4, and 7) to apply the study experiment, because these units have much vocabulary.



3-2 Population:

The population of the study consisted of all third graders enrolled in the governmental schools in West Gaza directorate the first semester of the school year (2015-2016). The population of the study was (3210) pupils in the governorate schools of West Gaza directorate.

3-3 Sample of the Study:

The sample of the study was a purposive one consisting of (69) third pupils from (Amir El Mansi Basic "B" School for Boys), where the researcher works as a deputy director. It is worth mentioning that (Amir El Mansi Basic "B" School for Boys) contains (5) third grade classrooms, including (210) third pupils.

The sample was distributed randomly into two groups: control and experimental. Table (1.3) shows the distribution of the sample.

Table (1.3): The distribution of the study sample according to the groups

Group	No	Percent
Control	35	50.70
Experimental	34	49.30
All	**69**	**100.0**

Table (1.3) shows that control group (35) pupils, and experimental group (34) pupils.

3-4 The variables of the study

The study included the following variables:

A - **The independent variable**:

1- The teaching method
   - Augmented Reality applications (Aurasma & Zooburst).
   - The traditional method

2- The students' general ability of English language
   - High achievers
   - Low achievers

B - **The dependent variable**:

The learners′ achievement in English vocabulary .

3-5 Instrumentation:

In order to collect the data that help achieve the aim of the research, the researcher employed the following tools:

3-5-1 Content analysis card:

Content analysis was conducted according to the following procedures:

Purpose of the analysis:

The analysis aimed at identifying to what extent the first semester units (2, 4, and 7) in "English for Palestine" for third Grade (student book) included the vocabulary.

Sample of analysis:

Sample analysis consisted all lessons at units (2, 4, and 7) in "English for Palestine" for third Grade (student book).

Unit of analysis:

The researcher considered "word" as units of analysis so as to determine vocabulary list assessed third grades.

Limitations of the analysis:

- The analysis includes all the lessons in units (2-4-7) in "English for Palestine" third grade (student book).
- Using a card to observe the results and the frequency of each analysis unit.
- Develop a vocabulary list based on analysis results.

Analysis validity

The tool was presented to a panel of specialists; supervisors and experienced teachers to discuss the suitability of the analysis for the aim it was prepared.

Analysis reliability:

To examine the reliability of the analysis, we can use two ways; reliability through people or reliability through time. The researcher used

reliability through people. The researcher analyzed the content for the units. A colleague supervisor carried out another analysis for the same units. Holesti formula was used to identify the percentage of agreement between the two analyses.

$$\text{Holesti formula } R = \frac{2\,(c1c2)}{(c1+c2)} * 100$$

R = Reliability coefficient.
2(C1C2) = Number of agreements between the two analyses.
C1 = Total frequency in the first analysis.
C2 = Total frequency in the second analysis.

Table (2.3): Reliability coefficient by Holesti formula

Model	The first analysis	The second analysis	agreement	Reliability coefficient
Vocabulary	34	36	30	85.71

According to Table (2.3),the reliability coefficient between the two analyses was (85.71), which is acceptable. This is a clear evidence of the reliability of the analysis process.

3-5-2 Vocabulary Achievement Test:

The vocabulary achievement test was prepared by the researcher to measure the students' performance level, in which the researcher depends on content analysis results in modifying the test. See appendix (3).

The Aim of the Vocabulary Achievement Test:

The test aimed at measuring the effectiveness of using Augmented Reality applications on developing third graders' English vocabulary and it also aimed to test the hypothesis of the study.

Source of Designing the Vocabulary Achievement Test:

Depending on the third grade textbooks, teachers' guide and Palestinian Ministry of Education document, the researcher designed the vocabulary test. The researcher also referred to many sources in designing the test. He reviewed the related literature, checked the opinions of juries, supervisors, and experienced teachers. The researcher referred to the results of content analysis.

Description of the Vocabulary Achievement Test:

The vocabulary achievement tests administered as pre-test and post-test were designed to test students' performance. Presumably the questions were direct from their textbook. Therefore, they are to some extent normal to be answered by most students. The questions were given suitable time before the test began in order to give students some time to think or talk about the answers.

Each question aimed at evaluating the students' performance according to one vocabulary. The questions are suitable to the their levels and interests.

The test consists of (30) items divided into eight major questions as follows:

Question (1): look and match: consists of (5) items.

Question (2): choose and write: consists of (3) items.

Question (3): choose and circle: consists of (4) items.

Question (4): reed and choose: consists of (4) items.

Question (5): write: consists of (2) items.

Question (6): Re- write the letters: consists of (3) items.

Question (7): look and write: consists of (6) items.

Question (8): read and complete: consists of (3) items.

So the total mark of the vocabulary achievement test equal (30) marks.

Validity of the test:

The researcher checked the validity of the vocabulary achievement test according to the trial applications. The following steps were adopted:

The pilot study:

The test was applied on a random sample of (30) pupils from (Al Aqsa basic "A" for Boys) School. The results were recorded and

statistically analyzed to measure its reliability. The items of the test were modified in the light of the statistical results.

Referee validity:

The vocabulary achievement test was refereed by a panel of specialists in English language and methodology, in Gaza universities and colleges, supervisors and experienced teacher (see Appendix 1). According to their recommendations, some modifications were made such as giving helping ideas during the vocabulary achievement test.

Internal consistency validity:

The researcher used Pearson correlation coefficient to compute the internal consistency of the vocabulary achievement test items. To measure such validity, Pearson Correlation computed the correlation of the following: the items with their domains, the items with the total test and the domains with the test as a whole.

Table (3.3) describes the internal consistency of the vocabulary achievement test questions.

Table (3.3): Correlation coefficients between questions and all degree

Vocabulary questions	Correlation coefficients	Sign value
Question (1)	**0.781	Sign at (0.01)
Question (2)	**0.581	Sign at (0.01)
Question (3)	**0.664	Sign at (0.01)
Question (4)	**0.591	Sign at (0.01)
Question (5)	*0.439	Sign at (0.05)
Question (6)	**0.761	Sign at (0.01)
Question (7)	**0.820	Sign at (0.01)
Question (8)	**0.553	Sign at (0.01)

** r table at (df.= 29), sign level (0.01) = (0.463)
* r table at (df.= 29), sign level (0.05) = (0.361)

From table (3.3) we can see that all correlation coefficients are significant at (0.05), so the test questions are valid.

Then the researcher calculated correlation Coefficient between all item and all degree, table (4.3) show the results:

Table (4.3): Correlation coefficients between test items and all degree

Items	Correlation coefficients	Sign value	Items	Correlation coefficients	Sign value
1	**0.562	Sign at (0.01)	16	*0.460	Sign at (0.05)
2	**0.511	Sign at (0.01)	17	**0.464	Sign at (0.01)
3	**0.571	Sign at (0.01)	18	*0.379	Sign at (0.05)
4	**0.697	Sign at (0.01)	19	**0.725	Sign at (0.01)
5	**0.604	Sign at (0.01)	20	**0.674	Sign at (0.01)
6	**0.637	Sign at (0.01)	21	*0.401	Sign at (0.05)
7	**0.530	Sign at (0.01)	22	**0.642	Sign at (0.01)
8	*0.418	Sign at (0.05)	23	**0.647	Sign at (0.01)
9	**0.592	Sign at (0.01)	24	**0.544	Sign at (0.01)
10	**0.675	Sign at (0.01)	25	*0.424	Sign at (0.05)
11	*0.408	Sign at (0.05)	26	**0.757	Sign at (0.01)
12	*0.433	Sign at (0.05)	27	**0.599	Sign at (0.01)
13	**0.472	Sign at (0.01)	28	*0.386	Sign at (0.05)
14	*0.408	Sign at (0.05)	29	*0.439	Sign at (0.05)
15	**0.507	Sign at (0.01)	30	*0.397	Sign at (0.05)

** r table at (df.= 29), sign level (0.01) = (0.463)
* r table at (df.= 29), sign level (0.05) = (0.361)

From table (4.3) we can see that all correlation coefficients are significant at (0.05), so the test items are valid.

Reliability of the test:

The test is regarded reliable when it gives similar results if it is administered twice within similar conditions (Mackey and Gass, 2005, p. 128). The researcher computed the reliability coefficients through the following methods:

Split Half Method:

This method depends on splitting the vocabulary achievement test, and calculating the correlation between the parts, then making a correction for the correlation coefficient by Prophecy Formula.

$$\text{Spearmen- Brown Coefficient} = \frac{2R}{R+1}$$

Table (5.3) show split half coefficients for the vocabulary achievement test:

Table (5.3): Reliability for the vocabulary achievement test by spilt half method

Model	Items	Correlation	Correction Correlation	Sig. Value
Spilt half method	30	**0.574	0.730	Sign at (0.01)

Table (5.3) results show that the reliability coefficient is acceptable because it is above 0.7 (O'dah, 2002, p. 176), which means that the test is reliable and valid to apply.

Kuder -Richardson (K-21) method:

K-R21 test depends on calculating the percentages of correct answers to the test items and also on the variance of every item.

$$\text{K-R21 formula} = \frac{N}{N-1}\left[1 - \frac{m\,(N-m)}{\sigma 2\ X\ m}\right]$$

N: Number of test items.
m : Marks means.
$\sigma 2$: Marks contrast.

Table (6.3) describes (K-R21) for the vocabulary achievement test.

Table (6.3) Reliability for the vocabulary achievement test by Kuder - Richardson (K-21) method

Model	N	m	σ^2	K-R_{21}
Kud-Richardson (K-21) coefficient	30	22.175	50.269	87.40

Table (6.3) results show that the reliability coefficient by Kuder- Richardson coefficient equals (87.40%), which means that the test is reliable and valid to be applied.

Difficulty Coefficient:

Difficulty Coefficient means the percentage of the failing pupils to the total of pupils who took the test. It can be calculated by using the following equation:

$$\textbf{Co. of difficulty} = \frac{Number\ of\ pupils\ who\ gave\ wrong\ answers}{Total\ number\ of\ pupils}$$

Table (7.3) shows the difficulty coefficient for each item of the vocabulary achievement test.

Table (7.3): Difficulty coefficients for each items and all degree

Items	Difficulty coefficients	Items	Difficulty coefficients
1	0.467	16	0.567
2	0.300	17	0.467
3	0.400	18	0.633
4	0.500	19	0.533
5	0.300	20	0.533
6	0.300	21	0.633
7	0.433	22	0.433
8	0.367	23	0.500
9	0.400	24	0.633
10	0.400	25	0.667
11	0.367	26	0.667
12	0.333	27	0.633
13	0.333	28	0.600
14	0.333	29	0.567
15	0.333	30	0.533
All degree		0.472	

Table (7.3) results show that the difficulty coefficient ranges from (0.30) to (0.667), and the average of all difficulty coefficient (0.472).

This shows that each item was acceptable or in the normal limit of difficulties according to the viewpoint of assessment and evaluation specialists.

Discrimination coefficient:

Discrimination coefficient: refers to the test ability to differentiate between the high achieving students and the low achieving counterparts.

$$\textbf{Co. of discrimination} = \frac{No.of\ correct\ itemsof\ high\ achiever - No.of\ correct\ items\ of\ low\ achievers}{No.of\ high\ achievers + No.of\ low\ achievers}$$

Table (8.3) shows the discrimination coefficient for each item of the vocabulary achievement test.

Table (8.3): Discrimination coefficients for each items and all degree

Items	Discrimination coefficients	Items	Discrimination coefficients
1	0.640	16	0.540
2	0.270	17	0.430
3	0.450	18	0.570
4	0.360	19	0.350
5	0.390	20	0.490
6	0.650	21	0.510
7	0.680	22	0.600
8	0.700	23	0.420
9	0.690	24	0.460

Items	Discrimination coefficients	Items	Discrimination coefficients
10	0.420	25	0.480
11	0.400	26	0.420
12	0.525	27	0.540
13	0.350	28	0.340
14	0.400	29	0.540
15	0.620	30	0.600
All degree		0.495	

Table (8.3) results show that the discrimination coefficients ranging from (0.340) to (0.70), where the average of all discrimination coefficients (0.495). The discrimination coefficients of all test items are also acceptable since they are above (30%). This means that the test items are suitable according to the difficulty and discrimination coefficients.

3-6 Time Estimation:

The trial application helped in estimating the time needed for answering the questions according to the following equation:

$$\textbf{\textit{Time Estimation}} = \frac{Time\ of\ first\ five\ pupils + Time\ of\ the\ last\ five\ pupils}{10}$$

$$\textbf{\textit{Time Estimation}} = \frac{(190) + (250)}{10}$$

From the above equation the researcher determined the test time, which was approximately (45) minutes.

3-7 Controlling the variables

To assure the accuracy of the results and avoid any extraneous interference, the researcher tried to control some variables prior to the study.

Both groups were taught by the same teacher, the researcher. This was to prevent any other factors related to the difference in the teachers affect the results. Both groups received eight-week instructions. The control group was taught traditionally; that is, students act as usual to answer questions. The experimental group was taught through the use of Augmented Reality. In addition, the researcher control the following variables:

3-7-1 Age variable:

T-test was used to measure the statistical differences between the groups concerning their ages. Table (9.3) show the results:

Table (9.3): T test for differences between control and experimental groups due to age

Variable	Group	No.	Mean	Std.	T	Sig.
Age	Control	35	8.369	0.5254	1.286	0.203
	Experimental	34	8.552	0.6492		

* T table at (df = 67), ($\alpha \leq 0.05$) equal (1.99)
** T table at (df = 67), ($\alpha \leq 0.01$) equal (2.66)

Table (9.3) results show that significant value is more than (0.05), and t calculated less than t table. So there were no statistical differences at (0.05) between the experimental and the control groups concerning the age variable.

3-7-2 General achievement variable:

T-test was used to measure the statistical differences between the groups concerning their general achievement. The subjects' results in the second term test of the school year (2014-2015) were recorded and analyzed. Table (10.3) presents the results:

Table (10.3): T test for differences between control and experimental groups due to general achievement

Variable	Group	No.	Mean	Std.	T	Sig.
General achievement	Control	35	74.2743	12.755	1.073	0.287
	Experimental	34	71.9412	13.041		

* T table at (df = 67), ($\alpha \leq 0.05$) equal (1.99)
** T table at (df = 67), ($\alpha \leq 0.01$) equal (2.66)

Table (10.3) results show that significant value is more than (0.05), and t calculated less than t table. So there were no statistical differences at (0.05) between the experimental and the control groups concerning the general achievement variable.

3-7-3 English language achievement variable:

T-test was used to measure the statistical differences between the groups concerning their English language achievement. The subjects' results in the second term test of the school year (2014-2015) were recorded and analyzed. Results are presented in table (11.3) below :

Table (11.3): T test for differences between control and experimental groups due to English language achievement

Variable	Group	No.	Mean	Std.	T	Sig.
English language achievement	Control	35	76.20	15.7	0.530	0.598
	Experimental	34	78.02	16.9		

* T table at (df = 67), ($\alpha \leq 0.05$) equal (1.99)
** T table at (df = 67), ($\alpha \leq 0.01$) equal (2.66)

Table (11.3) results show that significant value is more than (0.05), and t calculated less than t table. So there were no statistical differences at (0.05) between the experimental and the control groups concerning the English language achievement variable.

3-7-4 Previous achievement in vocabulary:

To ensure that the two groups were similar in their previous acquaintance with vocabulary, the researcher examined two groups' performance on the pre achievement test. Table (12.3) outlines the results of the test.

