



**UNIVERSIDAD TÉCNICA PARTICULAR DE LOJA**  
*La Universidad Católica de Loja*

**ÁREA SOCIOHUMANÍSTICA**

**TÍTULO DE LICENCIADO EN CIENCIAS DE LA  
EDUCACIÓN MENCIÓN INGLÉS**

TRABAJO DE TITULACIÓN

**The effect of Augmented Reality to improve learners'  
grammar skills in private high schools.**

**Autora:** Landi Largo, Carla Ximena

**Directora:** Toro Gallardo, Lisset Vanessa, Mgtr.

LOJA – ECUADOR

2020



*Esta versión digital, ha sido acreditada bajo la licencia Creative Commons 4.0, CC BY-NC-SA: Reconocimiento-No comercial-Compartir igual; la cual permite copiar, distribuir y comunicar públicamente la obra, mientras se reconozca la autoría original, no se utilice con fines comerciales y se permiten obras derivadas, siempre que mantenga la misma licencia al ser divulgada. <http://creativecommons.org/licenses/by-nc-sa/4.0/deed.es>*

2020

**Aprobación del director del trabajo de titulación**

Loja, 8 de julio de 2020

Magíster.

Vanessa Lisset Toro Gallardo

**Docente de la titulación de inglés**

Ciudad. -

De mi consideración:

El presente trabajo de titulación: The effect of Augmented Reality to improve learners' grammar skills in private high schools realizado por Carla Ximena Landi Largo, ha sido orientado y revisado durante su ejecución, por cuanto se aprueba la presentación del mismo. Así mismo, doy fe que dicho trabajo de titulación ha sido revisado por la herramienta antiplagio institucional.

Particular que comunico para los fines pertinentes.

Atentamente,

Firma: .....

Vanessa Lisset Toro Gallardo

CI: 1104074842

### **Declaración de autoría y cesión de derechos**

“Yo, Carla Ximena Landi Largo, declaro y acepto en forma expresa lo siguiente:

- Ser autor(a) del Trabajo de Titulación denominado: The effect of Augmented Reality to improve learners' grammar skills in private high schools, de la Titulación de Inglés, específicamente de los contenidos comprendidos en: Introduction, Chapter 1: literature review, Chapter 2: method, Chapter: results and discussion. Description, Analysis and Interpretation of the Results, Conclusions and Recommendations, siendo Lisset Vanessa Toro Gallardo, directora del presente trabajo; y, en tal virtud, eximo expresamente a la Universidad Técnica Particular de Loja y a sus representantes legales de posibles reclamos o acciones judiciales o administrativas, en relación a la propiedad intelectual. Además, ratifico que las ideas, conceptos, procedimientos y resultados vertidos en el presente trabajo investigativo son de mi exclusiva responsabilidad.
- Que mi obra, producto de mis actividades académicas y de investigación, forma parte del patrimonio de la Universidad Técnica Particular de Loja, de conformidad con el artículo 20, literal j), de la Ley Orgánica de Educación Superior; y, artículo 91 del Estatuto Orgánico de la UTPL, que establece: “Forman parte del patrimonio de la Universidad la propiedad intelectual de investigaciones, trabajos científicos o técnicos y tesis de grado que se realicen a través, o con el apoyo financiero, académico o institucional (operativo) de la Universidad”.
- Autorizo a la Universidad Técnica Particular de Loja para que pueda hacer uso de mi obra con fines netamente académicos, ya sea de forma impresa, digital y/o electrónica o por cualquier medio conocido o por conocerse, sirviendo el presente instrumento como la fe de mi completo consentimiento; y, para que sea ingresada al Sistema Nacional de Información de la Educación Superior del Ecuador para su difusión pública, en cumplimiento del artículo 144 de la Ley Orgánica de Educación Superior.

Firma: .....

Carla Ximena Landi Largo

1105580672

## **Dedication**

This thesis is dedicated with love to my parents, who have been my guide and the main support in my life.

They have supported me every day and encouraged me to never give up.

I want to dedicate this thesis to myself as a sign of dedication, effort, and achievements obtained throughout this journey.

I want to thank my beloved family and my close friends for being an important support in my life and for believing on me.

Carla Ximena

## **Acknowledgement**

My genuine gratitude to Universidad Técnica Particular de Loja and my professors for guiding me on the right route of knowledge and for providing me the values needed to be a prosperous person in life.

I would also like to thank my tutor Mgtr. Lisset Vanessa Toro Gallardo, for giving me all her assistance and patience so that this research was successfully developed.

As well as to my classmates, especially to Maria Eduarda Ludeña, who was a big support in this investigation, and friends who have emotionally supported me morally to follow my dreams.

Carla Ximena

## Contents

Cover .....	I
Aprobación del director de trabajo de titulación .....	II
Declaración de autoría y cesión de derechos .....	III
Dedication.....	V
Acknowledgement .....	VI
Contents .....	VII
List of charts .....	VIII
Abstract .....	1
Resumen .....	2
Introduction.....	3
Chapter i: literature review .....	5
Chapter ii: method .....	23
Chapter iii: results and discussion.....	25
Description, analysis and interpretation of the results.....	25
Conclusions .....	33
Recommendations .....	34
References .....	35
Annexes.....	40

**List of charts**

Table 1. How does the use of Augmented Reality increase students' motivation to learn grammar? .....	8
Table 2. How does the use of Augmented Reality improve students' achievement?.....	11
Table 3. What is students' attitude towards the use of Augmented Reality? .....	14

## **Abstract**

The present research study aims to identify the effect of Augmented Reality in teaching grammar in terms of motivation, achievement, and attitude. The participants of this study are 15 students from a private high school in Loja-Ecuador, six men and nine women whose ages range from 14 to 16 years old. The students are from the advanced level of the 10th grade and 1<sup>st</sup> year of high school. Both qualitative and quantitative approaches were used to analyze the collected data through instruments such as students' survey, English teacher's interview, classroom observations, and students' pre and post-test. The results show that applying Augmented Reality improves students' grammar skills. Also, the results demonstrate that using Augmented Reality increases the students' motivation to learn grammar. Likewise, the interaction between teacher and students is better since they are more confident to use the language with their teacher.

**Keywords:** Augmented Reality, grammar, attitude, motivation, achievement.

## Resumen

Esta investigación tiene como objetivo identificar el impacto de la Realidad Aumentada en la enseñanza de la gramática en términos de motivación, logros y actitud. Los participantes de este estudio son 15 estudiantes de un colegio privado de Loja-Ecuador, seis hombres y nueve mujeres cuyas edades van de los 14 a los 16 años. Los estudiantes son del nivel avanzado del 10º grado y del 1º de bachillerato. Se utilizaron enfoques cualitativos y cuantitativos para analizar los datos recopilados mediante instrumentos como la encuesta a los estudiantes, la entrevista a los profesores de inglés, las observaciones en el aula y el pre y el post test de los estudiantes. Los resultados muestran que la aplicación de la Realidad Aumentada mejora las habilidades gramaticales de los estudiantes. Además, los resultados demuestran que el uso de la Realidad Aumentada aumenta la motivación de los estudiantes para aprender gramática. De la misma manera, la interacción entre el profesor y los estudiantes es mejor, ya que tienen más confianza para usar el lenguaje con su profesor.

**Palabras clave:** Realidad Aumentada, gramática, actitud, motivación, rendimiento académico.

## Introduction

According to Negahdaripour and Amirhassemi (2016), grammar is one of the most challenging skills to teach and learn. English as a foreign language is not the exception; hence teaching English grammar in an English foreign language classroom demands a significant effort to have successful results.

Abdulmajeed and Hameed (2017) claim that grammar is an essential skill that allows students to use the language for their needs of communication. Besides, there are a lot of grammatical rules and structures to learn, which makes students get bored in class. In this regard, Akyuz and Yavuz (2015) argue that the use of technology can enhance the teaching process productively and facilitates the acquisition of grammar skills in a real context.

Emergent technologies have been applied in EFL classrooms to improve the learning process; one of them is Augmented Reality. Augmented Reality provides a new perspective for learning by allowing learners to visualize complex spatial relationships and abstract concepts. Besides, Augmented Reality is considered as a useful instrument to improve students' achievement, especially in grammar (Solak & Cakir, 2016).

Therefore, the purpose of this study is to determine the impact of Augmented Reality to improve learners' grammar skills in private high schools; also, the principal teachers are involved in this study. The most important reason for the scope of the current study is the increasing of technology advance in the educational field.

Likewise, the study conducted by Solak and Cakir (2016) informs about general theoretical and practical knowledge of the use of Augmented Reality applications in the educational field, especially in language classrooms. Also, the investigation affirms that using technology supports the teaching and learning process. Likewise, it helps teachers to encourage active participation in the classroom and contribute to the effectiveness of vocabulary and grammar learning. The study concludes with pedagogical implications about the effectiveness of using Augmented Reality applications in the English language teaching area, mainly teaching new vocabulary and grammar.

In a similar study, Takkac (2019) offers a general theoretical overview of Augmented Reality and its application in teaching English. The study provides some important advantages and disadvantages to the use of AR in the English classroom. Also, it emphasizes the lack of training of the teachers in the use of this new technology. The study concludes with some pedagogical suggestions to have an effective implementation of AR in English classrooms.

This research study is divided into three important chapters. Firstly, chapter one highlights relevant information about the theoretical framework; in other words, this section provides a broad overview of Augmented Reality in the educational field, especially in teaching EFL. Secondly, chapter two describes the participants, the process, and the steps that the research needs to accomplish the established goals. Finally, chapter three, which is considered the most important of this study, contains the analysis of the results taken from the collected data, including conclusions and recommendations.

The foremost beneficiaries of this investigation are the students of the private high school due to the use of Augmented Reality helped them to improve their grammar skills. Also, they increase their motivation in learning grammar skills because AR allows learners to focus more in practice instead of just theory. In the same way, teachers are part of beneficiaries since the use of new technology in classes foster an active learning approach, helping modern learners enhance their performance. Besides, the information obtained from this study can be used as a reference for further researches as there are not enough researches on the use of Augmented Reality to teach grammar. Finally, it should be stressed that no limitations were found in the present study.