Table (12.3): T test for differences between control and experimental groups due to a pre vocabulary achievement test

Variable	Group	No.	Mean	Std.	T	Sig.
A pre vocabulary achievement test	Control	35	8.200	2.73	0.416	0.679
	Experimental	34	7.882	3.566		

* T table at (df = 67), ($\alpha \leq 0.05$) equal (1.99)
** T table at (df = 67), ($\alpha \leq 0.01$) equal (2.66)

Table (12.3) results show that significant value is more than (0.05), and t calculated less than t table. So there were no statistical differences at (0.05) between the experimental and the control groups concerning the pre vocabulary achievement test.

3-8 Teacher's Guide:

The teacher's guide is a model for teaching units (2, 4, 7) using appropriate teaching strategies, i.e. teaching vocabulary through Augmented Reality applications. In preparing this guide, the researcher depended on the results of the analysis of the content of these units and selected the vocabulary included in them. Also, she relied on the characteristics and the applications of AR. These strategies are:

- Active learning strategy.
- Discovery learning strategy.
- Discussion and dialogue strategy.
- Problem-solving strategy.

This teacher's guide contains general introduction and some instructions that explain the use for teachers. It also includes the learning objectives, the procedures and the activities that assist teachers in teaching the selected units. In addition, it contains the evaluation tools and methods of observation. Moreover, the researcher focused on giving instructions for teachers to use the Augmented Reality applications , the right timing to use them and which activities to be used with. Appendix (6) shows the teacher's guide of teaching the selected units (2, 4 & 7).

Augmented Reality applications:

The researcher analyzed the contents of units (2, 4, 7), and identified the vocabulary contained in the selected units. Also, she reviewed several previous studies and some educational software. Then, she used Augmented Reality applications in teaching these vocabulary as a part of the period, especially since AR applications rely on using images, 3D animation, audio and videos when teaching vocabulary. Furthermore, the researcher showed the guide to a jury of specialists in English language and methodology in Gaza universities, and experienced supervisors and teacher to ensure the internal consistency validity. After that, she applied it in teaching the experimental group.

The researcher reviewed a set of multimedia, computer and educational programs, and some references that are relevant to designing programs. Then, she has identified the stages of employing the Augmented Reality applications. Also, she followed specific procedures and stages in employing the applications. These stages are:

1. **The first phase: The analysis stage.**

The analysis phase is the first step in constructing and employing the educational programs. This stage included the following steps:

- Determining the educational problem, and how to treat it through using Augmented Reality applications.
- Identifying the target group of pupils , and their developmental characteristics and mental capabilities.
- Selecting the general and private applications.
- Determining the appropriate educational content to employ the AR applications.
- Identifying the educational tasks that should be included in the applications.
- Identifying the previous experiences of the students, and benefits from them in planning the lessons and the teacher's guide.
- Determining the employed applications, that achieve learning objectives , and the goals of the current study.
- Identifying the surrounding environment, and its impact in employing the applications.

2. **The Second phase : The design stage**

It is the most important stage, especially since the researcher must play a major effort in producing or searching for the appropriate pictures and videos, in addition to, her role in recalling and using them in the classroom. The researcher followed several steps in this stage, these steps are:

- Determining the initial idea to teach vocabulary via Augmented Reality applications.
- Identifying the vocabulary that should be included in the applications.
- Determining the images, videos and 3D animations that must be included in the applications.
- Identifying the characteristics of AR applications that must be used and how to recall them.
- Identifying learning objectives of the selected units.
- Matching learning objectives of the units with goals of the current study which are "Developing the vocabulary."
- Determining the learning styles and strategies that must be used in the implementing the AR educational applications.

- Identifying learning resources and the applications and their content.
- Reviewing models of AR applications, and how to employ them in developing the vocabulary.
- Identifying the selected tools that are necessary for the researcher in the employment of augmented reality applications.

3. **The third phase: The application stage**

This stage which comes after determining the necessary applications, includes several steps, these steps are:

- Determining the method of combining the Augmented Reality applications with the objectives of teaching English language for third graders and the goals of the current study.
- Determining the needed timetable for developing the AR applications to be ready for use.
- Preparing the teacher's guide, referring to when and where to use the AR applications.
- Showing the AR applications that are chosen and prepared by the researcher to a jury of specialists and experts in technology taking their recommendations into consideration.

4. **The fourth phase: The evaluation stage**

Considering the importance of the educational applications, these applications must be evaluated, even it takes too much time, especially since these applications are prepared for the continuous use. Therefore the researcher followed the next steps in evaluating the Augmented Reality applications:

- Preparing an assessment card for evaluating the applications.
- Experimenting the applications within the students inside the classroom.
- Experimenting the applications using different smart devices.
- Teaching the experimental group via AR applications.
- Applying the English vocabulary achievement test with both groups.
- Analyzing, discussing and interpreting the results.
- Making a decision on the use of these applications.

This shows that AR applications are suitable, achieving the goals of the current study. It also achieved the behavioral, cognitive and affective objectives of the selected learning units (2,4&7).

It was taking into account the capabilities and previous experience of pupils when choosing and using AR applications. The potential of the Palestinian school, especially those employed by the Ministry of Education are also taken into consideration.

3-9 Statistical Analysis Procedures:

The researcher used a number of statistical techniques that were in tandem with the study nature; the data were collected and computed using the Statistical Package for Social Sciences (SPSS). The following statistical procedures were mainly used :

1- Frequencies and Percentage.
2- Correlation coefficient.
3- Split-Half Coefficient.
4- Difficulty equation to identify the difficulty of the test items
5- Discrimination equation to identify the discrimination of the test items.
6- T-test Paired Sample was used to measure the differences in vocabulary test between a pre and post applied.
7- Independent Samples T – Test was used to measure the differences between control and experimental groups.
8- Mann-Whitney Test was used to measure the differences between (lower - higher achiever in control group) and ((lower - higher achiever in experimental group).
9- Wilcoxon Test was used to measure the differences between a pre and posttest among (lower and higher achievers in experimental group) at vocabulary test.

Summary:

This chapter presented the procedures followed throughout the study. It also introduced a complete description of the methodology of the study, the population, the sample, the instrumentation, the pilot study, controlling variable. Moreover, it introduced the procedures of the study and statistical treatment of the study findings.

Chapter IV

Results and Data Analysis

Chapter IV: Results and Data Analysis

The study aimed at examining the effectiveness of Augmented Reality applications on developing third graders' English vocabulary in Gaza governorate. This chapter presents the research findings outlined in accordance with the research questions and hypotheses after the analysis of the findings by using Statistical Package for Social Sciences (SPSS). In her attempt to analyze the data, the researcher employed different statistical formulae such as frequencies, means, Std. of Deviations and t-test. Furthermore, the researcher used effect size through (η^2), in addition to Blak coefficient to measure the extent to which the independent variable, AR applications, had an effect on the dependent variable, the experimental group's achievement level in English language vocabulary.

4-1 Answer of the first question:

The first question: What are the Augmented Reality applications used in this study ?

Augmented Reality is a variation of Virtual Reality. VR technology completely immerses users within a synthetic environment in which user cannot see the real world around him, whereas AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. AR supplements reality, rather than completely replacing it. The researcher teaches the experimental group using two applications of AR; the first application "Aurasma" that allows the learner to overlay any video or image on top of anything that your tablet, cell phone, or any other mobile device can scan with its camera, and the second application is called Zooburst.

The first application: (Aurasma)

Aurasma is a new application that makes advantage of Augmented Reality specifically since it is designed around smart phones and tablets. Also, Aurasma is a free application that lets the user discover, create and share amazing virtual content, integrated into the real world. The mechanism by which this application works depends on tagging an image, video or 3D animation on the object that can only be seen through the application camera.

This application provides the teacher with opportunities to reorganize the lessons so that he/she could prepare the learners to learn the new vocabulary. Moreover, Aurasma application has the ability to motivate the learners and attract their attention; this is what the researcher noted during applying the program whereas this application attracts the learners' attention and makes them more able to identify and memorize the vocabulary. Also, it creates an interactive learning atmosphere between the learners themselves and between the learners and their teacher.

In addition, Aurasma application can be used at the beginning of the lesson as a Pre-requisite to revise the learnt vocabulary or during the period when presenting the new vocabulary or at the end of the period as an evaluation to display the vocabulary that presented during the period. So, the researcher believes that using Aurasma has been very positive in teaching and learning English vocabulary at any stage of the classroom period.

There are visible benefits that Aurasma brings to the teacher and the learner. First; Aurasma allows teachers to bring curriculum to life whilst enabling students to engage through technology, creating new dimensions in the learning experience. Second; it allows the teacher to create a more independent environment for the learner. The learner, when using Aurasma, is able to work at their own pace, revisiting images to help clarify their understanding. It makes the lesson to be increasingly dynamic and interactive, and less didactic in structure.

Furthermore, using Aurasma application is a key element in supporting learning English vocabulary since it can make the vocabulary word wall, picture book, poster presentation, and pictures talk and show images or video in minutes (Wikipedia, 2015).

The second application: ZooBurst (3D pop up book)

The second application that the researcher used in this study is ZooBurst (3D pop-up book) which is an educational digital storytelling tool that lets anyone easily create his or her own 3D pop-up books. ZooBurst books “live” online can be experienced on the desktop or laptop computer, or on the iPad via the free ZooBurst mobile application.

ZooBurst is an interactive application in which storybooks can be created and displayed for others. These storybooks can be created by teachers for students, and used in certain lesson plans to allow for better understanding of the material. Also, this online application allows a new method of teaching that is very interesting for children**.**

This application is beneficial for both teacher and student as well. It contains a powerful "classroom management" feature for teachers that lets them easily set up protected, safe spaces for their students. It provides the teachers with a chance to teach in a fun, technologically oriented and interactive way. In the other side, student has the opportunity to explore and learn the lesson through the ZooBurst that the teacher has provided in a hands-on, technological and kinesthetic way.

Throughout this study, the researcher notes that ZooBurst application(3D pop-up book) gives students an opportunity for total immersion in the classroom activities, the way that increases motivation in English vocabulary learning as well as allows students to improve performance. Likewise, the students are able to interact with the book using simple gestures such as simply waving hand in front of the book to turn its pages either through the screen of the camera or using ZB marker.

Moreover, ZooBurst is a promising application for language teaching and learning because using 3D pop-up books is a great way to incorporate literacy skills in the class and to allow students to learn the new vocabulary in an interactive and meaningful way.

In general, such Augmented Reality applications must be worthily applied inside classroom because these applications are promising educational tool that helps students in increasing motivation, providing them with interactive learning environment and achieving several pedagogical objectives especially in learning English Language. Also, integrating AR into traditional curriculum creates more opportunities for students to learn the new vocabulary effectively and enhance their retention to them (www.zooburst.com).

4-2 Answer of the second question:

The second question: Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between

the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test?

To answer the second question the researcher tested the first hypothesis by using independent samples T test.

The first hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test.

The results of the independent samples T test revealed that there were statistically significant differences as pointed out in Table (1.4) below:

Table (1.4): T test differences between experimental and control groups at post vocabulary achievement test

Model	Group	No.	Mean	Std.	T	Sig.	η^2
Post vocabulary achievement test	Experimental	34	21.177	7.40	3.68	0.000	0.17
	Control	35	15.1143	7.054			

* T table at (df = 67), ($\alpha \leq 0.05$) equal (1.99)
** T table at (df = 67), ($\alpha \leq 0.01$) equal (2.66)

Table (1.4) shows that significant value is less than (0.01), and (t) calculated is more than (t) tabulated. So there are a statistical significant differences between control and experimental groups. So there were a statistical significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test. And these differences were in favor of the experimental pupils. This means that using AR can be very effective in the third graders' vocabulary achievement in English language.

And from table (1.4) Eta square equal (0.17), and its more than (0.16) so the effect size was very large. The researcher used Eta square "η^2" employing the following equation (Affana, 2000, p. 42):

$$\eta^2 = \frac{t^2}{t^2 + d.f}$$

And to determine the size of the effect the researcher compare the value with the following table:

Table (2.4): Level of size effect by Eta square

Level	Small	Medium	Large	Very large
η^2	**0.01**	**0.06**	**0.14**	**0.16**

4-3 Answer of the third question:

The third question: Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control group in the post test?

To answer the third question the researcher tested the second hypothesis by using Mann-Whitney Test.

The second hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control group in the post test.

Table (3.4): Mann-Whitney Test for differences between high achiever in experimental and control groups at post vocabulary achievement test

Model	Group	No.	Mean Rank	Sum of Ranks	Z	Sig.	r_{rb}
High achievers	Experimental	10	14.00	140.00	2.694	0.007	0.7
	Control	10	7.00	70.00			

* the critical value Z at ($\alpha \leq 0.05$) equal (1.96)
** the critical value Z at ($\alpha \leq 0.01$) equal (2.58)

Table (3.4) shows that significant value is less than (0.01), and (Z) calculated is more than (Z) tabulated. So there are statistical significant differences between control and experimental groups.

So there were statistical significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control one in the post test. And these differences were in favor of the high achievers in experimental group. That means using Augmented Reality has taken into account the individual differences.

And table (3.4) shows that $\mathbf{r_{rb}}$ equal (0.7) that's mean effect size was very large.

The researcher used $\mathbf{r_{rb}}$ employing the following equation:

$$r_{rb} = \frac{2(MR1 - Mr2)}{(n1 + n2)}$$

And to determine the size of effect, the researcher compared the value with the following table:

Table (4.4): Level of size effect by r_{rb}

Level	Small	Medium	Large
r_{rb}	less than 0.4	$0.4 \leq r_{rb} < 0.7$	0.7 and more

4-4 Answer of the forth question:

The forth question: Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control group in the post test?

To answer the forth question the researcher tested the third hypothesis by using Mann-Whitney Test.

The third hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control group in the post test.

Table (5.4): Mann-Whitney Test for differences between low achiever in experimental and control groups at post vocabulary achievement test

Model	Group	No.	Mean Rank	Sum of Ranks	Z	Sig.	r_{rb}
lower achievers	Experimental	10	14.15	141.50	2.78	0.005	0.73
	Control	10	6.85	68.50			

* the critical value Z at ($\alpha \leq 0.05$) equal (1.96)
** the critical value Z at ($\alpha \leq 0.01$) equal (2.58)

Table (5.4) shows that significant value is less than (0.01), and (Z) calculated is more than (Z) tabulated. So there are a statistical significant differences between the control group and the experimental group.

So there were statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control group in the post test.

And these differences were in favor to lower achievers in experimental group. That means using Augmented Reality has taken into account the individual differences. And table (5.4) shows that effect size was large.

4-5 Answer of the fifth question:

The fifth question: Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the pre and the posttest among pupils in the experimental group?

To answer the fifth question the researcher tested the forth hypothesis by using paired Samples test.

The forth hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the pre and the posttest among pupils in the experimental group.

Table (6.4): T test for differences between the pre and the posttest among experimental group

Model	Application	No.	Mean	Std.	T	Sig.	η2
Vocabulary test	A pre test	34	7.882	3.566	11.904	0.000	0.81
	Post test	34	21.1765	6.63			

* T table at (df = 33), ($\alpha \leq 0.05$) equal (2.042)
** T table at (df = 33), ($\alpha \leq 0.01$) equal (2.75)

Table (6.4) shows that significant value is less than (0.01), and (t) calculated is more than (t) tabulated. So there are statistical significant differences between the pre and the post-test.

Eta square was (0.81), so Augmented Reality has a high effectiveness in developing vocabulary among third grades in Gaza governorate school.

The researcher attributes this result to the fact that using Augmented Reality with the experimental group raised their interactivity and participation as well as their motivation to learn, which in turn raised their enjoyment and love of using AR.

The effect size in all the hypotheses is large and that is clear evidence that using new technologies such as the Augmented Reality is very effective because most if not all of the students nowadays prefer to learn via modern technologies that prevail largely all around the world.