## Chapter I: literature review

In this century, technological tools have been applied in the educational field as a strategy to improve students' language skills. This section contains information about the use of Augmented Reality in the teaching field. The chapter highlights some key aspects of Augmented Reality technology, such as its definition, characteristics, and uses in education. In addition, related topics are explained, such as the use of different technological tools to teach English grammar, the use of AR as a strategy to teach English in an EFL classroom, and the advantages and disadvantages of using this tool. Also, the definition and types of motivation are mentioned. Finally, the impact of the use of technology on teachers is also analyzed.

### **Augmented Reality**

#### ***Definition.***

According to Sherman and Craig (2003), Augmented Reality is a new technology of the modern era. As well as being considered one of the best tools to use in the educational field, the AR gives the user more information about the physical world. In other words, it allows mixing virtual data with physical reality data.

In addition, Barfield and Caudell (2001) describe AR as real-world propagation using artificial images. AR is a technology in which people can interact not only visually, but also with tactile, tangible, and auditory information. Therefore, AR can include sensory elements of physical reality, such as images, virtual models, sounds, and more.

Solak and Cakir (2015) define Augmented Reality as a technology that allows an object to be displayed in real-time on a computer or technological device where the person can interact with it without physically having it. Augmented Reality creates different scenarios through computers or technological devices that allow the observation of the real world with virtual objects overlapping; therefore, it enables us to complement reality rather than replacing it. The aim of this

type of technology is that users can have the perception that real and virtual things coexist in the same space since within AR there is already a real-world, and it is just required to insert a small amount of information (Roca, Gutiérrez, García and Mato, 2017; Sherman and Craig, 2003).

### ***Characteristics.***

Fatih, Ozkan, and Sahim (2017) claim that AR uses digital displays that embedded material as if it were a real object. In the same line, according to Azuma (2001), the system of AR includes three traits, such as the mix of reality with a virtual environment, the interaction in real-time, and three-dimensional registration. Due to these features, this technology provides better management and exclusive access to information anywhere and anytime, since it combines the interactive real-world and virtual world in a consistent space (Hashim, Abd, Arshad, and Obeidy, 2018). Despite there are some contents such as movies that add virtual effects or virtual effects in 2D, which are displayed on top of the live video, these are excluded from the AR because, these kinds of systems do not have virtual effects displayed in 3D (Steffen, Gaskin, Meservy, Jenkins, and Wolman, 2019).

The virtual elements created by AR aims to increase the physical world or offer items that could not otherwise exist without visualization. Other types of technology need to follow some physical laws, but with the use of AR, it is not necessary to follow those physical laws; users can break them, such as gravity. (Steffen, Gaskin, Meservy, Jenkins, and Wolman, 2019). Other types of components that AR uses to have a compelling environment are displays, tracking, registration, and calibration.

Displays to observe virtual and real environments are classified into the next categories head-worn, handheld, and projective. In the first category, the head-worn consists of a display on which users mount this type of screen on their heads, creating images in front of their eyes. Similarly, some handhelds are used in AR systems, made up of a window or a magnifying glass

that displays real things with AR overlay. Also, the virtual information can be shown by the projection display. It is aimed at displaying the physical object directly to be augmented (Azuma, Bailiot, Behringer, Feiner, Julier, and MacIntyre, 2001).

Likewise, the AR system has to employ a tracking system, which can be a hybrid-tracking system; it means magnetic and video sensors. The visual tracking is based on modifying the environment with fiducial markers placed in the background at known locations. Those types of markers can have different sizes with the purpose to increase tracking range and the computer-vision tech (Azuma, Bailiot, Behringer, Feiner, Julier, and MacIntyre, 2001).

Together with the rest of the AR components, Azuma, Bailiot, Behringer, Feiner, Julier, and MacIntyre (2001) claims that the calibration is essential in the same way. The AR system needs extensive calibration to create precision registration. Well-established basic principles of camera calibration jointly with the development of manual techniques are used in the AR system. The components mentioned before are essential and useful to have a strong material with AR. Each one has a goal that allows the AR system to work adequately.

### ***Types of augmented reality***

There are three types of Augmented Reality, the physical or real component, the digital or virtual component, and the interaction between physical and digital with the user. The physical component is also defined as marker, activator, and trackable. The component is divided into different levels. The first level is an artificial black and white pattern. The second level is a picture. The third one is a 3D entity. The fourth one is a point on the planet determined by its GPS coordinates, and the last level is the thermal footprint (Barroso J. C., 2017).

The digital component is the most used around the world because it can find mixed realities that integrate 3D, video, text, pictures, and audio. Also, the digital content that is directed by jumping to a specific URL is integrated as part of the digital group. Inside of the digital component,

there are five virtual predominate components. Augmented Reality based on pictures is the first. Included in this component are images in png or jpg format. An example of this image is the 360° panoramic images. In the second place, there is another component based in 3D. In this group, it can find static, natural, artificial, Dicom, and animated material. (Barroso J. C., 2017).

Moreover, there are AR components available based on mp4 format videos that are more suitable for full-screen viewing. However, it hides the real scenario and harms the mixed reality experience, while the 3g2 is a format that allows making the background transparent. By the same token, some visualizations in 2D are considered as part of this group. Also, there are AR-based in audio. The compress formats are the best. The audios can be useful to integrate tourism, publicity, or in the educational field. The last component is AR-based in multimedia. Those virtual objects can be combined in the same scenario, which is often used — for example, the combination of audio and 3D in the same scenario (Barroso, Cabero, Garcia, Calle, Gallego & Casado, s.f.).

The last type of AR is based on functionality whereby other sub-components are detached. The augmented perception is the first component that allows acquiring the knowledge easily. This function is subdivided into five more functions. These are documented reality and documented virtuality, reality with increased perception, or understanding, the perceptual association of the real and the virtual, behavioral association of the real and the virtual, the substitution of the real for the virtual or virtualized Reality (Barroso J. C., 2017).

Finally, belonging to the functional group, it is involved the creation of an artificial environment, which is subdivided into three more components. These components are, image using for the future reality, image associating the real with the virtual, image using for reality in the past, and the image as an impossible reality (Barroso J. C., 2017).

## **Augmented Reality in Language Teaching**

### ***Digital education in language teaching***

Technology is an element that creates many possibilities to have a quality education, to increase the students' motivation, and to improve the learning process. However, technology and its innovations for education change rapidly, which makes it harder for teachers to adapt easily to new trends. Although some teachers are still using chalk and blackboard, the use of technological devices in language teaching classrooms is more usually. Technology provides a lot of different options to the teachers, is a tool to create interactive classes in the language classroom ( Akyuz, Yavuz, 2015).

As a matter of fact, the students in this twenty-first century grow up and are educated in a digital age. Even though they can be considered as "digital natives," they need to be guided by a teacher to obtain a fully engage with their potential in the use of digital products. This twenty-first-century can prepare teachers and learners to fit into the technological society (Biasini, 2018).

According to Wallet (2015), digital education ensures students and teachers to develop digital literacy correctly and to empower them in their ongoing education. Also, Grand (2017) claims that technology offers to modernize the learning and teaching process into a lifelong process. It is important to be updated with the skills and the knowledge that requires new developments in the digital world in order to ensure the teaching and learning process, especially in the language classroom.

According to Hafner, Chik, and Jones (2015), in the educational framework, educators focus on using technology to learn instead of teaching how to use technologies. Therefore, for Hafner, Chik, and Jones, educators should focus on teaching how to use the new technology as it provides adequate support in the teaching and learning process. Likewise, they argue that the use of technologies in language classrooms allows having practiced in a real and creative context.

Besides, in this modern era, there are many demands for teaching in a language classroom and to develop digital skills to obtain better language learning strategies with technology. Therefore, it is essential to identify the level of digital literacy of language learners in order to increase and to reinforce their use of digital literacy in a real context. The term "digital literacy" covers the knowledge of utilizing technology to enter, manage, and produce digital resources (Stockwell, 2015). Thereby digital literacy allows having a digital education in which it can create significant curricular adaptations according to students' necessities in a language classroom (Son, Park, and Park M., 2017).

### ***Current impact of augmented reality.***

Augmented reality is a type of technology that can promote a next-generation, reality-based interface. The use of AR in education is increasing, and its viability has expanded owing to technological advances. AR applications are more usually found in mobile services, which is an advantage because it allows students to have easy access through their mobile devices. There are different AR applications for mobile devices that are reachable to learn different subjects, mainly in the learning of foreign languages (Khan, Johnston, and Ophoff, 2019).

The impact of AR in language education has been hooked the students' attention and motivation. Akçayır, Akçayır, Pektaş, and Ocak (2016) have shown that using AR in a language classroom can motivate significantly to students and teachers. This type of technology helps the developing of processing skills such as critical thinking, problem-solving, and communicating through hybrid learning environments.

Many studies indicate that AR supports learning performances; in contrast, Lu and Liu (2015) indicate that the impact in using AR in education has provided positive students' attitudes. Students, through the use of AR applications are happier due to AR, improves the learning achievements of the students in different fields of education, especially the language classroom.

Likewise, the components that belong to AR, for example, videos and 3D pictures, provide help to students to understand learning contents in a better way. Besides, AR changes the boring instruction into more entertaining training, which means that with the help of this tool, teachers make more fun the teaching and learning process. Other impacts of AR in education and language teaching is that students can work interactively, performance with more confidence, and increase the responsibility value (Akçayır, 2016).

Furthermore, the use of AR in the language classroom can contribute to real-time, collaborative, and contextual learning experiences. In addition, it helps to reduce anxiety in students and to increase the students' confidence while they are co-operating with their classmates. Activities with AR offer to language learners intrinsically stimulating gameful experiences, challenges, and fantastic delight (Taskiran, 2018).

The use of AR has a positive impact on language classrooms. The effect of using this technological tool is helpful not only for students but also for teachers. Since the increase of motivation is for both, this positivism will help to reform the education.

### ***Advantages of augmented reality in language teaching.***

According to Diegmann, Schmidt, Eyden, and Basten (2015), AR helps to increase students' motivation and interest, and even it engages students to have better management of the technological tool. Also, AR enhances attention to both learners and educators.