4-6 The effectiveness of using Augmented Reality on developing vocabulary among third grades in Gaza governorate schools:

To check the effectiveness of using Augmented Reality in developing vocabulary among third grades in Gaza governorate school the researcher used (Blak formula). Where Blak equation as a following:

$$\boldsymbol{Blak\ Coefficient} = \frac{M2 - M1}{T - M1} + \frac{M2 - M1}{T}$$

M_2: post mean.
M_1: apre mean.
T: Total degree.

Table (7.4): apre - post mean and Black coefficient

Model	A pre mean	Post mean	Total	Blak coefficient
Vocabulary test	7.882	21.1765	30	1.04

Table (7.4) shows that a pre mean equal (7.882), and post mean (21.1765). so Blak coefficient as a following:

$$\boldsymbol{Blak\ Coefficient} = \frac{21.1765 - 7.882}{30 - 7.882} + \frac{21.1765 - 7.882}{30} = 1.04$$

So Blak coefficient more than (1), that's mean Augmented Reality interested in high effectiveness.

Summary:

This chapter dealt with data analysis and results. The results of each hypothesis was analyzed statistically using different statistical techniques according to the nature of the hypothesis and the data collection tool used in the study.

The first hypothesis results proved that there was a significant difference between the experimental and control group mean scores in the vocabulary achievement test in favor of the experimental group due to the implementation of Augmented Reality applications.

The results of the second hypothesis indicated that there was a significant difference between the high achiever mean scores of the experimental group and the mean scores of the high achievers of the control group in favor of the high achievers of the experimental group in the post test due to the implementation of the AR applications.

The third hypothesis results proved that there was a significant difference between the low achiever mean scores of the experimental group and the mean scores of the low achievers of the control group in favor of the low achievers of the experimental group in the post test due to the implementation of the AR applications.

The results of the fourth hypothesis indicated that there was a significant differences in the mean scores in the vocabulary achievement between the pre and the posttest among pupils in the experimental group in favor to the posttest application due to the implementation of AR.

And the study results indicated that Augmented Reality applications had a high effect on developing vocabulary among third grades in Gaza governorate schools.

Chapter V

Findings, Discussion, Conclusion, Implications and Recommendations

Chapter V: findings, Discussion, Conclusion, Implications and Recommendations

This chapter discusses the results of the study. It summarizes the conclusions which were deduced in the light of the study results and the pedagogical implications that the researcher suggested. It also includes suggestions and recommendations for further studies. Such suggestions are expected to be beneficial for curriculum designers, third grade teachers of English, supervisors, and educators. They could help to improve teaching English language in general and teaching vocabulary in particular.

5-1 Findings:

The results indicated that there were statistically significant differences in the mean scores of the post application of the test between students in the experimental group and those of the control group. The researcher attributes these differences to the teaching method used. These differences were in favor of the experimental one.

Students in the experimental group learnt English vocabulary using Augmented Reality applications while students in the control group learnt vocabulary using traditional methods.

The researcher believes that the used applications help students to form positive attitudes towards English language. Also, they make them more inclined to learn as it has helped to raise the attention of students about vocabulary they learnt adding suspense to the English lessons.

In addition, the differences between higher achievers in both groups were in favor of the experimental group. Also, the differences between lower achievers in both groups were in favor of the experimental group. This indicates that the applications helped in the growth of all students as they helped to take into account individual differences.

As a matter of fact, these applications have had a positive and effective impact on developing the students' vocabulary. Also, they help students to represent and visualize vocabulary mentally since these applications depend on displaying vocabulary using interactive 3D

animation, videos and images the way that contributed to improve the students' ability to memorize and recall the written forms of the vocabulary.

Moreover, these Augmented Reality applications used in teaching vocabulary helps in improving the level of students' achievement through raising the students' attention on learning new vocabulary and releasing them in realistic ways.

5-2 Discussion:

5-2-1 Interpretation of the results of the first hypothesis :

The researcher tested the first hypothesis which supposed that there were no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the pupils who learn English vocabulary through using Augmented Reality (experimental group) and those who learn English vocabulary through the traditional method (control group) in the post test.

The findings indicated that the (t) computed value (3.68) was larger than the(t) tabulated value, (2.66) in the post test results. This means that there are significant differences at ($\alpha = 0.01$) in the post test results between the experimental group and the control group in the favor to the experimental group. There were also significant differences between the means of both groups in favor of the experimental group, whereas the mean of the control group was(15.1143), the mean of the experimental group was (21.177). Additionally, the researcher found that the effect size indicated a very large effect of Augmented Reality applications in improving the vocabulary for the experimental group.

The researcher attributes these results to the effectiveness of Augmented Reality applications used in teaching the experimental group that aimed at developing vocabulary. This confirms that AR applications achieve the objectives of teaching English language effectively, as they are an interesting way for students, increasing the level of interaction they have.

These applications contain visual and sound effects that activate the students' senses, attract their attention towards the vocabulary related to these effects. Thus, the students can learn the vocabulary well and

recall them easily in the new teaching situations. Likewise, the researcher noted that the students interact effectively during presenting the vocabulary lessons, using Augmented Reality applications.

And these results that proved the effectiveness of Augmented Reality agree with many related studies such as (Solak & Cakır, 2015), (Ghasemi & Javidan, 2014), (Hsieh et al., 2014), (Li et. al., 2014), (Mahadzir & Phung, 2013), (Beder, 2012), (Vate-U-Lan, 2012), (Hsieh & Koong Lin, 2010), (Chang & Chen, 2011) and (Hsieh & Lee, 2008). Also, they agree with the many studies such as (Yunus et. al., 2016), (Arikan & Ozen, 2015), (Jingjit, 2015), (Al-Farra, 2014), (Al-Faleet, 2013), (Awad, 2013), (Demir, 2013), (Wafi, 2013), (Azabdaftari & Mozaheb, 2012), (Al-Zahrani, 2011), (Cheng, 2011), and (Stager, 2010) in proving the effectiveness of technology on developing English vocabulary.

5-2-2 Interpretation of the results of the second hypothesis:

The second hypothesis which assumed that there were no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the high achievers in the experimental group and their counterparts in the control group in the post test, was also statistically treated.

The findings indicated that the (Z) computed value,(2.694) was larger than the (Z) tabulated value, (2.58) in the post test results. This means that there are significant differences at ($\alpha = 0.01$) in the post test results between the high achievers in the experimental group and their counterparts in the control group in favor of the experimental group. There were also significant differences between the means of both groups in favor of the experimental group, whereas the mean of the control group was(7.00), and the of the experimental group was(14.00).

Besides, the researcher found that the effect size indicated a large effect of Augmented Reality applications in improving the vocabulary for the high achievers in the experimental group. This large effect can be attributed to the activities, techniques, and the variety of teaching aids used in the AR applications which aimed at developing the English vocabulary of the third graders. Furthermore, these results were attributed to the effectiveness of AR applications.

Therefore, the researcher believes that using Augmented Reality applications that integrated videos, images and 3D animations in the real world help students to acquire English vocabulary easily. Moreover, through this research, the researcher notes that AR applications help teachers to determine the weakness points, and then reorganizes the lessons and have the feedback that is needed to treat some common mistakes.

Additionally, Augmented Reality applications take into account the principle of individual differences, since they use various images, videos, audio and 3D animations that directly affect the students' senses, creating motivation for all students. So, the researcher worked hard on involving all levels of students during presenting the vocabulary using AR applications.

These results match many related studies such as (Solak & Cakır, 2015), (Ghasemi & Javidan, 2014), (Hsieh et al., 2014), (Li et. al., 2014), (Mahadzir & Phung, 2013), (Vate-U-Lan, 2012), (Hsieh & Koong Lin, 2010)and(Chang & Chen, 2011) in proving the effectiveness of Augmented Reality on developing the English language. Also, these results match the following studies (Yunus et. al., 2016), (Arikan & Ozen, 2015), (Jingjit, 2015), (Al-Farra, 2014), (Al-Faleet, 2013), (Awad, 2013), (Demir, 2013), (Wafi, 2013), (Azabdaftari & Mozaheb, 2012), (Al-Zahrani, 2011), (Cheng, 2011), and (Stager, 2010) in proving that technology has a good effect on developing English vocabulary.

5-2-3 Interpretation of the results of the third hypothesis :

The researcher tested the third hypothesis which supposed that there were no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the low achievers in the experimental group and their counterparts in the control one in the post test.

The findings indicated that the (Z) computed value, (2.78) was larger than the (Z) tabulated value, (2.58) in the post test results. This indicates significant differences at ($\alpha \leq 0.01$) in the post test results between the low achievers in the experimental group and their counterparts in the control group in favor of the experimental group. There were also significant differences between the means of both groups

in favor of the experimental group, whereas the mean of the control group was (6.85), that of the experimental group was (14.15).

Moreover, the researcher found that the effect size indicated a large effect of Augmented Reality applications in improving the vocabulary for the low achievers in the experimental group. This large effect can be attributed to the activities, techniques, and the variety of teaching aids used in the AR applications which aimed at developing the English vocabulary of the third graders. Besides, these results were attributed to the effectiveness of AR applications.

As a matter of fact, to teach English vocabulary, teachers need to use effective methods and techniques especially with young learners. So, using various applications such as those of Augmented Reality helps all levels of students (high and low achievers) to acquire vocabulary in an interesting and dynamic way, as these applications provides students with pictures, videos and 3D animations that attract their attention.

And these results that proved the effectiveness of Augmented Reality agree with many related studies such as (Solak & Cakır, 2015), (Ghasemi & Javidan, 2014), (Hsieh et al., 2014), (Li et. al., 2014), (Mahadzir & Phung, 2013), (Beder, 2012), (Hsieh & Koong Lin, 2010), (Chang & Chen, 2011), (Hsieh & Lee, 2008). Moreover, the results of the current study match many the results of the previous studies such as (Yunus et. al., 2016), (Arikan & Ozen, 2015), (Jingjit, 2015), (Al-Farra, 2014), (Al-Faleet, 2013), (Awad, 2013), (Demir, 2013), (Wafi, 2013), (Azabdaftari & Mozaheb, 2012), (Al-Zahrani, 2011), (Cheng, 2011), and (Stager, 2010) in proving that technology has a high effectiveness on developing the English vocabulary .

5-2-4 Interpretation of the results of the forth hypothesis:

The researcher tested the forth hypothesis which supposed that there were no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in the vocabulary achievement between the pre and the posttest among pupils in the experimental group.

The findings indicated that the (T) computed value, (11.904) was larger than the (T) tabulated value, (2.75). This indicates that there are significant differences at ($\alpha \leq 0.01$) in the total mean score in the

vocabulary achievement between a pre and posttest among pupils in the experimental group. There were also significant differences between the means of both groups in favor of the experimental group, whereas the mean of the pre application (7.882), and the post application was (21.176).

5-2-5 General Interpretation of the results of the study:

The researcher investigated the effectiveness of using Augmented Reality applications on developing third graders' achievement in English vocabulary in Gaza governorate. To achieve this aim, the researcher chose two applications of AR, since these applications are the most suitable for young learners. Then, these applications were used as a teaching method with the students in the experimental group. After that, AR applications used with experimental group were compared with the traditional method used with the control group.

The findings showed that Augmented Reality applications are very effective in developing the vocabulary of the third graders. There was a significant improvement among students in the experimental group. This improvement is due to the AR applications that contain images, videos, audios and 3D animations, transferring students to the real world environment.

Likewise, the researcher employed the Augmented Reality applications through systematic steps starting with , presenting the new vocabulary using digital medias, such as images, 3D animations and videos providing students with opportunities to learn the vocabulary and then using them in new educational situations. Besides, the researcher collected the students' observations getting the feedback to modify some of the common errors. Thus, the role of the teacher is changed from a sender of information to a motivator helping learners to acquire knowledge and a facilitator of the educational process.

5-3 Conclusion:

The study results showed that Augmented Reality has a high effectiveness in developing vocabulary among third grades in Gaza governorate school. The researcher observed that the third graders gained

a relatively substantial amount of improvement in learning the new vocabulary and retrieving them when needed.

Based on the findings, the researcher concludes that Augmented Reality had superiority over the traditional method in teaching English language and added a lot of learning situations. It provided students with a better learning environment, created many kinds of cooperative learning within the same group and competition with other groups. It provided different sessions and lessons, allowing for different situations to be played out depending upon the contributions of the participants. The use of AR enabled real time role-play for students and teacher despite the different geographical areas.

The use of Augmented Reality is purposeful, apparent, organized, valuable, and that objectives, goals and evaluation criteria are clearly achieved.

Augmented Reality contain many different types of activities, such as problem-solving, role play, debates, sounds, describing pictures and responding appropriately. Therefore, students instructed through such techniques rarely got bored and tired. This makes them concentrate on how to communicate not only intended meaning, but also the language forms. They are not under pressure so that they can produce correct speech and they may inspire them to expressed their joy and happiness when they all participated in each activity. In fact, they were activated, interested, excited, and encouraged to take the task on. This gives them the ability to get rid of the hesitation to speak and give them opportunities to develop strategies for interpreting and comprehending language as it is actually used by native speakers.

Augmented Reality raises vocabulary achievement level among lower and higher achiever. This means that it can take into account individual differences between pupils.

The researcher attributes these results to the implementation of Augmented Reality applications since these applications help to motivate and activate the pupils to learn vocabulary effectively. By employing AR, pupils can acquire a great amount of vocabulary, the way that enhance the communication skills among students and stimulate the self-learning, making the student the center of the educational process.

In addition, the implementation of Augmented Reality helps to engage learners in real- world learning activities and enables the students to work independently whereas the role of the teacher changed from transmitted of knowledge to facilitator. This indicates that AR applications are interesting ways in teaching English vocabulary.

The researcher notes that all students interested in Augmented Reality applications since these applications help them to acquire vocabulary in a realistic way. This helps learners to use and recall them when needed, thus learners can not forget the vocabulary forever.

5-4 Pedagogical implications:

In the light of the study results, the following suggestions are put forth:

1. Using the Augmented Reality applications in the teaching and learning process encourages the students to be active and motivated when doing an activity.
2. Employing AR applications supports teaching English vocabulary with different technologies for creating a better learning environment.
3. The AR applications help to reduce the gap between teachers and learners when interacting together.
4. Using AR applications enables students to learn the English vocabulary with the atmosphere of joy and happiness.
5. Using AR applications develops students' vocabulary.
6. The AR applications are suitable for weak and also for all ages.
7. The AR applications instructions provide students with immediate feedback and different types of reinforcement.
8. The implementation of AR opens the gate in front of the teachers to update their teaching skills and find new resources of their career development.
9. Using AR applications activates students' prior knowledge and this operates students' thinking and restores their experience about the topic.
10. Reliance on AR applications in explaining English lessons.
11. Promotion of English vocabulary among basic stage by enriching textbooks in the light of appropriate subjects.

5-5 Recommendations:

In light of the results of the study, the following recommendations are suggested:

Curriculum designers and decision makers are recommended to:

- Integrate the Augmented Reality applications in the educational process in the Palestinian educational institutions.
- Provide schools with the equipment (LCD, computers device connected with the internet access,, IPad , special room) which enable learners to learn through AR applications
- Produce guiding materials to equip teachers with the needed knowledge to use AR applications and other new programs and applications.
- Consider the nature of the AR applications and provide the curriculum with models of good techniques and activities to help teachers and students use these applications in the classroom.
- Include new methods in teaching English for Palestine depending on computers and internet.

English language teachers are recommended to:

- Consider the use of different technological programs and applications for vocabulary learning especially in this age of technology.
- Move from the traditional method in teaching vocabulary into a modern strategy, such as, Augmented Reality that creates a new learning environment.
- Select efficient methods and techniques to motivate students' participation in the classroom.
- Use the AR applications with all English skills, listening, speaking, reading and writing.
- Attend the training courses that allows them to use recent methods in teaching such as integrating technology especially AR applications.
- Teachers should join between visual and written skills of the in the process of teaching vocabulary.