A further beneficial of AR use is increased concentration and satisfaction. Maintaining student focus has always been a challenge, but AR allows students to have deeper cognitive associations with the science content. Students feel a higher satisfaction with the use of AR at the moment to work with tasks. Due to this technology, teachers obtain an authentic learning activity and a high level of focus in the learning process. As a consequence, teachers and students feel satisfied after using the AR. (Diegmann, Schmidt, Eyden, and Basten, 2015; Taskiran, 2018).

Likewise, AR enhances student-student and student-teacher collaboration through new ways of interaction and cooperation. With this advantage, students can solve critical problems and get collaborative learning effectiveness. AR encourages learners' and teachers' creativity. This new technological tool supports creativity because students feel more engaged with the contents, and they can manipulate the contents to acquire better knowledge according to their necessities (Diegmann, Schmidt, Eyden, and Basten, 2015; Taskiran, 2018).

Augmented Reality is a tool that enhances students' spatial visualization ability due to it uses 3D images. Students have different learning styles; one of them is the spacial, and with the implementation of AR in language classrooms, learners can visualize complex spatial relationships and abstract concepts. Hence, AR develops important abilities that cannot be evolved in other technology learning environments. (Diegmann, Schmidt, Eyden, and Basten, 2015).

Augmented Reality improves the retention of knowledge. It is easy to remember or collect information with the application of AR in the language classroom. This tool facilitates the acquired of knowledge and to maintain it for a long time. Moreover, using AR in the classroom reduces the costs of the materials that are usually used in a traditional class. AR reform the learning environment; it fosters to use less material that damages the environment such as paper, plastic, among others (Diegmann, Schmidt, Eyden, and Basten, 2015; Taskiran, 2018).

Augmented Reality has many benefits to teachers and students not only in language classroom but in education too. AR supports to improve different aspects of the process of teaching and learning process. Education has had significant progress through AR.

### ***Disadvantages of augmented reality in language teaching.***

Despite having multiple advantages of using AR in language teaching, there are some limitations to use this tool in a language classroom. According to Tackkac (2019), one of the main

challenges is the lack of training for language teachers and students in using AR in classes. There is a lack of knowledge about the technological tool for teachers to apply it in classes. Consequently, teachers do not have enough experience to use the complete tool because its system is complicated, causing a loss of time to teach the lesson, and it becomes a distraction.

Even so, there are some issues in the implementation of the AR in the classrooms. In other words, students face technical problems in their devices such as small size screen, network speed, battery capacity, or the devices' software. Due to these technical problems, the use of the AR limits its application in the language classrooms. ( Tzima, Styliaras, and Bassounas, 2019; Mundy, Hernandez, and Green, 2019). In spite of AR helps the environment reducing paper and similar materials. Moreover, the use of the AR app can be costly whether the online service is not free, and educators do not have the license. Thereupon, teachers and students will be obligated to pay for it or to change the account when the open-access days have passed (Booner, 2018).

## **Teaching Grammar**

### ***How to teach grammar.***

Educators are continually looking for new strategies and techniques to teach English grammar. Inasmuch, grammar is a skill that requires much effort and outstanding skills to have success. According to Adrews (1993), grammar is a relationship between words in context, due to two different grammatical structures can have the same meaning, while two similar grammatical structures can have different meanings. Grammar is the basis of the language; thus, without grammar, people cannot communicate correctly and clearly (Omar, 2019).

Teaching grammar has the aim to enable learners to achieve linguistic competence and to be able to produce oral and written discourse efficiently, effectively, and appropriately according to the situation. The teaching process of grammar involves different aspects as applying methodologies, the contents, and the combinations of process and content. However, teachers

forget that students learn English as a foreign language; hence, students get confused about their mother tongue and the use of grammar rules of the foreign language, which is very reasonable. The job of the teacher is facilitating the process of acquisition of knowledge to students (Omar, 2019). Even though grammar is a key to communicate, it is a very challenging skill to be taught. Baleghizadeh (2011) claims that grammar teaching has its ups and downs in recent decades. Thus, teachers have to find different strategies to facilitate the acquisition of grammar.

Nevertheless, teaching grammar allows students to improve their linguistic competence in a foreign language. There are two approaches in grammar the inductive and the deductive. The inductive approach is when the teacher first presents different examples of the target language form, and students should discover the rules themselves. While the deductive approach, the teachers already explain the rule, and the students practice using different examples (Janfeshan, 2017).

Some teachers prefer to use a deductive approach, while others prefer to use an inductive approach. The only way to teach does not exist. Recently teachers are using the combination of these two approaches based on their students' necessities. It is important to consider that the learning English grammar process has many factors as their stage of grammar development, the kind of communication they are engaged in, and the learners' first language. Thereby, teachers are using different strategies to promote and enhance the process of teaching grammar (Richards, 1996; Baleghizadeh, 2011).

### ***Technological tools to teach english grammar.***

According to Flores (2015), teaching English as a foreign language in this new century involves using different methodologies and strategies. These methodologies and strategies are part of a transition to a new educational era applying technological tools to teach. Although grammar is considered one of the toughest skills to teach, technology has allowed facilitating its

teaching process. Some technological tools have been applied to improve grammar skills and to motivate students to learn it. Some technological tools have been applied to improve grammar skills and to motivate students to learn it.

One of the technological tools that facilitate the teaching process and improve and motivate grammar skills in students is Kahoot. This tool is a free game-based learning platform designed to involve learners in interactive learning. The app can be used for students of all ages. Its purpose is to make learning enjoyable, as well as productive. It is an app accessible to use, owing to any digital devices can access it as long as they are connected to the internet. Kahoot is a free platform that allows teachers to create quizzes and surveys as games, and there are quizzes and surveys already done for public use (Tan, Lee, Ganapathy, & Kasuma, 2019).

Teachers give a Game PIN for students to join in the activity. When students end the game, each players' score is displayed, and teachers can use that information to put in a digital document. For example, the teacher develops a quiz based on present progressive, and students through the PIN enter the questionnaire. The learner has to choose the correct option according to the statement. When the students complete the quiz, the teachers' screen shows all the students' scores. (Tan, Lee, Ganapathy, & Kasuma, 2019).

Kahoot is beneficial in terms of inducing motivation and fostering and reinforcing learning. According to Wu (2012), game-based learning increases motivation and engagement levels as well as improved learning effectiveness. Also, Zarzycka-Piskorz (2016) claims that using games can be a factor that enables a learning environment to be formed according to the students' needs, the learning process, or the requirements of the course.

Also, tablets are considered an important technological resource in education in this new century. It is the most common tool used in the EFL classroom to teach grammar. Tablets are seen as a user-friendly device with multimedia functions such as Wi-Fi/3G/4G enabled network

for a secure connection, a touch screen, and not a built-in keyboard or mouse. This type of device allows increasing the students' autonomy since it allows students to access web pages or use other apps. (Kayapinar, Erkir, & Kose, 2019).

Through the use of tablets, students can access information with a variety of online activities, enabling the learners to exercise various grammatical topics. Also, it is a tool that offers flexible, effective, and affordable feedback. Likewise, tablets are useful resources for teaching and learning English grammar. It is a device with the potential to enhance learning. Nonetheless, tablets can be considered as a distraction, too, if students do not use them correctly. Hence, teachers have to control students at the moment to access to the internet (Kayapinar, Erkir, & Kose, 2019).

Also, Web 2.0 is a technological tool that enhances creativity, information sharing, and collaboration between learners. Web 2.0 includes various types of interactive options to teach English Grammar, such as wikis, blogs, among other things. Also, Web 2.0 provides a more learner-centered learning environment in which the teacher can build different activities or use the activities already done to teach grammar. Web 2.0 in language education helps to create innovative grammar duties that are fully integrated into the course. Likewise, social networks that are mired in Web 2.0 offer more opportunities for engagement with authentic communication (Bikowski, 2018).

Not only this technology helps students in their autonomy but also allows teachers to strive to educate learners in the use of technology for learning. This kind of tool provides educators with opportunities to individualize instruction for both in-and out-of-class activities. Teachers benefit from improved knowledge of some of the structures or methods in using technology to teach grammar (Bikowski, 2018).

***Augmented reality as a strategy to teach grammar.***

The new trends in technology to teach English Grammar in EFL classrooms have been increased. One of the technological tools with more impact is the Augmented Reality. This type of technology has become popular because it can add virtual objects into real-world physical spaces. AR is a tool that enables students to make real-world connections between the subject matter and their own lives. In other words, students can improve their grammar skills in a real context while they are interacting in a real and virtual space (Bonner, 2018).

Hence, the use of AR in language classrooms to teach grammar facilitates social interactivity, enabling interaction, and collaborative learning. Besides, students can adapt to their location, for example, by displaying content in a different language. This tool offers connectivity and easy access to information for both teachers and learners. According to Schwienhorst (2012) this tool supports experiential learning mainly in teaching grammar.

Moreover, Benson (2011) claims that teaching English grammar through Augmented Reality can adapt the lesson according to the students' needs and interests. In other words, this instrument helps teachers to facilitate personalized learning. Teachers through AR can increase students' motivation and enhance the activities that will be applied in the lesson. Some of the opportunities that AR offers to teachers to improve their activities are the use of a wider variety of media such as videos, pictures, audios, websites, etc. Those types of media are embedded in the app of AR.

Bonner (2018) uses a gap activity as an example of teaching English grammar through AR. In this activity, students have a picture with specific information related to a narrative such as the tense, perspective, and event. Students with their devices and through the AR app have to put together the information to understand the full context of the story. AR supports students to participate actively. Likewise, Lindgen and Johnson (2016) argue that AR permits teachers to

open up the classroom, provide exclusive assistance, and design tasks that connect formal and informal learning contexts.

According to Bower, Howe, McCredie, Robinson, and Grover (2014) and Slussareff and Boháčková (2016) argue that the application of AR to teach grammar provides positive learning outcomes, due to students can enjoy the class, and it increases their motivation and interest in the lesson. This type of technological tool has caused a significant positive impact on students to learn English grammar. Teachers are applying this tool in their classes to teach grammar since it is useful to improve grammar skills and motivate students to learn that skill. Inasmuch, teaching and learning grammar can be tedious, but with the implementation of this new tool in the lesson, both teachers and students enjoy the class and feel more comfortable.