- It is necessary to use applications like (AR) that help students to receive and produce vocabulary.
- It is necessary for English teachers to integrate all language skills such as listening, speaking, reading and writing in teaching vocabulary.
- Teachers should select the vocabulary, and present them during the period in an interesting way.
- Enrich the syllabus using AR technologies.

English language experts, specialists, and supervisors are recommended to:

- Organize workshops for teachers to implement technologies including Augmented Reality applications and other technologies in teaching different school subjects including English language.
- Get teachers implement different technologies including AR applications to develop their teaching abilities and skills.
- Hold training courses for teachers related to the implementation of AR applications in their classes.
- Provide training materials for teachers to help them understand how to use the AR technology and integrate it effectively into the classroom.

Recommendations for further studies:

- This study was limited to develop the student's vocabulary. The Augmented Reality applications should be applied with other English skills and sub-skills.
- Conducting studies to investigate the effect of AR on students' attitudes toward English language learning.
- Conducting studies to explore the effectiveness of AR applications on developing the reading comprehension.
- Conducting studies to examine the impact of AR on developing students' Listening and speaking skills of English language.
- Conducting studies to find out the effectiveness of AR applications on developing the oral communication skills of the sixth graders.
- Conducting studies to investigate the effect of AR applications on developing different English skills of other school grades.

References

References

Holly Quran.

Abdal Rahim, M. (2015). *The Effectiveness of KWL Strategy on Palestinian Eleventh Graders' Reading Comprehension, Vocabulary and its Retention and Students' Attitudes Towards English*, (Unpublished Master thesis), Islamic University – Gaza: Palestine.

Abdulla, E. (2012). The Effect of Storytelling on Vocabulary Acquisition. *Journal of Farahedi literature, (10), pp. 20-57.*

Affana, E. (2000). Effect Size and its Uses in discovering the Results Validity in Educational and Psychological Research. *Journal of Palestinian Research Educational Research and Studies. (3): 42.*

Al- Faleet, F. (2013). *The Effectiveness of Using Puzzles in Developing Palestinian Tenth Graders' Vocabulary Achievement , Retention and Attitudes Towards English*, (Unpublished Master thesis), Islamic University – Gaza: Palestine.

Al Farra, R. (2014). *The Effectiveness of Using Smart Boards in Developing Tenth Graders' Vocabulary Achievement, Retention, and Attitudes towards English in Gaza*, (Unpublished Master thesis), Islamic University – Gaza: Palestine.

Aljadili, M. (2014). *The Effectiveness of Using Virtual Classes on Developing the Tenth Graders' Speaking Skills and Their Speaking Anxiety*, (Unpublished Master thesis), Islamic University, Palestine.

Al-Jarf, R. (2007). Teaching Vocabulary to EFL College Students Online. *CALL-EJ Online, 8(2).*

Alkhawaldeh, A. (2010). The challenges faced by Jordanian English language teachers at Amman 1st and 2nd Directorates of Education. *College Student Journal, 44 (4) Retrieved from: (http://www.freepatentsonline.com/article/College-StudentJournal/ 24873 3619.html).*

Al-Zahrani, M. (2011). *The Effectiveness of Keyword-Based Instruction in Enhancing English Vocabulary Achievement and Retention of*

Intermediate Stage Pupils with Different Working Memory Capacities, (Unpublished Master thesis), Taif University: Saudi Arabia.

Arikan, Y. & Ozen, S. (2015). A Learning Environment for English Vocabulary Using Quick Response Codes. *Educational Sciences: Theory & Practice, 15(2) ,539-551*.

Aurasma – Home (2016). aurasmaproject.weebly.com, *retrieved on 17th March, 2016*.

Awad, R. (2013). *The Effect of Using Animation in Teaching English Vocabulary for 3rd Graders in Gaza Governmental Schools*, (Unpublished Master thesis), AL- Azhar University-Gaza: Palestine.

Azabdaftari, B. & Mozaheb, M. (2012). Comparing vocabulary learning of EFL learners by using two different strategies: mobile learning vs. flashcards. *The EUROCALL Review, 20(2), pp. 47-59.*

Azuma, R. (1997). A Survey of Augmented Reality. In *Presence:* Teleoperators and Virtual Environments *6* (4), 355-385.

Beck, L., McKeown, G., & Kucan, L. (2008). *Creating robust vocabulary: Frequently asked questions & extended examples*, New York: The Guilford Press.

Beder, P. (2012). *Language Learning Via an Android Augmented Reality System*. (Unpublished Master thesis), School of Computing at Blekinge Institute of Technology. Sweden.

Benjamin, Amy & Crow, John T. (2012). *Vocabulary at the Core: Teaching the Common Core Standards*. New York: Eye On Education, Inc. Larchmont.

Bonsor, K. (2001). *How Augmented Reality Works*. 19 February. HowStuffWorks.com.http://computer.howstuffworks.com/augmented-reality.htm. 02 August 2015.

Brummitt.Y. J.(2002). *Effects of Three Types of Vocabulary on Readability of Intermediate Grade Science Textbooks:* An Application of Finn's Transfer Feature Theory.

Bruning, R. H, et al (2004). Cog*nitive Psychology and Instruction, Pearson*, NJ: Upper Saddle River.

Cadavieco, j., sevillano, m., & ferreira amador, m. (2012). Realidad aumentada, una evolución de las Aplicaciones de los dispositivos móviles Augmented reality, an evolution of theapplication Of mobile devices, *ISSN: 1133-8482, Píxel-Bit. Revista de Medios y Educación, Nº 41 Julio 2012 - pp.197-210*.

Cai, S. , Wang, X. & Chiang, F.(2014). A case study of Augmented Reality simulation system application in a chemistry course. *Computers in Human Behavior, (37), pp. 31–40*.

Carter, B.(2013). Digital Humanities: Current Perspective, Practices, and Research. *Emerald Group Publishing Limited*, Bingley.

Cascales,A. , Pérez-López, D & Contero, M. (2013). Study on Parents' Acceptance of the Augmented Reality Use for Preschool Education. *Procedia Computer Science, 25, 420 – 427*.

Chang, Y.& Chen, Ch.(2011). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of English learning using augmented reality. *Conference Paper, Research Gate, DOI: 10.1109/ICME.2011.6012177 · Source: DBLP*.

Cheng, Y. L. (2011). *Enhancing Noun Acquisition through Reading: the Impact of a Hierarchy of Vocabulary Exercise on Young Learners of Different English Proficiency in an EFL Context*, (Published Master thesis), National Taipei University of Education, Taipei: Taiwan.

Chiang, T., Yang, S., & Hwang, G. (2014). An Augmented Reality-based Mobile Learning System to Improve Students' Learning Achievements and Motivations in Natural Science Inquiry Activities. *Educational Technology & Society, 17(4), pp. 352–365*.

Churchill,D., Lu,J., Chiu,Th.& Fox,B.(2016). *Mobile Learning Design: Theories and Application*. Springers Science+Bussiness Media Singapore Pte Ltd. :New York.

Demir, Y.(2013). The Role of In-class Vocabulary Strategies in Vocabulary Retention of Turkish EFL Learners. *Elementary Education Online, 12 (4), Pp. 1173-1187*.

Ediger, M. & Rao, B.(2007) .*Teaching English successfully*. New Delhi :Discovery Publishing House.

Elizabeth, E. & Rao, D.(2006). *Acquisition of English Vocabulary*. New Delhi :Discovery Publishing House.

Ellis, N. (1994). Consciousness in second language learning: Psychological perspectives on the role of conscious processes in vocabulary acquisition. *AILA Review,(11), pp. 37-56*.

English Learning. (2008). International Multi Conference of Engineers and Computer Scientists, *Vol I, IMECS, 19-21 March, 2008*, Hong Kong.

Fecich, S.(2014). *The Use OF Augmented Reality-Enhanced Reading Books For Vocabulary Acquisition With Students Who Are Diagnosed With Special Needs*. (Unpublished doctoral thesis), The Pennsylvania State University.

Fromkin,V.; Rodman, R.; Hyams ,N. (2010). *An Introduction to Language 9th ed*.USA: wadsworth engage learning.

Ghasemi, A. & Javidan, R. (2014). A New Model as English Tutorial Assistant based on Augmented Reality. *Journal of Educational and Management Studies, 4 (3), 695-701*.

Ghasemi, A. & Javidan, R. (2014). A New Model as English Tutorial Assistant based on Augmented Reality. *Journal of Educational and Management Studies, 4 (3), pp. 695-701*.

Griva, E. ,Kamaroudis, S. & Geladari, A.(2009). Young learners' vocabulary strategies employment in a foreign language. *Synergies Sud-Est européen (2), pp. 21-36*.

Hai-Jew, Sh.(2014). Packaging Digital Information for Enhanced Learning and Analysis: Data Visualization, Specialization, and Multidimensionality. *Information Science References(An imprint of IGI Global): The United States Of America*.

Hannes, Kaufmann. (2016). Collaborative Augmented Reality in Education, Institute of Software Technology and Interactive Systems, *Vienna University of Technology*.

Harmer, J. (1991). *The Practice of English Language Teaching*, New York: Longman.

Harmer, J. (1992). *The Practice of English Language Teaching*, Essex: Longman. ISBN: 0582091330.

Harmer, J. (1993). *The Practice of English Language Teaching*. New York: Longman.

Harmer, J. (2007). *The Practice of English Language Teaching (4th Edition).* UK: Longman person.

Hsieh, M. & Lee, J.(2008). *AR Marker Capacity Increasing for Kindergarten.*

Hsieh, M-C. & Koong Lin, H-C. (2010**).** *Interaction Design Based on Augmented Reality Technologies for English Vocabulary Learning*. 18th International Conference on Computers in Education, Putrajaya, Malaysia: Asia-Pacific Society for Computers in Education.

Hsieh, M-C. , Kuo, F-R. & Koong Lin, H-Ch. (2014). The Effect of Employing AR Interactive Approach on Students' English Preposition Learning Performance. *Journal of Computers and Applied Science Education,1(1),pp. 45-60*.

Iheanacho, C. (1997*). Effects of two multimedia computer-assisted language learning programs on vocabulary acquisition of intermediate level ESL students.* (Ph.D Dissertation). The Virginia Polytechnic Institute and State University.

Jingjit,M.(2015). *The Effects of Multimedia Learning on Thai Primary Pupils. Journal of Education and practice,6(32),pp. 72-81*.

Johnson, E. (2012). Academic language & Academic vocabulary: RTI Strategies for content learning. *Achievement for all publishers, ISBN: 0615576230*.

Karmiloff, K. & Karmiloff-Smith, A.(2001). *Pathways to language: from fetus to adolescent*. America: Harvard University Press.

Kauchak. D, & Eggen. P (2004). Ed*ucational psychology windows on classrooms Pearson Merrill Prentice Hall*, Upper Saddle river, new Jersey.

Keshta, A. S. (2000). *Alternative Approaches For Teaching English Literature To Undergraduate Students In Gaza Strip*. Houston, Texas : University of Houston.

Khosrow-Pour, M. (2015). *Encyclopedia of Information Science and Technology*, 3rd Edition. Information Science References(An imprint of IGI Global): The United States Of America.

Kipper, G. & Rampolla,J. (2013). *Augmented Reality: An Emerging Technologies Guide to AR.*

Kysela,J. & Štorková, P. (2015). Using augmented reality as a medium for teaching history and tourism. *Procedia - Social and Behavioral Sciences ,174*, 926 – 931.

Laraba, S.(2007) *Developing Vocabulary Strategies In Learners Of English At University Level: First –Year L.M.D Students*, (Unpublished Doctoral thesis), Mentouri University: Algeria.

Lazoudis, A. , Salmi, H. & Sotiriou, S. (2013). Augmented Reality in Education. EDEN - 2011 Open Classroom Conference, *Science Center To Go ,Ellinogermaniki Agogi*.

Lee, K.(2012). Augmented Reality in Education and Training. Tech Trends, *Springer Science & Business Media B.V, 56(2), pp. 13-21*.

Lewis, M. (1993). *The lexical approach*. Hove, England: Language Teaching Publications.

Li, Sh. , Chen, Y. , Whittinghill, D. & Vorvoreanu, M. (2014). *A Pilot Study Exploring Augmented Reality to Increase Motivation of Chinese College Students Learning English*.121st ASEE Annual Conference & Exposition, Indianapolis, IN, June15-18, 2014.

Lin, Ch., Hsiao, H., Tseng, Sh. & Chan, H. (2014). Learning English Vocabulary Collaboratively in a Technology- supported classroom. *The Turkish Online Journal of Educational Technology, 13(1), pp. 162-173*.

Lin, S. (2002). *Modeling a Supplemental Course Web Site for EFL Vocabulary Acquisition*. Unpublished Doctoral Thesis, University of Delaware, USA.

Liu, T -Y. ,Tan , T -H. & Chu, Y -L.(2007). *2D Barcode and Augmented Reality Supported English Learning System*. 6th IEEE/ACIS International Conference on Computer and Information Science.

Liu, T -Y., Tan , T -H. & Chu, Y -L.(2010). *QR Code and Augmented Reality-Supported Mobile English Learning System*. WMMP 2008, LNCS 5960, pp. 37–52, Springer-Verlag Berlin Heidelberg.

Lubrecht, Anna. (2012). Augmented Reality for Education ‘’Digital Union’’, *The Ohio State University*.

Mackey, A & Gass, S (2005). *Second language research: Methodology and design*, Lawrence Erlbaum Associate Publishers, London.

Mahadzir, N. & Phung, L. (*2013*). The Use of Augmented Reality Pop-Up Book to Increase Motivation in English Language Learning For National Primary School. *IOSR Journal of Research & Method in Education, 1(1), pp. 26-38*.

Maier, P., Tönnis, M., & Klinker, G. (2009). Augmented Reality for teaching spatial relations, *Conference of the International Journal of Arts & Sciences (Toronto 2009)*.

Malik, Sh.(2002). *Robust Registration of Virtual Objects for Real-Time Augmented Reality*. (Unpublished Master thesis), Carleton University, Canada.

Matcha, W. & Rambli, D. (2013). Exploratory study on collaborative interaction through the use of Augmented Reality in science learning. *Procedia Computer Science, 25, pp. 144 – 153*.

McCarthy, M. (1990). *Vocabulary. Oxford*: Oxford University Press, 1990. ISBN 0-19-437136-0.

McCarthy, M. (1992). Vocabulary. Oxford: Oxford University Press, 1992. ISBN 0-19-437136-0.

Mc-Mahon, D.(2014). *Augmented Reality on Mobile Devices to Improve the Academic Achievement and Independence of Students with Disabilities*. (Unpublished doctoral thesis), University of Tennessee, Knoxville.

Michael, R. (2013): *The process of vocabulary learning: Vocabulary learning strategies and beliefs about language and language learning*, (Unpublished Doctoral thesis), The University of Canberra: Australia.

Milton, J.(2009). *Measuring Second Language Vocabulary Acquisition*. Great Britain: Short Run Press Ltd.

Min, Y-K. (2013). Vocabulary Acquisition: Practical Strategies for ESL Students. *Journal of International Students, 3(1),pp. 64-69*.

Miyosawa,T., kahane, M., Hara, K.& Shinohara, K.(2014). Augmented Reality Application and Brain Activity - A Case Study of Foreign Language Study and Tourism Pamphlet. *International Journal of Emerging Technology and Advanced Engineering, 4 (4), 278-288*.

Mukoroli, J.(2011). *Effective Vocabulary Teaching Strategies For The English For Academic Purposes ESL Classroom*. Unpublished Master thesis, The SIT Graduate Institute, Vermont.

Nagy, W. E. & Scott, J. A. (2000). Vocabulary Processes, *Handbook of Reading Research, Vol. 3, Pp. pp. 269-284*.

Nash, H., & Snowling, M. (2006). Teaching new words to children with poor existing vocabulary knowledge: a controlled evaluation of the definition and context methods. *International Journal of Language & Communication Disorders, 41, P. 335-354*.

O'dah, A. (2002). *Assessment and Evaluation in Instructional Process*, Al Amal Publishing House, Irbid: Jordan.

Olalde, K. & Guesalaga, I. (2013). The New Dimension in a Calendar: The Use of Different Senses and Augmented Reality Apps . *Procedia Computer Science(25)1: 322 – 329*.

Oxford online Dictionary (2015). *Oxford University Press.* Retrieved 12 May 2015. www.oxforddictionaries.com/definition/.../effectiveness.

Parkay, F.W, & Gen, H, (Ed) (2000). *Curriculum planning: A contemporary approach*. USA: Allyn and Bacon.

Pérez-López , *D.* & Contero, *M.(* 2013*).* Delivering Educational Multimedia Contents Through an Augmented Reality Application : A Case Study On Its Impact On Knowledge Acquisition And R*etention. The Turkish Online Journal of Educational Technology, 12(4), pp.19-28.*

Read, J., (2000). Assessing Vocabulary. Cambridge University Press. *Reading Teacher, (40), Pp. 646-649.*

Renatha K.D.(2009). "*A Comparative study between FAIES and Grammar translation method in teaching English vocabulary at LPIA Depok"*. Gunadarma University, Jakarta.

Repman,J. & Dickinson,G. (2015). *School Library Management, 7th Edition*. Linworth ABC- CLIO, LLC: The United States.

Saengpakdeejit, R. (2014). Strategies for Dealing with Vocabulary Learning Problems by Thai University Students. *Silpakorn University Journal of Social Sciences, Humanities, and Arts, 14(1), pp. 147-167.*

Salinas, P. , González-Mendívil, E. , Quintero, E. , Ríos, H. , Ramírez, H. & Morales, S. (2013). The Development of a Didactic Prototype for the Learning of Mathematics Through Augmented Reality. *Procedia Computer Science, (25), pp. 62 – 70.*

Salmi, H., Kaasinen, A. & Kallunki, V. (2012). Towards an Open Learning Environment via Augmented Reality (AR): visualising the invisible in science centres and schools for teacher education. *Procedia - Social and Behavioral Sciences, 45, 284 – 295.*

Salmon, J.& Nyhan,J. (2013). Augmented Reality Potential and Hype: Towards an Evaluative Framework in Foreign Language Teaching. *The Journal of Language Teaching and Learning, (1), pp. 54-68.*

Schmalstieg, D., Langlotz, T., & Billinghurst, M. (2011). *Virtual Realities. (chapter II: Augmented Reality 2.0)*, S. Coquillart et al. (eds.), DOI 10.1007/978-3-211-99178-72, Wien: Springer-Verlag, pp 13 -37.

Schmitt, N. (2010). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

Shea, *A.(2014). Student Perception Of A Mobile Augmented Reality Game and Willingness To Communicate in Japanese*. (Unpublished doctoral thesis), Pepperdine University.

Shelton, B. & Hedley, N. (2002). *Using Augmented Reality for Teaching Earth-Sun Relationships to Undergraduate Geography Students*. Paper presented at The First IEEE International Augmented Reality Toolkit Workshop, Darmstadt, Germany.

Shin, J**.(** 2007**).** Ten Helpful Ideas for Teaching English to Young Learners. Twelfth EFL Skills Conference**,** *The English Teaching Forum , 44 (2).*

Solak, E. & Cakır, R . (2015). Exploring the effect of materials designed with augmented reality on language learners' vocabulary learning. *The Journal of Educators Online-JEO,13(2), pp. 50-72*.

Stager, Phillip A. (2010). *The Effects of Using Flashcards to Develop Automaticity with Key Vocabulary Words for Students with and without Learning Disabilities Enrolled in a High School Spanish Course*, Published Doctoral thesis, Texas Woman's University, Database copyright ProQuest LLC; ProQuest does not claim copyright in the individual underlying works, Texas: United States, Available at: (http://search.proquest.com/docview/859324512).

Stewart-Smith, Hanna. (2012). *Education with Augmented Reality: AR textbooks released in Japan*, ''ZDnet'.

Taskiran,N. & Yilmaz,R.(2015). *Handbook of Research on Effective Advertising Strategies in the Social Media Age*. Business Science References(An imprint of IGI Global): The United States Of America.

Thornbury, S. (2002). *How to teach vocabulary*. Person education limited: England.

Thornbury, S. (2004). How to Teach Vocabulary. Essex: Pearson Education Limited. ISBN 0582-429668.

Tozcui, A., & Coady, J. (2004). Successful learning of frequent vocabulary through CALL also benefits reading comprehension and speed. *ComputerAssisted Language Learning, 17(5)*.

Vate-U-Lan, P.(2012). *An Augmented Reality 3D Pop-Up Book: the Development of a Multimedia Project for English Language Teaching*. IEEE International Conference on Multimedia and Expo.

Verghese, C. (2007). *Teaching English as a second Language*. New Delhi: Sterling Publishers Pvt. Ltd.

Wafi, N. (2013). *The Effectiveness of Using Animated Pictures Program in Learning English Vocabulary among the Fifth Graders in Gaza*, (Unpublished Master thesis), Islamic University – Gaza: Palestine.

Wilkins, D. (1972). *Linguistics in language teaching*. London, UK: Arnold.

Yongqi, P. (2003). Vocabulary Learning in a Second Language: Person, Task, *Context and Strategies, TESL-EJ, 7 (2)*.

Younie, S., Leask, M.& Burden, K. (2015). *Teaching and Learning with ICT in the Primary School*. Routledge Taylor & Francis Group: Britain.

Yunus, M. , Salehi, H. & Amini, M. (2016). Impact of Using CALL on Iranian EFL Learners' Vocabulary Knowledge. *English Language Teaching, 9(1),pp. 173-187*.

Zhan-Xiang, M. (2004). The necessity of intensifying English vocabulary teaching in the remote minority area college English teaching. *Asian EFL Journal, 6(2).*

Internet Refinances:

Wikipedia (2015) .Aurasma https://en.wikipedia.org/wiki/Aurasma retrieved on 15th March,2016.

http://www.aurasma.com/aura/ Creating AR (Auras) in Aurasma [pdf]. retrieved on 27th January,2017.

http://www.augment.com/blog/virtual-reality-vs-augmented-reality/.

http://www.zmescience.com/other/did-you-know/difference-virtual-augmented-reality/.

http://www.zooburst.com /ZooBurst [pdf]retrieved on 29th January,2017.

Wikipedia site .Retrieved 8 May 2015 (http://en.wikipedia.org/wiki/)

Appendixes

Appendixes

Appendix (1): Referee Committee

Referee Committee for the study tools

This list includes the names and titles of the referees who refereed the Vocabulary achievement test, the AR applications, the lesson plan using AR applications .

1- **Vocabulary Achievement Test's** referees **.**
2- **AR applications'** referees.
3- **The teacher's guide** referees.

No.	Name	Field	Institute	1	2	3
1.	Dr. Sadik Firwana	Assistant Professor at Dep. of English	Islamic University			
2.	Dr. Mohammed Ateya Abdul Rahim	Assistant Professor at Dep. of English	Al Aqsa University			
3.	Mr. Abdel Fattah Olayyan	Director General for Supervision and qualification	Ministry of Education			
4.	Dr. Mohammed Hamdan	Associate Professor of English Methodologies	Gaza University			
5.	Mr. Munir Saleh	Supervisor of English Language	Ministry of Education/ West Gaza			
6.	Mr. Mohammed I. Mohaisen	Supervisor of English Language	Ministry of Education/ West Gaza			
7.	Mrs. Khadra Ali Abu Jahjouh	Supervisor of English Language	Ministry of Education/ North Gaza			
8.	Dr. Ahmed Maher Al Nakhala	Assistant Professor at Dep. of English	Al- Quds Open University			
9.	Miss/ Jehan Mahmoud Ashour	Deputy school Principal	UNRWA - Education			
10.	Mr. Zakaria H. Medoukh	Teacher of English Language	Ministry of Education			
11.	Mrs. Amal Alankar	Teacher of English Language	Ministry of Education			
12.	Mrs. Sahar	Supervisor of	Ministry of			

	Hassan	English Language	Education/ West Gaza			
13.	Dr. Mohammed Abdulfattah Asqoul	Associate Professor of Information Technology	Islamic University			
14.	Mr. Ayman Mahmoud Al-Aqlouk	Supervisor of Educational Technology	Ministry of Education/ West Gaza			
15.	Dr. Mohammed Soliaman Abo Shoqair	Associate Professor of Information Technology	Islamic University			
16.	Dr. Hassan Rebhi Mahdi	Assistant Professor of Information Technology	Al Aqsa University			
17.	Dr. Sameh Khalil Al- Jobour	Supervisor of Educational Technology	UNRWA - Education			
18.	Dr. Eyad Mohammed Al-Agha	Assistant Professor of Information Technology	Islamic University			
19.	Dr. Magdi Saed Aqel	Assistant Professor of Information Technology	Islamic University			
20.	Dr. Mahmoud Mohammed Barghouth	Assistant Professor of Information Technology	The University College of Science and Technology			

Appendix (2): Vocabulary Achievement Test Before Arbitration

The Islamic University of Gaza
Postgraduate Studies Deanship
Faculty of Education
English Curriculum & Methodology Department

Vocabulary Achievement Test

" Third Grade "

Prepared by

Tahani Ibrahim Rabea

Supervised by

Dr. Awad Keshta

Refereeing Achievement Test

Dear Professor , Supervisor, Expert teacher,

The researcher is conducting a study to obtain a Master's Degree in Curriculum & English Teaching Methods. The study is entitled **:**

" The Effectiveness of Augmented Reality Applications on Developing Third Graders' English Vocabulary in Gaza Governorate "

One of the requirements of this study is to apply vocabulary achievement test as an instrument to gather information. Also, because of the importance of your opinion, valuable experience and trustworthy feedback, you are kindly requested to check the attached test and fill in the following form to determine whether the items of the test are suitable or unsuitable.

You are kindly invited to modify or change any item if necessary, you are free to delete or add any items according to your creditable perspectives. **Your notes and responses will be highly appreciated and considerable.**

	Item	High	Average	Low
1	The test items reflect the objectives.			
2	The test items suit third graders' level(high / low achievers).			
3	The layout is acceptable.			
4	The time assigned is suitable.			

Any further comments or notes:

…….
…….
……..
.....

Name:……
Degree:…….
Occupation and Place of work……

Thanks a lot for your cooperation The Researcher/

Tahani Ibrahim Rabea

English Vocabulary Achievement Test

30

Third Grade

Name : …… Class:…… Time: 40 minutes

1- Look and Match (6 points)

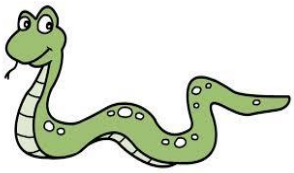
snake - do homework - nurse – giraffe - policeman - Play computer games

……

……

……

……

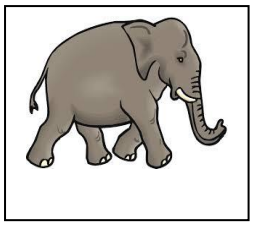


……

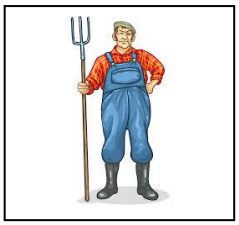
……

2- Choose and Write (5 points)

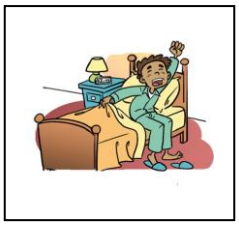
(r - u - t - p - e)



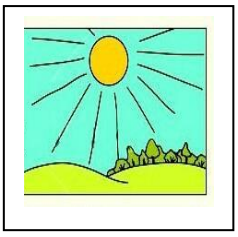
.....lephant



fa.....mer



get u.....



af.....ernoon

fo.....r

3-Choose and Circle (5 points)





go to school	tiger	driver	morning	aunt
watch cartoon	lion	dentist	night	mum
do homework	cat	teacher	evening	grandfather

4- Read and Choose (4 points)

1- He's a **(dentist – driver)** .

2- I **(go – get)** up in the morning.

3- This is an elephant. It's **(fast – slow)**.

4- I have **(one – three)** brother.

5-Re-write the letters (4 points)




(xfo)	(octdro)	(og to dbe)	(tgehi)
……	……	……	……

6- Look and write (6 points)

uncle - monkey - school - driver - two - morning

1- This is a …… . It has …… legs .

2- He's my …… . He's a ……

3- I go to …… in the …… .

Good luck

Appendix (3): Vocabulary Achievement Test After Arbitration

English Vocabulary Achievement Test

Third Grade

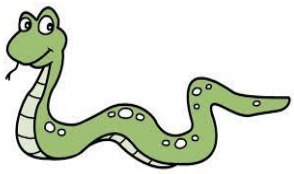
30

Name : …… Class:…… Time: 40 minutes

1- Look and Match (5 points)

policeman	watch cartoons	giraffe	do homework	snake

……



……

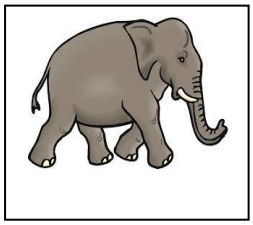
……

……

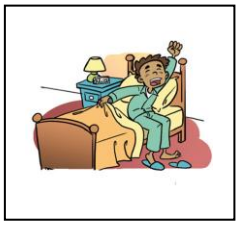
……

2- Choose and Write (3 points)

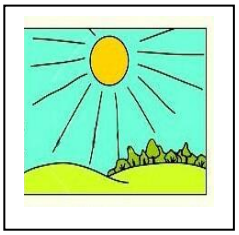
(t - p - e)



.....lephant



get u.....



af.....ernoon

3-Choose and Circle (4 points)




go to school	teacher	evening	aunt
do homework	farmer	night	mum
play computer games	policeman	afternoon	grandfather

4- Read and Choose (4 points)

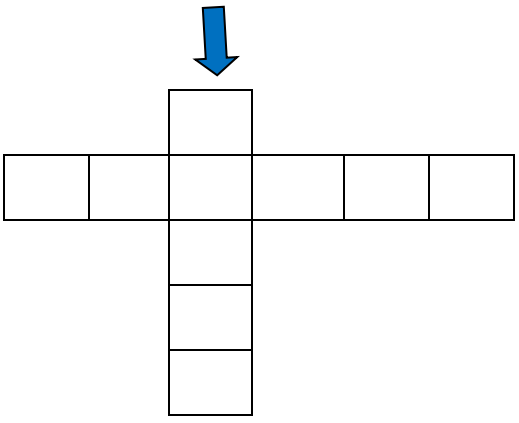
4- He's a **(dentist – doctor)**.

5- I **(go – get)** up in the morning.

6- This is an elephant. It's **(fast – slow)**.

7- I have **(one – three)** brother.

5- Write (2 points)



6-Re-write the letters (3 points)

(xfo)

……

(octdro)

……

(tgehi)

……

7- Look and write (6 points)

uncle - monkey - school - farmer - two - morning

4- This is a …… . It has …… legs .

5- He's my …… . He's a …… .

6- I go to …… in the …… .

8- Read and complete (3 points)

1- She's a …… .

2- I go to …… at night.

3- The giraffe has …… legs.