## **Motivation and Attitude**

### ***Definition of motivation.***

According to Jenkins and Demaray (2015), motivation is an impulse in humans behavior which allows people to initiate and sustain goal-directed actions. In addition, Dörnyei and Ushioda (2011) claim that motivation is a type of force that stimulates people to do something by nature. Besides, Yorks (1976) emphasizes that motivation is a kind of impulse in which people do something because they want or need it.

To define motivation, it is important to highlight three important qualities, for instance, there is an internal force, the activity is made by a kind of energy, and that energy establishes the direction of the action. All these qualities allow people to have a motivational process that can vary depending on the person and other factors. In fact, Hammer and Organ (1978) define motivation as a process in which people make an action by voluntarily choosing it from some alternatives.

***Motivation to learn a foreign language.***

Motivation plays an important role in teaching and learning a foreign language. Motivation is the main factor that students need to increase their interest in learning a foreign language. Motivation is the motor of people's behavior, focusing on concepts such as intrinsic, need, and personality traits. Intrinsic is an internal factor that most influences the students' attitude. The word need refers to the necessity to obtain something to have satisfaction, and personality traits are people's characteristics patterns of thoughts, feelings, and behaviors. Educators have to take into account that learning a foreign language involves different skills and the role of the language in the context they are learning (Geddes, 2016).

The foreign language acquisition works at the same time as a system of communication that can be taught as a school subject, an integral part of individuals, and a social channel to integrate different cultures. Therefore, it is necessary to build a useful motivational framework to learn the foreign language easily and in a fun way. Gardner and Lambert (as cited in Geddes, 2016) state that two factors motivate people to learn a foreign language.

These factors are defined as integrative motivation, which refers to learn the language to take part in the culture that is involved and the instrumental motivation, which means that a person wants to learn the foreign language to fulfill professional purposes or other practical reasons (Geddes, 2016). Thus, Zhou (as cited in Geddes, 2016) states that if a student acquired a foreign language using integrative motivation, the student has more opportunities to learn the language, culture, and people. Consequently, the learner becomes more successful in the L2 classroom.

Additionally, Lightbown and Spada (as cited in Geddes, 2016) claim that if a learner acquires the L2 language for external reasons, the internal motivation does not have significant results, and the process of learning becomes negative. Integrative motivation is an essential factor

in learning a foreign language, since it provides excellent results such as positive attitude, success with the target language, and be fostered within the classroom.

However, learning English as a foreign language needs integrative and instrumental motivation. Because being a global language, the students want to learn the language to be able to communicate with other nonnative speakers in an international environment; therefore, it is necessary to use both types of motivation (Kormos and Csizer, 2008). Also, other factors intervene in learning a foreign language, such as if the educator has a good attitude and positivism to teach the language. In the same way, if the student appreciates the teacher's knowledge, the student will have a stimulus to study harder and increases the motivation to learn the foreign language (Zhou, 2008).

### ***Intrinsic motivation.***

Motivation is an important factor in the process of learning a foreign language. There are two types of motivation; one of them is intrinsic motivation. Intrinsic motivation can be defined as an internal factor in which the learner has satisfaction at the moment of doing some activity. Some terms are immersed in intrinsic motivation, such as engagement, curiosity, and the preference for the challenge (Komiya, 2013). Similarly, Gardner (as cited in Chiew & Poh, 2015) defines intrinsic motivation as a strive to learn a foreign language due to the satisfaction obtained from doing an activity. Therefore, learners prefer activities that enhances their intrinsic motivation, in other words, activities that are exciting and challenging to develop. Hence, they feel the emotion and happiness of the activity, and self-efficacy in doing the tasks. This type of motivation is the most significant because it helps students to learn L2 enjoying the process of learning without feeling frustrated for external factors (Gardner, 1985).

There are three types of intrinsic motivation. The first one is knowledge, which is defined as the motivation to learn the L2. The second is accomplishment, which is defined as a momentum

of doing an activity or reaching a goal through the exploration of new ideas. The third is stimulation; it refers to the stimulus of doing an activity such as excitement, happiness, or appreciation (Wu, 2003).

Teachers want to maintain the students' motivation; therefore, teachers have to find new strategies to increase the students' motivation. Even though intrinsic motivation is an important factor for the learning process, intrinsic motivation can decrease if the activities in the class are monotonous or boring. There are some ways to maintain intrinsic motivation. The most relevant are, including learners in decisions related to issues and interest to have a comfortable classroom environment (Dornyei, 2011).

Also, Chiew and Poh (2015), claims that it is essential to create a sense of enthusiasm. Enthusiasm is easy to recognize since it can demonstrate physically and vocally. If the students can observe the enthusiasm in the educator at the moment of teaching, students will feel the enthusiasm to learn, because that feeling is easy to transmit. Moreover, teachers have to look for new strategies to make the class fun, such as using technology, games, or activities related to the students' interests according to the topics of the lesson. Furthermore, the teachers have to build relevant material that engages the students' attention. Likewise, the correct students' assessment increases the students' motivation and interest. They feel confident when they know what their mistakes were (Chiew & Poh, 2015; Baum, 2002).

Teachers have to promote students to learn a foreign language. The learning process in some parts has its difficulties, but the job of the teacher is to find more strategies to increase the students' motivation in learning a foreign language. The role of the teacher in motivation is primary since teachers can engage and persist in the long process of teaching; thus, if the teacher tries to maintain the intrinsic motivation of the students with different activities through new strategies, the teacher will have excellent outcomes (Chiew & Poh, 2015).

***Extrinsic motivation.***

Extrinsic motivation is the kind of motivation that is influenced by external factors and controlled by the same factors. Learners have an extrinsic motivation when the learning is achieved by external rewards such as grades or recognition that are not connected with the learning process (Walki, 2000; Dincer & Yesilyurt, 2017).

There are three types of extrinsic motivation extrinsic regulatory, introjected regulation, and identified regulation (Dincer & Yesilyurt, 2017). External regulation is the factor that has more control in the extrinsic motivation. For example, external compensations and punishments influence a learner to perform. Introjected regulation is about activities that allow students to avoid shame and help to reach the self-esteem. The last type of extrinsic motivation is identified regulation; it helps to control the learners' perform for obtaining personal importance and shows conscious (Deci & Ryan, 1985; Ryan & Deci, 2002).

Extrinsic motivation cannot act on its own; it is necessary to have a relation with intrinsic motivation. Thus, teachers have to focus on students' intrinsic motives and turn their extrinsic motives into the aims of learning by encouraging students' self and practicing through instructional activities (Dincer & Yesilyurt, 2017).

***Definition of attitude.***

Attitude is a group of feelings acquired that prejudice the learner to engage or avoid learning. The attitude is also affected by other factors such as interest. If the learner has a good attitude to learn, consequently, it has an interest in learning. The experience generates attitude and interest gradually (Jang, Conradi, McKenna, & Jones, 2015). According to Latchanna and Dagnev (2009), attitude is an essential thought to understand human behavior and it is determined as a mental state that involves ideas, beliefs, and feelings. The ideas in language learning are associated with success in language classes.

The beliefs of the students can be helpful or an obstacle in the process of learning. Because if the students believe that they can do an activity, consequently, the learner will have a positive attitude. However, it becomes an obstacle when the learners believe that they cannot do an activity; the student will have a negative attitude, and as a consequence, their motivation decreases. Attitudes depend on the situations and hence, can be generalized. For example, if the student does not like to learn a foreign language, it generalizes that he dislikes studying. However, good attitudes and feelings are important to increase the students' competence in language learning classes (Oroujlou & Vahedi, 2011).

Attitude is related to motivation. It has markedly emerged with motivation because it depends on the attitude to have a good motivation. However, these concepts are not similar; there are some differences between these terms. An attitude is a group of beliefs, while motivation is the stimulus to do something. Thus, students feel motivated to learn a foreign language towards good attitudes. Both concepts are essential to have significant knowledge (Oroujlou & Vahedi, 2011).

### ***Teachers attitudes towards technology.***

Technology has transformed the educational field. Emerging technologies have provided unprecedented opportunities for language teachers and learners. The application of technological tools has allowed to provide more student-centered classrooms and give more responsibility to the students in their learning, changing the teachers' role. The relation between teachers and technology has a big impact on students' motivation. Hence, teachers need to develop a positive attitude towards technology. Indeed, numerous studies investigate the teachers' attitudes using technology (Akturk, Izci, Caliskan & Sahin, 2015).

According to the study conducted by Teo (2018), it depends on the teachers' attitudes to have a positive influence on students learning. Also, if the teacher has enough confidence to use

technology and has an excellent attitude to use it, students can acquire the knowledge easily and develop a good attitude to learn. Teachers accomplish an essential role in using technology in classrooms. Nevertheless, sometimes, teachers can feel frustrated when they do not know how to use the new technology, and this obstacle affects their attitudes towards technology. Hence, it is necessary to create training programs to prepare teachers to use technological tools adequately in classrooms (Akturk, Izci, Caliskan & Sahin, 2015).

Mustafina (2016) claims that teachers' attitude towards technology in schools has positive outcomes. The training provided to teachers enhances some teaching skills such as confidence, enthusiasm, and in-class teaching performances. The improvement of these teaching skills helps educators to have the confidence of applying technology in the lessons, thus creating an increase in students' motivation. Hence, the more positive teachers' attitudes towards technology are, the more motivated students feel about learning the language.

In this modern century, teachers are willing to use technology in their classes, because they create an interactive and fun class. Teachers are considered as key drivers who perform an essential role in technology integration in the classrooms (Rana, 2012).

There are several studies about AR in EFL classrooms that provide useful information about the application of this tool, students' motivation and interest towards AR, some recommendations on how to use it, and some concerns about the implementation of AR in language classrooms.

The study carried out by Euan Bonner (2018), offers teachers an introduction to the use of AR in a foreign language classroom. The author proposes activities using AR that the teachers can apply in their classrooms. Augmented Reality has the potential to improve the students' grammar skills and motivation. In order to make meaningful use of augmented reality in the classroom, the author recommends having some considerations in the privacy concerns and

practical issues. The author concludes that educators have an outstanding job in learning about this new development, their risk, and their potential advantages for learning. Therefore, teachers must be constantly updated on the latest tendencies in technology to create new possibilities of interactive learning.