Good luck

Appendix (4): Procedures of using AR applications

First: Aurasma application

How to use Aurasma application:

The process of using Aurasma app is not as difficult as many people believe**;** you need to follow certain steps to implement this app, these steps as the following:

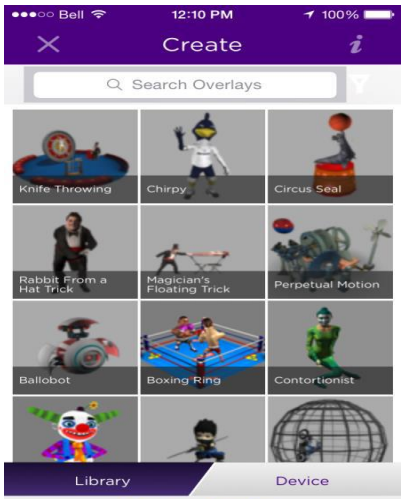
1. Firstly, the application must be downloaded and installed on an appropriate iOS or Android device.
2. Next, an overlay should be created or uploaded.
3. The trigger image should be uploaded.
4. This" aura" that contains the overlay content and the trigger image must be saved to the camera roll on the device.
5. A source image should be scanned through the Aurasma camera.

How to create an Aura:

To create an aura, users can tap on the "+" icon on the menu. Then, Aurasma will lead them to a three-step process of creating an aura; these steps are as the following **:**

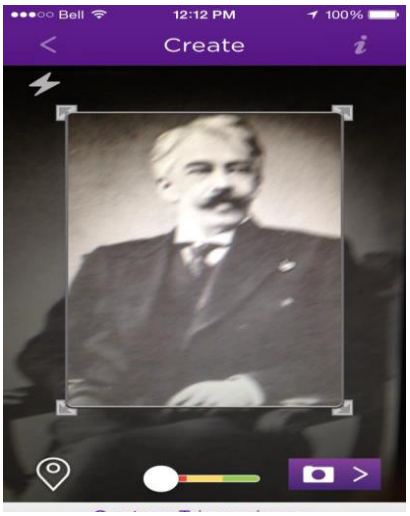
Step 1 **Choose an overlay**

- Users can select from Aurasma's library of overlays, upload their own photos and videos from the device photo library or create one using the device's camera.



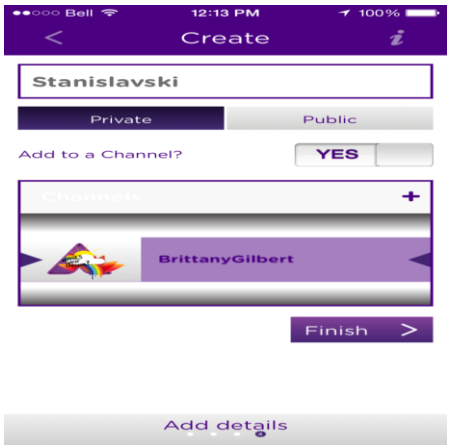
Step 2 **Capture a Trigger**

- After selecting an overlay, users will be prompted to choose a trigger image by taking a photo from their device's camera. When the bar at the bottom of the screen is green, that is a sign of a good trigger image.



Step 3 **Positioning the Overlay**

- By uploading the overlay content and trigger image, users can choose the position and size of the overlay.



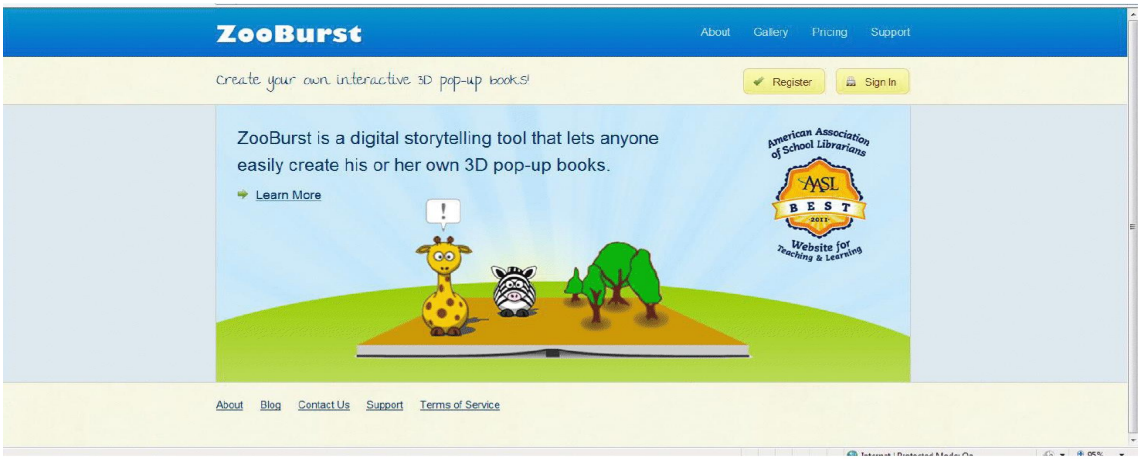
Then, the users can add detail through naming it, make it private or public, and adding it to a channel to make it easily searchable for other users. Finally, they can now test how their aura works by scanning the trigger image with the Aurasma camera (http://www.aurasma.com/aura).

Second: ZooBurst application:

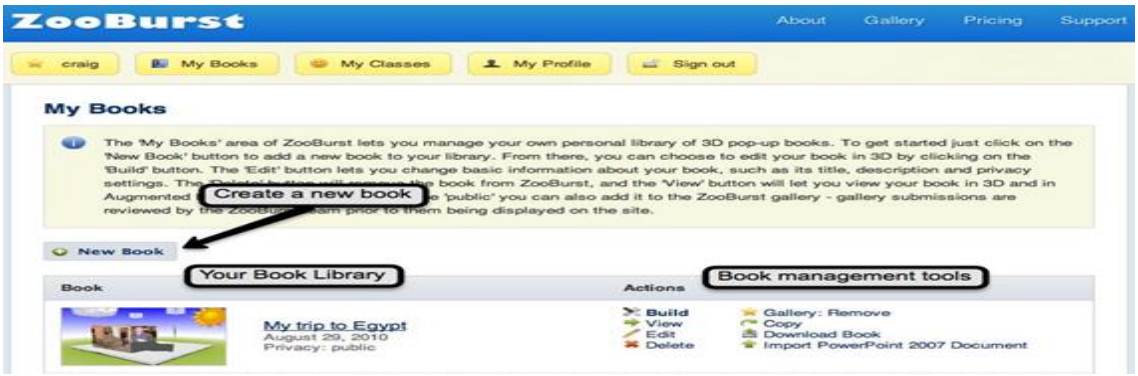
How to use ZooBurst application:

Getting Started the use of ZooBurst application is very easy; the user needs to follow the next steps:

1. Register for a Zooburst account at www.zooburst.com. Then, click “Sign in” and click on Personal or teacher account using your email and password sent to your email.

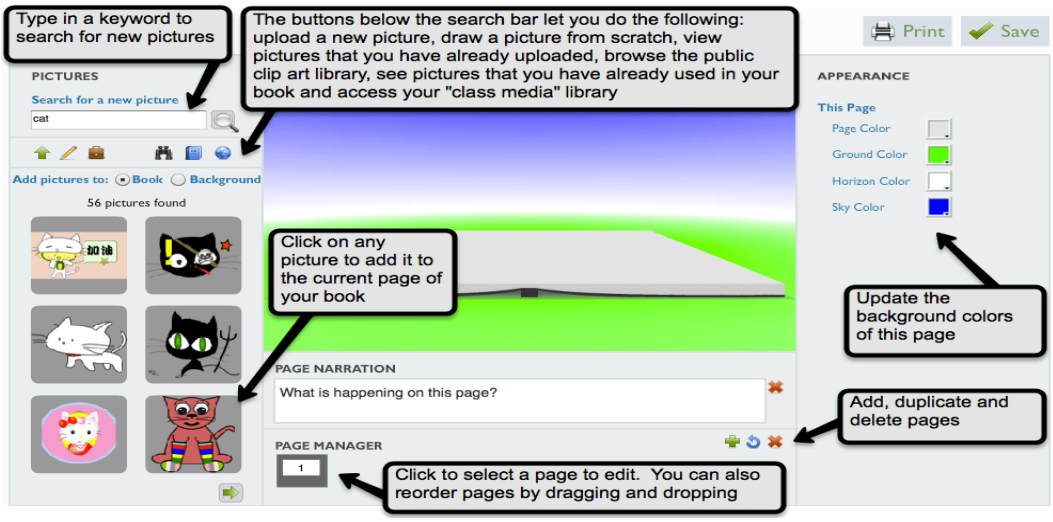


2. At the top of the screen, select "my books" button, next, click "new book", to create a new book naming it and filling in the information required, then, click "Save" button.



3. Begin building 3D book using images, sounds and a wide range of layout options, adding pictures that upload from the application itself or that saved in the device library.

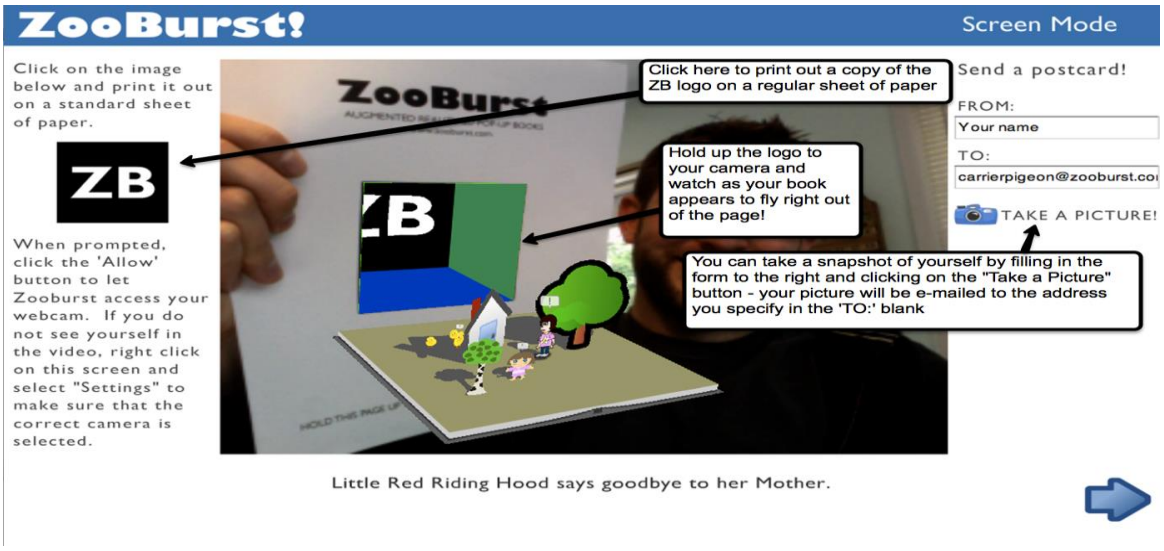
4. Click on "Appearance" panel to add color and images and to change the character's size and rotation, then, Click the" plus sign" under page manager to add pages.
5. Add text to any character by clicking on a character, and then, on" Character Text" panel at the bottom of the screen.



6. Click on the "Save" button at the top right side of the screen. It is important to save every step during working with a ZooBurst book.

7. Manage the existing books by clicking again on "My Books" button to modify and update the book through many process such as "Build, View, Edit, Delete and Gallery".

8. View a book in 3Don the screen or in Augmented Reality by clicking on the "View" link next to any of the existing books on the "My Books" page.



9. After finishing building and viewing the book, click on "Share" link below the book to open up the "Share" panel to share it with anyone connected to the internet(www.zooburst.com).

Appendix (5): The Methodology of developing the Augmented Reality

Introduction:

This study aims at examining the effectiveness of Augmented Reality applications on developing third graders' English Vocabulary. To achieve the objectives of the study, the researcher developed some AR applications. She also followed several steps in designing the applications, including:

1- Determining the theory that Augmented Reality applications based on:

Employing Augmented Reality applications are classified as constructivist theory, especially since it depends on the basis that the learner is the focus of the teaching and learning process , while the role of the teachers remains as motivator, director, advisor and planner of this process.

Moreover, the term of constructivism has used from different angles, and the educational view of constructivism is that learners have to construct their own understanding of the topics they study in the light of the previous backgrounds instead of having it ready from the teacher (Kauchak & Eggen, 2004, p. 281).

The interactive constructivism deals with learning according to two main domains; the private domain and the public domain. Furthermore, the interactive constructivism is characterized by asking the learners to gain experience concerning constructing ideas, thinking critically and having the ability to convince others of their views. In addition to practicing the directed investigation, dealing with the conceptual change and the learning circles, having the ability to experiment, explore, justify, strengthen and support and creating interaction between the ancient and the modern, as well as having the skill in applying the knowledge. Also, the interactive constructivism requires from the teacher to recognize what the learners already know and what they need to know. Thus, the teacher is facilitator and advisor for learners in the classroom during the employment of "Augmented Reality applications". The knowledge and ideas on the subject of the learner represent the initial starting point,

accordingly, the teacher has to enhance knowledge through various activities and experiences.

Learners according to the constructivist theory can employ and benefit from constructivist learning to be able to develop new knowledge based on the analysis and synthesis of information, linking it with the previous knowledge. Thus, they can reconstruct the cognitive structures that enable them to produce and innovate new ideas(Parkay and Glen, 2000, p. 18).

Some argue that the constructivist perspective makes the learner reaches the meaning through selecting the information and constructing what is known as well as distinguishing between the realistic and constructive view that is configured(Bruning et. al, 2004, p. 195).

Hence, the researcher believes that the learner reaches the meaning of vocabulary through selecting the useful information, constructing what he knows through his previous experience that teacher must be taken into account and employing them in the current educational situations. This what the researcher has included in the program.

Also, the researcher depends on many important principles in selecting, developing and employing the Augmented Reality applications. These principles are as the following:

1- Learning must be proportionate with the needs and interest of learners.
2- The learning goals must be consistent with the objectives of learners.
3- The cognitive domain and tasks in the field of learning should match those in the environment that individuals prepare.
4- The role of the teacher must be less compared to the roles of the learner.
5- Learners have to exchange ideas with their counterparts inside the group through establishing the principle of social negotiations.
6- The feedback process must be reinforced.

2- Identifying the educational problem and how to treat it:

The problem of the study is represented in the need to develop the vocabulary included in the units(2, 4 &7) from English for Palestine textbook 3A for the third graders. Then, the researcher has chosen the units (2, 4 & 7) to implement Augmented Reality applications for several reasons, the most important one is that, these units include many of the vocabulary that are necessary and essential not only to the language development of students in English, but also ,to the development of their ability to speak and express ideas.

3- Determining the general objectives of the applications:

The researcher has selected objectives of the applications according to the educational problem, as the basic objective of the application is to develop the English vocabulary of the third graders.

4- Determining the contents and the characteristics of Augmented Reality applications:

The researcher has reviewed many of the previous studies and the educational applications in English Language. Also, she has identified the content and properties of Augmented Reality applications as well as their techniques in developing vocabulary as each application has several elements which are :

- The start page of the application.
- Meaningful images, videos and audio effects.
- Three-dimensional animations.

5- Identifying the type of the application and the technical components:

Applications are considered as a teaching strategy that can be used in developing the English vocabulary of the third graders. It is noteworthy that the researcher has two educational applications of Augmented Reality as they are suitable for the capabilities of pupils. Then, she has developed them through adding some images, videos and 3D animations related to the subject of the study and the selected units.

6- Mapping the lessons of the units that the program includes.

7- Identifying the procedural goals:

The researcher has analyzed the content of the lessons of units (2 , 4 & 7)from "English for Palestine 3A" textbook for grade 3 of the scholastic year (2015/2016). And then she has selected the procedural objectives of the teacher's guide and where to use Augmented Reality applications, according to the results of the content analysis and the vocabulary included in these units.