In the same way, the study conducted by Solak and Cakir (2016) reports about the effectiveness of the application of Augmented Reality in the language classroom at the elementary level. According to this study, AR helps to increase students' English language proficiency. Likewise, this new tool promotes the teaching and learning process. The authors claim there is a lack of investigation about the application of this tool. Therefore, they recommend developing more studies based on the application of AR in language classrooms. The study contributes important information about the efficiency of AR in a language classroom.

The research design of this study was quasi-experimental. The participants of this study were fifth-grade students from a state elementary school in Turkey. The participants were divided into two groups, the experimental group in which the new information was introduced through AR, and the control group. The instruments applied were a post-test and a retention test (Solak and Cakir, 2016).

Furthermore, the study points out that AR is a useful tool to increase information retention, students' motivation, and satisfaction. It is necessary to take into account the students' level and interest at the moment to build the material with AR to have satisfactory outcomes. The results of this study suggest that the use of Augmented Reality helps students to increase learners' performance and contribute to the effectiveness of vocabulary and grammar learning. Traditional methods in the technological age are no longer effective in teaching in education, especially in a language classroom; thus, teachers are implementing a contemporary design to facilitate the process of teaching and learning (Solak and Cakir, 2016).

In a similar study, Takkaç (2019) provides general information, some pedagogical suggestions, and possible advantages and disadvantages of AR in teaching English. The most interesting characteristic of this tool is the mixture of real and virtual environments, which allows creating different types of activities to teach grammar in EFL classrooms. Also, AR gains new insights and to develop deeper abstract concepts. The first beneficiaries of this study are teachers because it affords suggestions in the advantages of the implementation of this tool in a language classroom (Sirakaya & Alsancak, 2018).

Equally important, AR encourages the interaction between students-students and students-teachers, and it increases students' motivation because they can experiment by doing. The author concludes with some suggestions to teachers about practical implementations of AR technology in an EFL classroom. In addition, the study can be taken as a reference to future investigations inasmuch there is not enough information about this topic (Takkaç, 2019).

Similarly, the study carried out by Moralişvili provides a general idea of AR for future blended education. Also, the author discusses the efficiency of AR, its advantages, and its disadvantages. The research method used in this study was descriptive and explanatory. Moreover, the study uses a qualitative method to show the pedagogical effectiveness of learning English through AR. The study provides some AR apps that can be used for the different skills, for example, English grammar in use tests, which was created by Cambridge University Press. The app allows students to practice English grammar as a series of tests that are more akin to games. The application needs to be paid, but it is the best app for students who want some grammar practice to go.

In conclusion, AR has excellent potentials in education, especially in teaching in language learning. It is a feasible tool for situated learning by integrating itself with mobile learning and other concepts and technologies. It is enormous progress in education through new technology.

Similarly, a study about using augmented reality in foreign language classroom focuses on the role of AR in language education and to measure its effectiveness on actual language learners. Also, the study informs and discusses the management and the implementation of AR experiences for foreign language instruction. The information collected in this study offers the knowledge of digital technology and language instruction (Scrivener, Madewell, Perez, & Buckley, 2016).

The participants of the research were two faculty members from the Department of Spanish and Portuguese. The methodology of the study had three stages preparation of images, video recording, and creation of AR experiences. Further, the instruments used in the study were surveys and tests. The study concludes with some recommendations to use AR in language classrooms, and their results can improve the teaching and learning experiences in the twenty-one century (Scrivener, Madewell, Perez, & Buckley, 2016).

The study carried out by Madhumathi (2017) aims to discuss the information of some studies about the advantages of the adoption of AR in English language education and evaluation of AR application in learning. Also, the study provides some definitions according to the teaching and learning process. The author concludes that the studies mentioned in this research paper provide that the use of AR in education proves benefits for effective language teaching and learning. The implementation of this new tool creates a new teaching and learning environment for the language students.

## **Chapter II: method**

### **Setting and Participants**

The study was carried out in a private high school in Loja city in Ecuador. The participants were eight men and nine women aged from 15 to 16 years old. The sample of this study has students from the advanced level of the high school; six of the students are in the 10th year, and the rest of the participants are in the 1st year of high school. They all have different proficiency levels. Half of the students showed a very proficient English level considering age and level of difficulty because they studied in private English academies. On the other hand, some other students who do not study at English academies had an average level. In contrast, others did not have the proficiency level expected, considering the contents of the school year provided in the English curriculum.

### **Procedure**

This study was carried out following the necessary steps to get the required results. For this reason, mixed methods, adequate techniques, and instruments were used for collecting data during the research. Proper guidelines were followed to obtain enough information to support the investigation. Therefore, in this study, mixed methods were used.

In the first place, it is important to mention that all the literature review was carefully selected from reliable resources. The resources used provided relevant information according to the topic, which was included in the literature review. In other words, the information gathered was used to support and carry out this study. Also, previous studies relevant to the study were analyzed in order to be contrasted with the results of this research project.

This study exposes relevant findings for the educational field, especially for the teaching of the English language. The method used consists of the learners' interaction with the technological tool with the purpose of observing the impact, the effectiveness, and the different

changes that they have with the application of AR in the language classroom. In order to obtain the required information for the study, eight classes were held in the language classroom.

Some instruments were considered for collecting the necessary data, such as teacher's observation sheets, surveys, and interviews. These instruments were designed to provide validity and reliability to the investigation. The instruments provided clear evidence about students' behavior and perspective about Augmented Reality and the way they improve their grammar skills.

Regarding those aspects, in the first place, it was applied a pre-test to know which was the students' level of proficiency in grammar. The tests determined in which aspects students had difficulties. The next step was the implementation of AR technology in English classes. Therefore, students had to upload Zappar, which is an AR application. This application works with image tracking; this means that students had to scan a code with their phones.

After that, students could observe some pictures, videos, links embedded in this application. Those multimedia materials were according to the topic of the lesson. At the end of each lesson, students were evaluated through the Kahoot application to know if students acquired the knowledge correctly.

During each lesson, the observation sheets were used to analyze the students' reactions while Augmented Reality was applied. After all the lessons were taught, the surveys were applied to students to know if the application of Augmented Reality increased their motivation. Also, this tool showed vital information to answer the research questions of the investigation. Then, an interview was applied to the teacher to obtain information about her perspective towards this new technology. Finally, the post-test was applied to students in order to identify if the use of Augmented Reality helps to improve their achievement.

Finally, the qualitative approach was convenient to use in this study to analyze the student's and teacher's perceptions about Augmented Reality, while the quantitative approach allowed to measure the acceptance of AR in the English classroom. Also, in the research, basic statistics were applied to show the results in charts to provide relevant information.

### Chapter III: results and discussion

#### Description, analysis and interpretation of the results

This section presents the description, analysis, and interpretation of results obtained from the field research in a private school. The study was focused on three aspects, motivation, attitude, and achievement. The first aspect was focused on determining how the use of Augmented Reality increases the students' motivation to learn grammar. The second aspect focused on students' attitudes towards AR; namely, it was aimed to determine if the students reacted positively to the application of AR. The last aspect corresponds to the students' achievement. This aspect focused on analyzing the effect of AR technology in students' achievement in learning grammar.

**Table 1.**

*How does the use of Augmented Reality increase students' motivation to learn grammar?*

N°	STATEMENT	TOTALLY AGREE	AGREE	DISAGREE	TOTALLY DISAGREE
		%	%	%	%
1	I feel motivated when the teacher uses the following resources				
	Worksheets	0	0	0	0
	MP3 audios	33	0	0	0
	Academic book	0	0	0	47
	Mobile device	53	0	0	40
	Videos	60	0	0	34
	Applications	66	0	0	27
	Augmented Reality	73	0	0	0
	2D flashcards	0	0	0	20
Internet	80	0	0		
2	I am satisfied using AR in class	100	0	0	0
3	I think it's easy to use / manipulate AR's application.	93	0	0	7

4	My interest towards English subject at school increased because of the use of AR technology the classroom.	33	60	0	7
5	AR increases my desire to learn grammar	20	80	0	0

Note: the statements focus on the students' motivation.

Table 1 shows the degree to which the use of Augmented Reality motivates students to learn grammar. The first statement is focused on analyzing if the use of certain technological resources motivates students; the results suggest that a high percentage of them strongly agreed that the use of Internet (80%), Augmented Reality (73%), Applications (66%), Videos (60%) and Mobile devices (53%) motivate students to learn English. On the contrary, 67% of them strongly disagreed that MP3 audios motivate them to learn English. As it is observed, most of the results indicate that the use of technology is a way to boost students' motivation. In fact, during the lessons, students were enthusiastic to complete the proposed activities, mainly when they used the Internet and AR. In addition, the results obtained from the teachers' interview provided evidence that students seem to be more motivated to learn English when technological resources are implemented in the classroom. The findings in this statement are in line with Flores (2015), who states that technological tools motivate students to learn English. Therefore, it can be affirmed that the use of technological tools plays an important role in language learning. Given that technology is a source of motivation that helps to catch the interest of students and support learning through teaching.

In the second statement, students were asked if they are satisfied when using AR in class. All of them (100%) strongly agreed that they are highly satisfied using AR because it is a new and interactive tool that allows the use of a wide variety of multimedia data such as videos, pictures, audios, websites, among others. Besides, it was observed that students were pleased to fulfill the activities using AR because they could acquire information in different multimedia formats and revisit materials as needed. Therefore, it provides them with more opportunities to interact with others. The teacher affirms that the interaction between the students with this

technological tool enriches educational experiences and increases their satisfaction. As mentioned by Akçayır, Akçayır, Pektaş, and Ocak (2016), the use of AR in a language classroom can motivate significantly students. Likewise, Taskiran (2018) emphasizes that using AR to teach grammar increases the students' motivation making them feel satisfied with what they learned.

The results in statement three show that 93% of the students totally agreed that it is easy to use AR applications. These findings suggest that students are willing to use AR to learn English because they do not have difficulty in the use of this application. In consequence, students can create their own games and interactive experiences through AR. During the observation, it was noticed that students develop the English activities without any problem, thereby implying that working without obstacles allows them to strengthen their desire to learn and practice more the language. Also, students claimed that it was easy to work with this technological tool because they could download the AR application to their cell phones and interact with the tasks. In fact, one student used the tablet instead of a mobile device, and it could be observed that her performance with the class activities was much better.

Concerning statement 4, a high percentage of students (63%) agreed that their interest increases in the English classes when the teacher uses AR. According to their opinions, the use of AR in class helps them to understand the complex content easily since it provides unique visual and interactive experiences that combine real and virtual information. Likewise, the observations show that students paid more attention to learn English grammar. As the classes progressed, the students showed better readiness in the grammar topics. Students connected with the AR app's content; therefore, the students spent time dialoguing and creating grammar ideas in meaningful ways. In other words, students focused on learning new topics more willingly. These results are in line with Takkaç (2019), which states that AR is a tool that helps to increase the students' interest since AR mix real and virtual environments. Also, Diegmann,

Schmidt, Eyden, and Basten (2015), express that AR helps to increase the students' motivation interest, and even it engages students to have better management of the technological tool.

In the last statement, 80% of students agreed that using AR increases their motivation to learn English grammar. Students affirm that they overwhelmingly enjoyed the English grammar classes and were excited about the application of this technology. Indeed, during the lessons, it was observed that this type of technology provides a multisensory approach to learning that links text, image, sound, and movement and is a highly motivational communication format for students. According to the teacher's interview claims that students have increased their motivation for learning English grammar. Now students are willing to pay more attention to grammar topics. The results in this statement are directly in line with Bower, Howe, McCredie, Robinson, and Grover (2014) and Slussareff and Boháčková (2016), who argue that the application of AR to teach grammar provides positive learning outcomes, due to students can enjoy the class. Besides, it increases their motivation and interest in the lesson. Notably, this type of technological tool has caused a significant positive impact on students to learn English grammar.

The result in Table 1 evidence that students feel more motivated to learn grammar when they are using Augmented Reality. Likewise, their attention, satisfaction, and confidence that are some of factors related to motivation were increased. The increase in the students' motivation is because the tool allows them to interact with different multimedia resources. Also, AR allowed teachers to create interactive classes in which students could develop different grammar activities without difficulty.

**Table2.**

*How does the use of Augmented Reality improve students' academic achievement grammar?*

N°	STATEMENT	TOTAL	AGREE	DISAGRE	TOTALLY
		Y AGREE		E	DISAGRE
		%	%	%	%
1	I use AR to learn English grammar without my teachers' help.	93	0	0	7
2	AR improves my English grammar.	93	0	0	7
3	AR makes grammar lessons easy for me to remember the learned topics.	93	0	0	7
4	AR increase my opportunities to practice English grammar.	93	0	0	7
5	Using AR helps me to develop any task in a more efficient way than without it.	93	0	0	7

Note: the statements focus on students' achievement.

Table 2 shows students' perceptions on how the use of AR improves their achievement. In statement one, 93% of students claim that AR helps them to learn English grammar. Students claim that the use of Augmented Reality helps them to maintain permanent learning, most notably with grammatical concepts. Also, for students, AR helps them achieve a deeper knowledge of English grammar. During the lessons, it could be observed that students could enrich the grammar skill without difficulty. Students were able to develop the different types of grammar activities easily through the AR. Therefore, it proves that the use of AR has helped students to learn English grammar. These findings are broadly in line with Akcayir (2016), who claims that the AR multimedia components provide significant help to students in understanding learning content better. Similarly, AR changes the boring instruction into more entertaining training allowing the improvement of the learning process.

In the second statement, *AR improves my English grammar*, 93 % of the students agreed. These results are similar to the previous analysis. According to the students' answers, the AR is a tool that allows them to easily access wide information of English grammar, facilitating its acquisition and making language lessons a lot more interesting. Besides, the teacher claims that AR proves to be a highly effective medium both for entertainment and education. Likewise, it could be observed that students showed more security to develop grammar activities and an improvement in their grammar performance.

Similarly, in the third statement, *AR causes me to remember grammar easily* the 93% of the students agreed. They believe that AR helps them to enhance working memory. Students claim that AR supports them to remember the contents already studied since the activities used to learn English grammar helps them to train the spatial memory, which is responsible for retaining long term information.

Based on the observations, it was possible to determine that the use of AR supports students to feel comfortable when they are developing the grammar activities. Likewise, AR reduces their anxiety allowing them to have a better performance in the grammatical production. This is consistent with what has been found in the studies conducted by Diegmann, Schmidt, Eyden, and Basten (2015); Taskiran (2018), who claim that AR is the best tool to improve and increase the retention of the knowledge. The tool permits remembering easily or collects information in the language classroom, mainly in the process of learning grammar. Additionally, this tool facilitates to retain long time information, being an excellent advantage for the students.

Following the line of this analysis, the statement *AR allows me to practice grammar any time* shows that 93% of students agreed. Students claimed that AR is a tool in which are embedded different multimedia activities to practice focusing on different aspects of the skill. For instance, web pages are one of the resources that provided different types of exercises such as filling the blanks, matching, rewriting the sentence, among others. These types of activities allow them to enjoy practicing grammar activities. The students emphasized that practicing grammar

exercises, they become tedious and monotonous because they repeat the same activities. However, with the help of AR, they can practice different activities anywhere in a fun way. In other words, they can work with the same activities in their houses, schools, or in any place that provides the internet.

According to the observations, students practiced the exercises again; if not, all the answers were correct as they were motivated to continue practicing with this tool in order to improve their grammar skills. They were even looking for more exercises to reinforce their knowledge as the RA allowed them to explore more practice options. Hence, AR-enabled students to increase and support extensive language practice. In the same way, Benson (2011) claims that AR helps teachers to improve their activities through personalized learning using a wider variety of media such as videos, pictures, audios, websites, etc. Those types of media are embedded in the app of AR, which allows students to practice anywhere. Likewise, Lindgen and Johnson (2016) argue that AR permits teachers to open up the classroom, provide exclusive assistance, and design tasks that connect formal and informal learning contexts.

The last statement of table 2, *AR helps me complete grammar tasks more efficiently*, showing that 93% of the students agreed. The results can be affirmed through the students' survey, which shows different opinions about this statement. Students affirmed that with the help of AR, they could develop different grammar activities efficiently because this tool uses material that allows working easily and without problems. Also, they claim that AR helps them to feel less anxious or pressured to solve the tasks, and consequently, they can complete grammar activities without problems. Likewise, AR is a tool that is not boring to use, so students feel motivated to solve the activities with more effort. Also, during the classes, it could be observed that students used less time to solve the different tasks allowing them to use their class time appropriately to practice more. The AR replaces the book as traditional material by interactive activities that help students to feel more confident in solving those exercises.

To support the analysis of this table, some instruments were used. Pre-test, post-test, and the Kahoot app. Firstly, the pre-test was applied using grammar topics in the first class. The pre-test showed that 60% of the students have problems with grammar topics. After the first tool was applied, at the end of each class, an assessment was applied using the Kahoot! App, which showed results that prove that students improved English grammar using AR. At first, the students still had difficulty, but in the following classes, it was possible to obtain favorable results. In other words, students improved their grammar skills with this new technological tool.

At the end of the intervention, the post-test was applied. The results obtained from this instrument showed that 93% of the students improved grammar skill with the AR application. The information gathered proved that students enhanced the grammar skill thanks to the use of AR.

The results obtained in Table 2 provide evidence that the use of AR increases students' achievement. The results showed strong support in the improvement of the students' grammar since AR is a technological tool that brings students from traditional learning to a modernized one. Students in the classroom were able to have more opportunities to practice, therefore led them to become better at learning English grammar. Also, it is essential to highlight that AR draws student interest and attention to the English classes and increases student motivation; with these aspects, AR contributed to improving the students' achievement. These results could be seen through the assessment after each class as students made fewer errors in the exercises. Besides, students could write full sentences using correct grammar, which is demonstrated in the post-test; this instrument being the one that demonstrates in numbers how they increased their grammar skills.

**Table 3.**

*What are students' and teacher's attitudes towards the use of Augmented Reality?*

N o	STATEMENT	TOTAL Y AGREE	AGREE	DISAGRE E	TOTALLY DISAGRE E
		%	%	%	%
1	I like my teacher to implement AR technology in my English lessons.	100	0	0	0
2	I consider that AR is a useful tool to learn English	53	47	0	0
3	I liked learning English grammar with AR technology.	100	0	0	0
4	I think the tasks to do with AR are not boring.	100	0	0	0
5	AR improves the interaction between teacher and students based on communication and understandability.	100	0	0	0

Note: the statements focus on the students' attitude.

The last question is about the students' attitude towards AR. The first statement I like to use AR in class to learn grammar shows that all the students agreed. According to the students' opinion, they prefer to use AR instead of books to learn English grammar since AR allows them to embed dynamic, context-aware, and interactive digital content in the English lessons. Besides, through the observations, students felt attracted to all the classes with AR because it gives the student a broader understanding of the topic. Students seemed to like more activities on websites because the activities are interactive and funny. In other words, students like to use AR in the English class to learn grammar.

This is consistent with what has been found in the studies conducted by Lu and Liu (2015) that indicate that the impact of using AR in education has provided positive students'

attitudes. Furthermore, Akcayir (2016) claims that AR helps students understand learning content better. Hence, by understanding the contents of the lesson easily through this technological tool, students have a positive attitude to learn grammar, which is considered one of the most challenging skills in learning a language.

In the second statement, I consider that AR is a useful tool to learn English grammar shows that 53% of the students agree. A similar percentage that represents 47% of students claim that AR is a useful tool to learn English grammar. Students affirm that AR increases visual perception and helps them to obtain alternative ways of integrating theoretical material into a real concept. Furthermore, the observations showed that students seemed to have the desire to practice grammar with the AR since it is a simple, intuitive, and interesting tool. The findings in this statement are in line with Akcayir (2016), who states that the components that belong to AR, for example, videos and 3D pictures, provide help to students to understand learning content in a better way.

Similarly, in the statement, I feel confident to use AR to learn English grammar showed that 100% of the students agree. The learners expressed through the survey that AR provides additional information that supports the core topic. Also, students affirm they feel safe taking part in any discussion activity, expressing an opinion, and developing the English grammar activities using AR. Based on the observations, it was possible to determine that learners showed greater degrees of confidence to use English grammar in a real context. They were more secure in using grammatical structures to communicate. Likewise, Ackcayir (2016), states that AR helps students to understand learning content in a better way. Hence, by understanding the contents of the lesson, students easily increase their confidence in language production using this technological tool.