8- Determining the teaching strategies that must be used:

Employing Augmented Reality applications depend on the principles and foundations of constructivist theory. This means that the student must be effective having very important roles while the teacher is supervisor, planner and organizer of the process. The strategies that must be used are:

- Active learning strategy.
- Discovery learning strategy.
- Discussion strategy.
- Problem-solving strategy.

9- Determining the material requirements for employing the applications of Augmented Reality:

The applications adopted by the researcher are very simple and easy to be used. They need smart device (iPad) with a camera, laptop , LCD device and internet connection to display the vocabulary associated with images, videos and 3D drawings. However, they need suitable lighting inside the classroom, in addition to well classroom administration.

10- Developing the applications:

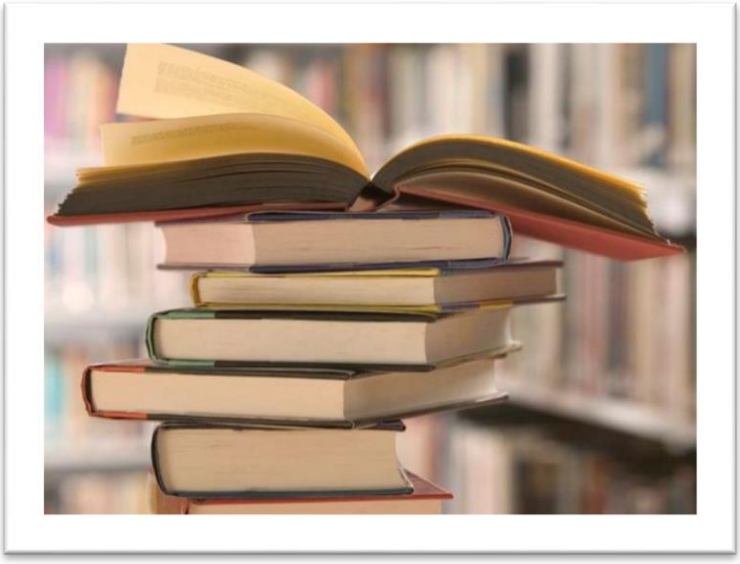
The researcher has selected two applications of Augmented Reality. Then she has used them in the teaching of vocabulary. She has also enriched the applications providing them with some required images and videos related to the vocabulary. After that, she has examined, modified and applied them to the experimental group.

11- Presenting and employing the applications in teaching vocabulary:

The researcher has developed and enriched the applications as the program has been applying for two months. It has taken (18) periods for the program to be applied to the third graders. It is worth mentioning that the presentation of the applications was by a smart device(iPad) and laptop. Also, presenting the content can be done on the white screen of the LCD device.

Appendix (6): Teacher guide

Lesson Planning and Preparation Notebook



In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 2 Lesson: 1 & 2 Period:

Objectives: By the end of this lesson, students should be able to:

Identify job vocabulary .

Language Functions:

Identifying job vocabulary.

New vocabulary:

{ doctor – nurse -- farmer – dentist – policeman – driver }

New Structures:

What's **his/ her** job?

She's / He's a teacher.

Pre-requisite

Vocabulary to be revised:
- teacher

Structure to be revised:
-

A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards.

Step	Sign	Procedures
Warming up	T	Introduces herself to the class. Warms them up by Playing the job song using Aurasma.
Revision	T	Revises the learnt vocabulary " teacher" using -flashcards.
Presentation Activity 1	T T T C T C T	- Presents new vocabulary using (flashcards / video / images / tablet) via Aurasma. - Plays a (night & morning) game with pupils to encourage them practice the job vocabulary. - Asks class to open their books p.10 eliciting them what the jobs they can see. - Give their answers . - Says " listen and write " and plays the recording . pausing after each question/answer so pupils can write the number. - Work in groups numbering the pictures. - Elicits answers using Aurasma and pupils check their work.
Activity 2	T T C	- Plays a "matching" game with pupils by showing them an image using Aurasma and pupils match it with the word. - Plays recording, pausing after the question so that the pupils can answer using information in Activity 1. - Give answers.
Activity 3	T C T C	- Reads the speech bubbles as pupils listen and repeat. - Reads the speech bubbles in groups and pairs. - Encourages pupils to work in groups, taking it in turn to ask and answer questions about people in Activity 1 using Aurasma. - Respond.

Period 2 practice Activity 1	T T T c T	- Asks pupils to read the job vocabulary using Aurasma. - Points to the example – farmer and tractor – asking pupils to explain the link between these in Arabic. - Says "Match" doing the first item with the whole class. - Work in groups matching the word with the corresponding tool. - Elicits answers using Aurasma as pupils check their answer.
Activity 2	T T C T	- Encourages pupils to read the words listed in the wordbox. - Discusses the first picture eliciting the answer using flashcard of "doctor". - Work in groups choosing words from wordbox to write a sentence under the picture. - Checks answers with the whole class using Aurasma .
Evaluation	T C	- Check the pupils' understanding by playing the " hidden word " game. - Guess the hidden job vocabulary.
Rounding up	T	- Summarizes what the pupils have learned using flashcards, asking pupils to read the job vocabulary .
Homework	C	- Pupils are assigned to copy the job vocabulary & do EX. 2 **Write no. (4,5 &6)** on page 11 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 2 Lesson: 3 & 4 Period:

Objectives: By the end of this lesson, students should be able to:

Practice saying what jobs family members do.

Language Functions:

Using the job vocabulary in saying what job family members do.

New vocabulary:

{ uncle – aunt – cousin }

New Structures:

Who's she / he ?

She's / He's my cousin. **She's / He's** a doctor.

Pre-requisite:

Vocabulary to be revised:
{ doctor – nurse – teacher – farmer – dentist – policeman – driver }

Structure to be revised:
- What's **his/ her** job? **She's / He's** a teacher.

A.V.M.:

Tablet - LCD – word cards – PB – photos- Worksheet – CD – poster – computer – internet connection .

Step	Sign	Procedures
Warming up	T	Warms the pupils up by giving them three job vocabulary as dictation.
Revision	T C	- Revises the learnt job vocabulary via Aurasma using flashcards . - Revises the learnt family vocabulary" mum , dad , sister , brother using photos and word cards -Pupils response
Presentation Activity 1	T T C T	- Displays the content through Zooburst platform. - Discusses the pictures eliciting the job words pictured. - Says **listen and match** and plays recording, pausing so that the pupils can match the people with their jobs. - Check answers in groups. - plays recording again for pupils to check their work.
Activity 2	T T T C T C C	- displays the pictures listed on 3D pop-up book through Zooburst. - Elicits the jobs encouraging pupils to make up an action for each job. - Reads aloud each pair of sentences asking the pupils to repeat . - Pupils read the text and do the action. - Says a statement from the audio randomly and pupils guess what job T refers to . - Works in groups ; groups read aloud and the others do the action.
Activity 3	T C C	- Says **sing** and plays recording as pupils listen. - Pupils listen and repeat doing the actions. - Sing the song in groups, one group sing and the other does the action.

Period 3 practice Activity 1	T T T C T	- Asks the pupils to read the words through Aurasma application. - Elicits the people pictured in Activity 1 and says **Write**. - Does the first item with the whole class. - Pupils work in groups writing the family words in the correct space. - Check answers with the whole class.
Activity 2	T T C T	- Elicits the job vocabulary through Aurasma. - Asks pupils to read out the words in 1. - Elicits the first word in the correct version of the sentences- He's and writes the answer on the board. - Work in groups ordering the words to make correct sentences. - Checks answers on the board with the whole class.
Evaluation	T	- Asks them a few questions about today's lesson - Gives class their own feedback.
Rounding up	T	- Summarizes what the pupils have learned using the job song .
Homework	C	- Pupils are assigned to do EX. 2 **Write no. (4 & 5)** on page 13 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 2 Lesson: 5 & 6 Period:

Objectives: By the end of this lesson, students should be able to:

Practice saying how many family members they have .

Language Functions:

Counting family members.

New vocabulary:

–

New Structures:

–

Pre-requisite:

Vocabulary to be revised:
{uncle – aunt – cousin – brother – sister – one – two – three – four - five }

Structure to be revised:
I have three brothers.

A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards

Step	Sign	Procedures
Warming up	T	- Warms pupils up by asking them to re-order numbers from 1 to 10 using numbers.
Revision	T C	- Revises the learnt family words using word cards . - Revises the learnt structure " How many sisters / brothers…? - Pupils give their answers
Presentation Activity 1	T T T T C	- Asks pupils to read the number words via Aurasma. - Says **listen** and plays recording, so that the pupils can follow the sentences in their books and listen out for the missing words. - Plays the recording , pausing so the pupils can write the number words - Checks answers with the whole class getting pupils to write answers on the board.
Activity 2	T T T T C	- Tells the pupils to use their answers to Activity 1 to respond. - Plays recording , pausing so the children can answer. - Pupils listen and answer the questions individually. - Checks answers orally listening to different pupils.
Activity 3	T T T C T C	- Asks the pupils to read the speech bubbles aloud. - Encourages pupils to read the question and the answer in groups - Models asking and answering questions with a pupil about his family using Aurasma. - Pupils work in groups , taking it in turn to ask and answer question about their families using Aurasma. - Checks answers orally with the whole class.

Period 6 practice Activity 1	T C T T T C C	- Displays the number vocabulary via **Aurasma** asking what number it is. - Pupils give their answers. - Says **Match** , monitoring and helping as necessary. - Asks pupils to match the words with the numbers in groups. - Checks answers by writing the exercise on the board asking pupils to match the words and the numbers. - Pupils correct their work.
Activity 2	T T T C T	- Discusses the pictures using Aurasma, asking the pupils to read the words in the box aloud. - Models sentence number "1" as an example with the pupils.. - Asks pupils to write the sentences in groups , then they take it in turn to say their work. - Checks answers with the whole class writing answers on the board.
Evaluation	T C	- Does **Activity 4** as an evaluation through asking pupils to act a job asking What's my job? - Pupils guess what job it is.
Rounding up	T	- Summarizes what the pupils have learned through playing "guessing game" acting the jobs .
Homework	C	- Pupils are assigned to do EX.3 **Write** on page 15 & do a worksheet for unit "2" at home.

Amir El-Mansi Basic "B" for boys

Worksheet for unit "2" **He's a doctor**

Name: ..... class: ..... Date: .....

Write

Re write the letters

(m r f r a e)

.....

(r n s u e)

.....

Look and write

policeman - aunt - driver - brother

- He's my ..... . He's a .....

Good luck

Miss / Tahani Rabea

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit:4 Lesson: 1 & 2 Period:

Objectives: By the end of this lesson, students should be able to:

- Identify animal vocabulary.
- Describe animals (number of legs and size).

Language Functions:

Identifying animal vocabulary.

New vocabulary:

{ elephant – fox – giraffe – snake – monkey }

New Structures:

I can see an elephant. It's very big . It has four legs.

Pre-requisite

Vocabulary to be revised:
– tiger
Structure to be revised:
- This is …
A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards
.

Step	Sign	Procedures
Warming up	T	Warms the pupils up by playing **at the zoo** song.
Revision	T C	- Asks the pupils to name any animal the know before including " tiger" using flashcards . - Pupils respond.
Presentation Activity 1	T T T C T C T	- Presents new vocabulary using (flashcards / 3D animation / images / tablet) via Aurasma. - Plays a (matching) game with pupils to encourage them practice the animal vocabulary. - Asks class to open their books p. 22 eliciting what they can see. - Give their answers . - Says " listen and write " and plays the recording . pausing after each sentence so pupils can write the correct letter.as - Work in groups writing the correct letter by each animal. - Elicits answers using Aurasma and pupils check their work.
Activity 2	T T C T T T C	- Shows the tiger through Aurasma and asks How many legs? Eliciting Four. - Encourages pupils to repeat with other animals . - Give answers. - Shows the snake asking How many legs does a snake have? Eliciting the answer. - Says listen and say and plays recording pausing after each sentence so that the pupils complete the sentences. - Checks answers in groups
Activity 3	T T C T	- Display the word cards for animals through Aurasma application and elicits the word each time. - Shows them **an elephant** asking How big is it? How many legs? - Pupils give their answers. - Encourages pupils to work in groups taking it in turn to describe the animals.

Period 2 practice Activity 1	T T C T	- Elicits the animals pictured through Aurasma application. - Asks a pupil to read the first sentences aloud and asks which picture is the fox? How many legs does it have? - Pupils answer. - Pupils work in groups reading and writing the information needed about the animal. - Check answers with the whole class.
Activity 2	T T C C T T	- Asks the pupils to read the animal vocabulary . - Models the activity and says **choose** pretending to think, then says This is a tiger .Is it big or small? It has….legs. - Give their answers. - Says choose and write as pupils work in groups taking it in turn to talk about their zoo. - Check answers with the whole class.
Evaluation	T C	- Check the pupils' understanding by playing the " night and morning " game. - Pupils read the animal vocabulary and describe the animal.
Rounding up	T	- Summarizes what the pupils have learned through asking pupils to name the new animals using flashcards .
Homework	C	- Pupils are assigned to copy the animal vocabulary & do EX. 2 **Choose and write** on page 23 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 4 Lesson: 3 & 4 Period:

Objectives: By the end of this lesson, students should be able to:

Describe animals (colours).

Language Functions:

Describing animals.

New vocabulary:

{ grey }

New Structures:

The elephant is grey.

Pre-requisite

Vocabulary to be revised:
{ elephant – tiger – fox – giraffe – snake – monkey– orange – white – black – brown – red – green }

Structure to be revised:
How many legs ….?

A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – computer – internet connection.

Step	Sign	Procedures
Warming up	T C	- Warms the pupils up by giving them two puzzles about animals e.g. **It is very big , it has four legs … what is it?** - Pupils guess what animal it is.
Revision	T C	-revises the learnt animal vocabulary using flashcards Asks pupils the following questions to revise colours : - What colour is this ruler/pencil / bag ? - Pupils answers.
Presentation Activity 1	T T T T C	- Elicits the animal pictured through Zooburst platform. - Asks pupils to open their books page 24 and read the words in the grid aloud and explains that they are going to listen to description of the animals and tick the correct box. - Says **listen and write** and plays recording pausing after each sentence so that the pupils can tick the box. - plays recording again for pupils to check their work. - Work in groups checking their work
Activity 2	T T C	- Tells the pupils to look at their answers in Activity 1. - Says listen and say and plays recording , pausing so that pupils can answer using information in the pictures . - Pupils gives their answers individually.
Activity 3	T T T T C	- Introduces the words **six- ten** using Aurasma application. - Writes on the board ten / five tigers and says listen playing recording pausing after the first sentence. - Asks ten or five eliciting ten asking pupils to circle it. - Says listen and circle playing recording so that pupils can circle the correct word. - Different pupils write the correct number on

		the board each time , the rest of the class check their work.
Activity 4	T T T C	- Asks the pupils to read the first pair of speech bubbles aloud. - Distributes the animal flashcards to the groups giving them the tablet and asks the pupils to work in groups using Aurasma to talk about the animals. - Checks answers orally with the whole class.
Period 4 practice Activity 1	T T C T C	- Asks the pupils to read aloud and complete each sentence. - Says **Read and write** . **Colour**. And monitor and helps as necessary . - Pupils work in groups reading and writing the family , then colouring the animals pictured. - Check answers with the whole class.
Activity 2	T T T T C	- Asks pupils to count from to ten . - Shows them pencils and asks how many pencils? Eliciting 6 , 4 pencils. - Says **write** getting the pupils to write the sequence of numbers from 1 to 10. - Checks answers on the board with the whole class.
Evaluation	T C	- Gives each group the first letter of an animal asking the pupils to guess and describe it. - Pupils respond by giving their answers.
Rounding up	T	- Summarizes what the pupils have learned using animal song via Aurasma .
Homework	C	- Pupils are assigned to do EX.3 **Write** on page 25 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 4 Lesson: 5 & 6 Period:

Objectives: By the end of this lesson, students should be able to:

Describe animals (speed).