In the following statement, I do not get bored when I use AR to learn English grammar; 100 % of the students agree. According to the students' interviews, they are motivated to learn

English grammar because AR allows them to do self-study real and practical. Moreover, AR is a technology that allows students to interact with virtual and real content at the same time. In addition, the teacher claims that AR helps to create an active environment and to promote grammar communication. Also, Lu and Liu (2015) claim that students learning through AR feel motivated due to AR adapts classroom activities and homework assignments, thus helping English learners enhance the language learning experience.

The results of the last statement, AR encourages me to interact more with my teacher and classmates show that 100% of students agree. Among the reasons they provide, we can highlight that AR improves collaboration between classmates since the activities are enjoyable and practical. Besides, students claim that they feel confident to interact with the teacher inasmuch the AR allows them to remember the grammar topics for the long term. It could be observed during the classes that students improved teacher-student interaction because it makes use of game-based digital elements that have the power to intrigue students. Likewise, Schwienhorst (2012), claims that this tool facilitates social interactivity, enabling interaction and collaborative learning between students-students and students-teachers. Students have a better interaction because they can experiment by doing. Augmented Reality is a tool that allows having better communication between students and teachers since this tool increases the students' confidence. Hence, students have enough determination to talk and ask questions to the teacher.

In addition, the teacher mentioned that AR's application impacted the teacher's attitude. Augmented Reality provides highly stimulating digital content that can engage learners in no time. Teachers have a positive attitude with the application of AR because it lets teachers act as a guide in the classroom. It means that it minimizes the teachers' involvement in the classroom, making students increase class participation. Furthermore, AR helps teachers to maintain motivation in the learning process. Likewise, Taskiran (2018), claims that AR increases not only

students' motivation if not also the teacher's motivation. In other words, AR is a tool that allows the teacher to have a good attitude and increases the desire for training to improve her English classes.

Regarding this analysis, it can be affirmed that the effect of AR in the students' attitude is positive. The acceptance of this tool was satisfactory because students feel motivated and show much enthusiasm when they are learning and developing grammar activities. The idea of using AR in classes is to make fun of learning and not something students perceive as a burden.

## Conclusions

The effect of Augmented Reality in teaching grammar is positive. The use of AR in the teaching process allows students to organize new information and link it to previous knowledge in an interactive and fun way. Therefore, students achieve meaningful learning.

The use of Augmented Reality increases students' motivation to learn grammar, applying different multimedia activities such as videos, movies, pictures, among others. Augmented Reality creates appropriate designs and instructional materials that gain learners' attention and further lead learners to explore enjoyably the process of learning grammar. Therefore, AR stimulates and sustains learners' interest in learning grammar.

The use of Augmented Reality improves students' academic achievement since this technological tool creates more opportunities to practice the language and allows them to expand their acquired knowledge since AR allows access to different information and practice platforms.

The students' attitude towards the application of Augmented Reality in grammar lessons is positive. Augmented Reality creates a virtual and real environment based on grammar topics creating positive students' encouragement generating satisfaction in the learning experience.

The use of AR in English classes increases the students' confidence to learn grammar. Students increase their confidence because they perceived ease AR use impacts their learning process, feeling secure about what they have learned, and using that knowledge with confidence to produce coherent communication.

Augmented Reality improves the students' memory retention. AR strengthened the spatial ability, which is considered as responsible for maintaining the long-term information. After using AR in classes, students can remember topics studied before and use them to communicate in a real context.

## Recommendations

It would be recommended that the main teacher receives training to acquire experience in the use of this tool in order to apply it properly in the classroom.

It is advisable that the multimedia content is previously analyzed to avoid that students lose attention and feel bored in the class. It is important to emphasize that the teacher has to maintain the students' attention to achieve the goal lesson.

It is advisable to have access to a strong internet connection since the Augmented Reality application uses different kinds of multimedia data. Also, it is important to verify if the web pages are browsable in the Augmented Reality application to avoid losing time and the students' attention.

It is advisable that the teachers verified the exercises according to the topic and the students' level because not all the information is adequate for them since they could be confused and commit mistakes.

It is recommended to use tablets instead of cellphones because tablets have a bigger screen which allows students to visualize better the content and to manipulate the material adequately.

It is advisable to keep working with Augmented Reality in the English classes not only with grammar skills if not with the rest of the skills such as reading, writing, and listening because it motivates students to learn and it helps to increase their interest and proficiency level.

## References

- Akçayır, M., Akçayır, G., Pektaş, H. M., & Ocak, M. A. (2016). Augmented reality in science laboratories: The effects of augmented reality on university students' laboratory skills and attitudes toward science laboratories. *Journal of Computers in Human Behavior* 57, 334-342. doi: 10.1016/j.chb.2015.12.054
- Akyuz, S., & Yavuz, F. (2015). Digital learning in efl classrooms. *Procedia – Social and Behavioral Sciences* 197, 766-769. doi: 10.1016/j.sbspro.2015.07.176.
- Akturk, A., Izci, K., Caliskan, G., & Sahin, I. (2015). Analyzing preservice teachers' attitudes towards, technology. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 9(12). scholar.waset.org/1999.10/10003221
- Andrews, L. (1993). *Language exploration & awareness: A resource book for teachers*. New York and London: Longman.
- Azuma, R., Bailiot, Y., Behringer, R., Feiner, S., Julier, S., & MacIntyre, B. (2001). Recent Advances in Augmented Reality. *IEEE Computer Graphics and Applications*. doi: 10.1109/38.963459.
- Baleghizadeh, S. & Mozaheb, M. (2011). A profile of an effective efl grammar teacher. *Journal of Language Teaching and Research*, 2,2. 364-369. doi: 10.4304/jltr.2.2.364-369.
- Barfield, W. & Caudell, T. (2001). *Fundamentals of wearable computers and augmented reality*. New Jersey: Lawrence Erlbaum Associates.
- Barroso, J., Cabero, J., García, F., Calle, F., Gallego, O., & Casado, I. (2017). Diseño, producción, evaluación y utilización educativa de la realidad aumentada. Retrieved from Depósito de Investigación Universidad de Sevilla:  
<https://idus.us.es/xmlui/bitstream/handle/11441/65626/dise%C3%B1o%20produccion.pdf?sequence=1&isAllowed=y>

- Benson, P. (2011). *Autonomy in Language Learning* (2nd ed.). Harlow: Longman.
- Biasini, R. (2018). *Using digital resources to enhance language learning, – case studies in Italian*
- Bikowski, D. (2048). Technology to teach grammar. *The TESOL Encyclopedia of English Language Teaching*. doi: 10.1002/9781118784235.eelt0441
- Bonner, E. (2018). Augmented and virtual reality in the language classroom: Practical ideas. *The Journal of Teaching English with Technology*, 18(3), 33-53.
- Bower, M., Howe, C., McCredie, N., Robinson, A., & Grover, D. (2014). Augmented Reality in education—cases, places and potentials. *Educational Media International*, 51(1), 1-15. Retrieved from [https://www.researchgate.net/profile/Matt\\_Bower/publication/263229544\\_Augmented\\_reality\\_in\\_Education\\_-\\_Cases\\_places\\_and\\_potentials/links/56f5b36308ae81582bf216d5.pdf](https://www.researchgate.net/profile/Matt_Bower/publication/263229544_Augmented_reality_in_Education_-_Cases_places_and_potentials/links/56f5b36308ae81582bf216d5.pdf)
- Baum, L (2002). Enthusiasm in Teaching. *Political Science & Politics*, 35(01), 87-90. doi: 10.1017/s1049096502000203.
- Che Hashim, N., Abd Majid, N. A., Arshad, H., & Khalid Obeidy, W. (2018). User satisfaction for an augmented reality application to support productive vocabulary using speech recognition. *Advances in Multimedia*, 1-10. doi:10.1155/2018/9753979.
- Chiew, F. & Poh, K. (2015). A review of intrinsic and extrinsic motivations of ESL learners. *International Journal of Languages, Literature and Linguistics* 1(2).
- Diegman, P., Schmidt, M., Eyden, S., & Basten, D. (2015). Benefits of augmented reality in educational environments – A systematic literature review. *Assosiation for Information Systems AIS Electronic Library*, 2-7. Retrieved from.
- Dincer, A. & Yesilyurt. (2017). Motivation to Speak English a self-determination theory perspective. *PASSA* 53.

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press.
- Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester: The University of Rochester Press.
- Dörnyei, Z. and Ushioda, E. (2011) *Teaching and researching motivation*. Harlow: Pearson Education.
- Flores, J. (2015). Using gamification to enhance second language learning. *Digital Education* 27, 35-54.
- Gardner, R. and Lambert, W. (1959). Motivational variables in second language acquisition. *Canadian Journal of Psychology* 13 (4), 266-272.
- Grand, S., Axelle, J., & Catriona, M. (2017). Digital learning: Education and skills in the digital age. *RAND Corporation and Corsham Institute*. 23. doi: 10.7249/CF369
- Geddes, A. (2016). Korean university students' attitudes and motivation towards studying English. *Universal Journal of Educational Research* 4(4), 704-715. doi: 10.13189/ujer.2016.040407
- Hafner, C., Jones, R., & Chik, A. (2015). Digital literacies and language learning. *Language, Learning and Technology*, 19(3), 1-7. doi: 10.13189/ujer.2017.051403
- Hamner, W. Clay and D. Organ. (1978). *Organizational Behavior* AnA22242cipscholoiroach. Dallas: Business Publications.
- Hashim, N., Majid, N., Arshad, H., & Obeidy, W. (2018). User satisfaction for an augmented reality application to support productive vocabulary using speech recognition. *Advances in Multimedia*, 1-10. doi: 10.1155/2018/9753979.
- Janfeshan, K. (2017). Iranian efl teachers' beliefs about how to teach english grammar, *BELT- Brazilian English Language Teaching Journal*, 8(2), 335-354. doi: 10.15448/2178-3640.2017.2.28633.