Language Functions:

Describing animals.

New vocabulary:

{ slow – fast }

New Structures:

The elephant is slow.

Pre-requisite

Vocabulary to be revised:
{ elephant – tiger – fox – giraffe – snake – monkey }

Structure to be revised:
-What can you see? How many legs…? What colour is the ….?
A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards

Step	Sign	Procedures
Warming up	T C	- Warms the pupils up by playing the animal sounds recording. - Pupils guess what animal it is.
Revision	T C	- Revises the learnt animal vocabulary and colours using flashcards - Asks the pupils "How many legs …? To revise numbers - Pupils answers.
Presentation Activity 1	T T C T T C	- Elicits the animal words through Aurasma application. - Says **listen and circle** and plays recording after each picture asking which picture is it? Fast or slow ? - Pupils respond. - Continues playing recording so that the pupils can circle the correct description. - Elicits answers using Aurasma application and pupils correct their work
Activity 2	T T T T C	- Writes on the board I can see a / an … It's fast/slow . - Asks the pupils to say a sentence for the picture showed to them through Aurasma. - Plays recording , pausing after each question as Pupils listen and answer using information in Activity 1. - Checks answers orally with the whole class.
Activity 3	T T T C T	- Discusses the picture with the pupils using Aurasma. - Tells the pupils that they are going to listen to a song. - Plays recording as pupils listen and use their fingers to show the number they hear. - Pupils sing the song in groups pretending to be monkeys when they hear eee-eee-eee. - Repeats several times

Period 6 practice Activity 1	T T T C C T C T T	- Elicits the animals pictured on p. 26 via Aurasma. - Encourages pupils to read the words in the wordbox. - Does the first sentence as an example for pupils to follow . - Asks pupils to complete the sentences in groups . - Pupils complete the sentences and read them aloud. - Checks the answers and pupils correct their work. - Encourages pupils to do a worksheet for unit "4" in groups . - Checks answers on the board with the whole class.
Activity 2	T T T C T	- Reads the riddle aloud together. - Asks which animal am I? eliciting the answer . - Models an example about an animal for pupils to follow. - Encourages pupils to work in groups writing a riddle about an animal. - Checks answers orally with the whole class.
Evaluation	T C	- Plays the" hidden game" with the whole class. - Pupils guess the hidden animal words.
Rounding up	T	- Summarizes what the pupils have learned using the miming game as pupils guess the sound of the animals .
Homework	C	- Pupils are assigned to do the same as Ex." 2" about another animal & EX.3 **Write** on page 27 at home.

Amir El-Mansi Basic "B" for boys
Worksheet for unit "4" **At the zoo**

Name:……class:……Date: ……

Read and choose

fox

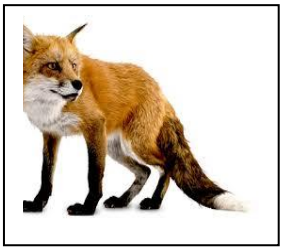
tiger

monkey

giraffe

elephant

snake



tiger

giraffe

fox

Write

black - fast - two - monkey

This is a …… . It is …… . It has …… legs.
It's …… .

Complete

s _ _ _ _

e_ _ _ _ _ _ t

Miss / Tahani Rabea

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 7 Lesson: 1 & 2 Period:

Objectives: By the end of this lesson, students should be able to:

Identify daily activities

Talk about their daily routine.

Language Functions:

Talking about their daily routine.

New vocabulary:

{ get up – go to school – do homework – watch cartoons – play computer games – go to bed }

New Structures:

I play computer games.

Pre-requisite

Vocabulary to be revised
{ bed – school – homework }
Structure to be revised:
-
A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards.

Step	Sign	Procedures
Warming up	T C	Warms the pupils up by playing "the letter game" by giving them a letter and asks them to produce a word starting with this letter . Gives their answers .
Revision	T	- Revises the learnt vocabulary using flashcards and word cards.
Presentation Activity 1	T T T C T T C T	- Presents the daily routine vocabulary using (flashcards / video / images / tablet) via Aurasma. - Plays a (ball) game with pupils to encourage them practice the daily routine. Pupils have to bounce the ball to each other saying what daily routine they do. - Asks class to open their books p.40 eliciting them what daily routine pictured. - Give their answers . - Says " write " and models writing 1 in the book as an example . - Say " listen " and plays recording , pausing so that the pupils can check their work. - Elicits answers using Aurasma and pupils check their work.
Activity 2	T T C	- Plays a "matching" game with pupils by showing them an image using Aurasma and pupils match it with the daily routine . - Says " listen and say " and Plays recording, pausing so that the pupils can repeat the first part and complete. - the pupils can answer using information in Activity 1. - Give answers.
Activity 3	T T T	- Elicits the daily routines pictured in Activity 2 via Aurasma. - Encourage pupils to work in groups, taking it in turn to ask and answer questions about people in Activity 1 using Aurasma. - Gives the pupils an action asking them to say the daily routines that refer to that action.

	C	- Respond through giving their answers.
Period 2 practice Activity 1	T T C T T C	- Distributes letter cards to the groups asking the pupils to complete the phrases and check their works via Aurasma. - Asks pupils what order they do the activities in the day. - Pupils respond. - Says **Write** as pupils work in groups taking it in turn to write and say their sentences. - Elicits answers by asking pupils to make each sentence using the word cards.
Activity 2	T T T C T C	- Discusses what they can see in each picture. - Asks pupils to read the words that are in jumbled order , eliciting the correct order for each sentence. - Says **Write** doing the second sentence as an example for pupils to follow. - Pupils work in groups doing the next two sentences. - Checks answers with the whole class writing the sentences on the board.
Evaluation	T C	- Check the pupils' understanding by saying the first part and pupils complete the sentences . - Pupils give their answers.
Rounding up	T	- Summarizes what the pupils have learned through asking pupils to identify the daily activities using flashcards.
Homework	C	- Pupils are assigned to copy routine vocabulary & do EX. 2 **Write no. (4,5 & 6)** on page 41 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit: 7 Lesson: 3 & 4 Period:

Objectives: By the end of this lesson, students should be able to:

- Practice talking about their daily routines .
- Say what time of day they do things.

Language Functions:

talking about what time of day they their daily routines.

New vocabulary:

{ morning – afternoon – evening - night }

New Structures:

I get up in the morning .

Pre-requisite

Vocabulary to be revised:
{ get up – go to school – do homework – watch cartoons – play computer games – go to bed }
Structure to be revised:
I get up – I go to school ….etc.
A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards - computer – internet connection.

Step	Sign	Procedures
Warming up	T	Warms the pupils up by playing a "guessing game", giving them an action as they guess what activity the action refers to.
Revision	T C	- Asks pupils the following question to revise the daily routine : "What do you do?" Showing the pupils a picture each time using Aurasma. - Give their answers.
Presentation Activity 1	T T T C T T T C	- Introduces times of day through Zooburst. - Asks the pupils to open their books page 42 and read the speech bubbles aloud. - Elicits the times pictured , then draws the symbol for evening on the board saying when? - Pupils answer **in the evening.** - Repeats with other symbols ,each time asking a different pupil to do the drawing . - Says listen and draw and plays recording , pausing so the pupils can draw the symbol by each daily routine. - Pupils checks answers in groups , getting pupils to draw the symbols on the board.
Activity 2	T T C	- Says **listen and say** and plays recording , pausing so the pupils can respond to the questions using information in Activity 1 . - Repeats the questions asking several pupils to elicit answers about their own daily routine. - Pupils give their individual answers.
Activity 3	T T T T C	- Asks pupils to read the speech bubbles aloud. - Displays the daily routine through Zooburst. - Models a question and answer with a pupil , asking pupils to work in groups taking it in turn to ask and answer. - Checks answers with the whole class orally.

Period 4 practice Activity 1	T T T C T C	- Asks pupils to read out the pictured labels through Aurasma. - Says 1 . in the morning or in the evening , eliciting in the evening and asks them to circle it as an example. - Says **circle**, asking pupils to work in groups, circling the correct answer. - Work in groups circling the word that refers to the picture. Checks answers on the board with the whole class.
Activity 2	T T C T	- Elicits the times pictured in Activity 1 . Then elicits them in chronological order . - Says **Write** asking them to write the time expression in the order they come in the day. - Pupils work in groups ordering the times as they come in the day. - Checks answers asking pupils to order the time expressions using wordcards , so that the pupils can correct their work.
Evaluation	T	- Asks them a few questions about today's lesson e.g. when do you get up / go to bed ? Pupils answer" in the morning", " at night" - Gives class their own feedback.
Rounding up	T	- Summarizes what the pupils have learned using acting and drawing game as pupils act the activity and other pupils draw the period symbol .
Homework	C	- Pupils are assigned to do EX.3 **Write** on page 43 at home.

In the name of Allah, the Most Gracious the Ever Merciful

Date: Day:
Grade: "3"
Unit:7 Lesson: 5 & 6 Period:

Objectives: By the end of this lesson, students should be able to:

- Practice talking about their daily routine.

- Practice saying what time of day they do things.

Language Functions:

Talking about daily routines.

New vocabulary:

{ eat – friends }

New Structures:

When do you do your homework?

In the afternoon.

Pre-requisite

Vocabulary to be revised:
{ get up – go to school – do homework – watch cartoons – play computer games – go to bed - morning – afternoon – evening - night }

Structure to be revised:
What do you do in the……./ at night ?
A.V.M.:

Tablet - LCD – word cards – PB - Worksheet – CD – poster – flashcards.

Step	Sign	Procedures
Warming up	T C	Warms the pupils up by playing "half-phrase game" through saying the first half of phrase and pupils say the other part.
Revision	T C	-revises the structure What do you do in the..../ at night? using flashcards. - Give their answers.
Presentation Activity 1	T T T T T C T C	- Elicits activities pictured through Aurasma. - Asks pupils to read the time expressions aloud. - Says **listen** and **write** and plays recording , pausing after Walid's first response , eliciting the answer. - Asks pupils to write a tick if the sentence is true and a cross if it's false. - Plays recording so that the pupils listen and do the task. - Pupils check their work in groups. - Encourages pupils to correct the false versions.
Activity 2 & 3	T T T T C	- Elicits the activities pictured via Aurasma. - Says **listen and say** and plays recording , pausing so the pupils can answer using the prompts as if they were Hala. - Repeats with other items so the pupils can answer more fluently. - Checks answers orally with the whole class. - Says **listen** and **say** and plays recording , pausing so the pupils can answer as though they were Hala, using the information in activity 2.
Activity 3	T T T T C	- Asks pupils to read the speech bubbles aloud. - Models a question and answer with a pupil, using Aurasma and asking pupils to work in groups taking it in turn to ask and answer. - Checks answers with the whole class orally.

Period 6 practice Activity 1	T T T T T C	- Asks pupils to read the questions aloud. - Explains the concept of a pie chart using a poster. - Encourages the pupils to read the questions aloud , eliciting the answers. - Models an example for pupils to follow , asking them to work in groups , reading and writing the answers. - Checks answers on the board with the whole class, explaining as necessary and pupils correct their work.
Activity 2	T T T T C	- Elicits the daily routines and the times of day via 3D pop-up book through Zooburst. - Tells pupils that they will play a game, choosing an activity e.g. **watch cartoons** , then drawing a circle on the board and divides it into sections . - Says **say** and **colour** asking when do you (watch cartoons)?eliciting replies asking each pupil to colour in his/her section using appropriate colour. - Asks them to count up the sections for each answer - Asks How many pupils watch cartoons in the evening? etc. - Gives their answers orally.
Evaluation	T C	- Does ***"Activity 4"*** as an evaluation of the lesson which is about practicing actions for the daily activities with the times of day. - Gives class their own feedback.
Rounding up	T	- Summarizes what the pupils have learned through playing the acting game as pupils guess the daily activity.
Homework	C	- Pupils are assigned to do EX.3 **Write in your copybook** on page 45 & do a worksheet for unit "7" at home.

Amir El-Mansi Basic "B" for boys

Worksheet for unit " 7 " My day

Name: ..... class: ..... Date: .....

Match

1	Watch	school
2	do	up
3	Play computer	Cartoons
4	get	to bed
5	go to	games
6	go	homework

Read and choose

1 - I get up in the _____. (evening - morning)

2- I do homework in the _____ . (night - afternoon)

3 - I watch cartoons in the _____. (afternoon - evening)

4- I go to bed at _____ . (morning - night)

Goodbye

Miss / Tahani Rabea

Appendix (7): permission received from the Islamic university of Gaza

بسم الله الرحمن الرحيم

الجامعة الإسلامية – غزة
The Islamic University - Gaza
مكتب نائب الرئيس للبحث العلمي والدراسات العليا هاتف داخلي 1150

الرقم Ref ج س غ/35/
التاريخ Date 2015/09/20

الأخ الدكتور/ وكيل وزارة التربية والتعليم العالي حفظه الله

السلام عليكم ورحمة الله وبركاته،

الموضوع/ تسهيل مهمة طالبة ماجستير

تهديكم شئون البحث العلمي والدراسات العليا أعطر تحياتها، وترجو من سيادتكم بمساعدة الطالبة/ **تهاني ابراهيم محمود ربيع**، برقم جامعي **220120065** المسجلة في برنامج الماجستير بكلية التربية تخصص **مناهج وطرق تدريس** وذلك بهدف تطبيق أدوات دراستها والحصول على المعلومات التي تساعدها في إعداد رسالة الماجستير والتي بعنوان:

فاعلية تطبيقات الحقيقة المدمجة في تنمية مفردات اللغة الإنجليزية للصف الثالث في محافظات غزة

The effectiveness of augmented reality applications on developing third graders' English vocabulary in Gaza governorate

والله ولي التوفيق،

نائب الرئيس لشئون البحث العلمي والدراسات العليا

أ.د. عبدالرؤوف علي المناعمة

صورة إلى:-
- الملف

ص.ب 108 الرمال غزة فلسطين هاتف Tel: +970 (8) 286 0700 فاكس fax: +970 (8) 286 0800 Box 108, Rimal, Gaza, Palestine

السلطة الوطنية الفلسطينية
وزارة التربية والتعليم العالي
مديرية التربية والتعليم / غرب غزة

Palestinian National Authority
Ministry of Education & Higher Education
Directorate of Education /west Gaza

قسم التخطيط والمعلومات
التاريخ: 20/ 09 / 2015م
الموافق: 8/ ذي الحجة/ 1436هـ

السادة/ مديري ومديرات المدارس المعنية المحترمون،،

السلام عليكم ورحمة الله وبركاته،

الموضوع: تسهيل مهمة

نهديكم عاطر التحيات، ونتمنى لكم موفور الصحة والعافية، بخصوص الموضوع أعلاه نرجو من سيادتكم تسهيل مهمة الباحثة/ **تهاني ابراهيم ربيع** ، والذين تجري بحثاً بعنوان: " **فاعلية تطبيقات الحقيقة المدمجة في تنمية مفردات اللغة الانجليزية للصف الثالث في محافظات غزة** " ، في تطبيق أدوات الدراسة على عينة من طلبة المرحلة الابتدائية ، وذلك حسب الأصول.

ولكم منا فائق الاحترام والتقدير،،،

مدير التربية والتعليم
أ. محمود أمين مطر

2015/9/21

m.b

West Gaza - Tel : (+ 9708 2865209 ، 2829206) Fax (+ 9708 2865300)
WWW.facebook.com/dirwest
غرب غزة – هاتف : (2865209 ، + 9708 2829206) فاكس (+ 9708 2865300)
Email: dirwest@mohe.ps

Appendix (8): Pictures of the classroom during the application