- Jang, B., Conradi, K., McKenna, M., & Jones. (2015). Motivation approaching an elusive concept through the factors that shape it. *The Reading Teacher* 69(2), 239-347). doi:10.1002/trtr.1365
- Jenkins, L. N., & Demaray, M. K. (2015). An investigation of relations among academic enablers and reading outcomes. *Psychology in the Schools*, 52(4), 379-389.
- Khan, T., Johnston, K., & Ophoff, J. (2019). The Impact of an Augmented Reality Application on Learning Motivation of Students. *Advances in Human- Computer Interaction*. doi: 10.1155/2019/7208494.
- Kayapinar, U., Erkir, S., & Kose, N. (2019). The effect of tablet use on students success in English as a Foreign Language (EFL) grammar classroom. *Educational Research and Reviews* 14(5), 178-189. doi: 10.5897/ERR2018.3670.
- Komiyama, R. (2013). Factors underlying second language reading motivation of adult EAP students. *Reading in a Foreign Language*, 25(2), 149-169.
- Kormos, J. & Csizer, K. (2008). Age-Related Differences in the Motivation of Learning English as a Foreign Language: Attitudes, Selves, and Motivated Learning Behavior. University of Michigan. *Language Learning*, 58:2, USA.
- Latchanna, P. & Dagnew, A. (2009). Attitude of teachers towards the use of active learning methods. Retrieved from [https://www.researchgate.net/publication/237759651\\_ATTITUDE\\_OF\\_TEACHERS\\_TOWARDS\\_THE\\_USE\\_OF\\_ACTIVE\\_LEARNING\\_METHODS](https://www.researchgate.net/publication/237759651_ATTITUDE_OF_TEACHERS_TOWARDS_THE_USE_OF_ACTIVE_LEARNING_METHODS)
- Lu, S. & Liu, Y. (2015). Integrating augmented reality technology to enhance children's. *Environmental Education Research* 21(4), 1-17. doi: 10.1080/13504622.2014.911247
- Madhumathi, P. (2017). Adopting augmented reality for English language teaching and learning. *Language in India* 17(7).

- Mundy, M., Hernandez, J., & Green, M. (2019). Perceptions of the Effects of Augmented Reality in the Classroom. *Journal of Instructional Pedagogies* 22.
- Mustafina, A. (2016). Teachers' attitudes toward technology integration in a Kazakhstani secondary school. *International Journal of Research in Education and Science (IJRES)*, 2(2), 322-332.
- Oroujlou, N. & Vahedi, M. (2011). Motivation, attitude, and language learning. *PROCEDIA Social and Behavioral Sciences*, 994-1000.
- Ozcan, M., Ozkan, A., & Sahin, N. (2017). The influence of the augmented reality application on students' performances in ottoman Turkish. *Universal Journal of Educational Research* 5. 27-33. doi: 10.13189/ujer.2017.051403.
- Ozcan, M., Sahin, N., & Ozcan, A. (2019). The influence of the augmented reality application on students' performances in ottoman turkish readings. *Universal Journal of Educational Research* 5, 27-33. doi: 10.13189/ujer.2017.051403
- Rana, N. (2012). A study to assess teacher educators' attitudes towards technology integration in classroom. *Journal of Educational Studies. Trends & Practices*, 2(2), 190-205.
- Richards, J. (2015). *Key Issues in Language Teaching*. Dubai: Cambridge University Press.
- Richards, J. C. (1996). *Reflective teaching in second language Classrooms*. Cambridge: Cambridge University Press.
- Roca, C., Gutierrez, J., García, M., & Mato, M. (2017). Virtual technologies to develop visual-spatial ability in engineering students. *Eurasia Journal of Mathematics, Science and Technology Education* 13(2), 441-468. doi: 10.12973/eurasia.2017.00625a
- Schwienhorst, K. (2012). *Learner Autonomy and CALL Environments*. New York: Routledge.
- Teeter, J. L. (2018, May). MAVR SIG Project Showcase: Academic writing from VR experiences-refugee stories to policy in Japan. Paper session presented at PanSIG 2018, Tokyo, Japan.

- Scrivener, O., Madewell, J., Perez, N., & Buckley, C. (2016). Augmented reality digital technologies (ARDT) for foreign language teaching and learning. *Future Technologies Conference, At San Francisco*. doi: 10.1109/FTC.2016.7821639
- Sherman, W. &. (2003). *Understanding Virtual Reality*. San Francisco: Morgan Kaufmann Publishers.
- Sirakaya, M., & Alsancak, D. (2018). Trends in education augmented reality studies: a systematic review. *Malaysian Online Journal of Educational Technology*, 6(2). doi:10.17220/mojet.2018.04.005.
- Solak, E. & Cakir, R. (2015). Exploring the effect of materials designed with augmented reality on language learners' vocabulary learning. *Journal of Educators Online* 13(2), 50-72. doi: 10.9743/JEO.2015.2.5
- Son, J., Park, S., & Park, M. (2017). Digital literacy of language learners in two different contexts. *Jat Call Journal* 13, 77-96.
- Steffen, J., Gaskin, J., Meservy, T., Jenkins, J., & Wolman, I. (2019). Framework of affordances for virtual reality and augmented reality. *Journal of Management Information Systems*, 683-729. doi: 10.1080/07421222.2019.1628877
- Stockwell, G. (2015). Digital media literacy in language teaching. *Digital Media Literacy in Language Teaching*. doi:10.17313/jkorle.2015.36.361
- Takkac, T. (2019). In Between Reality and Virtuality: Augmented Reality in Teaching English Young Learners.
- Tan, D., Lee, B., Ganapathy, M., & Kasuma, S. (2019). Language Learning in the 21st Century: Malaysian ESL Students' Perceptions of Kahoot!. *International Journal of Virtual and Personal Learning Environments (IJVPLE)*, 9(2), 55-71. doi:10.4018/IJVPLE.2019070104

- Taskiran, A. (2018). The Effect of Augmented Reality Games on EFL Motivation. *In Proceedings of EdMedia: World Conference on Educational Media and Technology* 892-898. Amsterdam, Netherlands: Association for the Advancement of Computing in Education.
- Teo, T., Lee, C. B. & Chai, C. S. (2008). Understanding pre-service teachers' computer attitudes: Applying and extending the technology acceptance model. *Journal of Computer-Assisted Learning*, 24(2), 128-143.
- Tzima, S., Styliaras, G., & Bassounas, A. (2019). Augmented reality applications in education: teachers point of view. *Education Sciences* 9, 99. doi:10.3390/educsci9020099
- Wallet, P. (2015). Information and communication technology (ICT) in education in Sub-Saharan Africa: a comparative analysis of basic e-readiness in schools. *UNESCO Digital Library*, 30. doi:10.15220/978-92-9189-178-8-en.
- Wu, X. (2003). Intrinsic motivation and young language learners: The impact of the classroom environment. *System* 31 (4), 501-517.
- Wu, W.H., Jim Wu, Y.C., Chen, C.Y., Kao, H.Y., Lin, C.H. and Huang, S.H. (2012). Review trends from mobile learning studies: a meta-analysis. *Computers and Education*, 59, No. 2, pp.817–827
- Yorks, L. (1976). *A Radical Approach to Job Enrichment*. New York: Amacom.
- Youssif, Z. & Omar, Y. (2019). Teaching pedagogical grammar in context to enrich english language learners' academic writing. doi: 10.32996/ijllt.2019.2.3.24.
- Zarzycka, E. (2016). Kahoot it or not? Can games be motivating in learning grammar? *Teaching English with Technology* 16(3), 17-36.
- Zhou, W. Motivation and language learning in the context of China. *Sino-US English Teaching*. 5, (4). USA; 2008.

## ANNEXES

### Annex 1. Format of the pre-test



UNIVERSIDAD TÉCNICA PARTICULAR DE LOJA

TITULACIÓN DE INGLÉS

PRE-TEST

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**1. Complete the sentences with the Simple Present forms of the verbs in parentheses.**

- You \_\_\_\_\_ (get up) at six o'clock in the morning.
- She \_\_\_\_\_ (watch) TV every day in the evening.
- \_\_\_\_\_ they \_\_\_\_\_ (speak) English? No, they don't.
- \_\_\_\_\_ he \_\_\_\_\_ (work) in the weekends? Yes, he does.
- I \_\_\_\_\_ (not go) to school on Mondays.

**2. Complete the sentences with the Present Continuous forms of the verbs in parentheses.**

- I \_\_\_\_\_ (write) a letter right now.
- He \_\_\_\_\_ (listen) to music in his room.
- They \_\_\_\_\_ (travel) around the world.
- \_\_\_\_\_ you \_\_\_\_\_ (sing) a song? Yes, I am
- \_\_\_\_\_ she \_\_\_\_\_ (play) basketball.

**3. Choose the correct form for each verb.**

- Look! Mark \_\_\_\_\_ into the water.
  - Jump
  - Is jumping
- I \_\_\_\_\_ lunch in the cafeteria every day.

- Have
- Am having
- He is at home. He \_\_\_\_\_ in the library right now.
  - Does not study.
  - Isn't studying.
- \_\_\_\_\_ she \_\_\_\_\_ TV once a week?
  - Does/watch
  - Is/watching.
- What \_\_\_\_\_ they \_\_\_\_\_ right now?
  - Do/do
  - Are/doing

**4. Read the sentences and write PC (present continuous) or SP (simple present) according to the sentence.**

- ✓ Miranda walks to her house every day. \_\_\_\_\_
- ✓ Michael is watching a movie. \_\_\_\_\_
- ✓ Jose usually runs in the park in the morning. \_\_\_\_\_
- ✓ The teachers are going on a field trip. \_\_\_\_\_

**5. Circle the correct word.**

- ✓ There isn't \_\_\_\_\_ water in the glass.
  - Many
  - A lot of
  - Any
- ✓ We have \_\_\_\_\_ cars here.
  - A lot of
  - Many
  - Some

I save \_\_\_\_\_ money to travel.

- any
- Some
- Many

- She isn't tall \_\_\_\_\_ to jump the wall.
- Enough
  - Some
  - A lot of

**6. Write the correct word of the box in the sentences.**

<p>Much</p> <p>many</p>
-------------------------

- ✓ How \_\_\_\_\_ pants do you have?
- ✓ How \_\_\_\_\_ money do you need?
- ✓ How \_\_\_\_\_ chicken do you like?
- ✓ How \_\_\_\_\_ jackets do you want?

**7. Complete the following conversation with the correct quantifiers.**

- ✓ A: We don't have **enough/many** money to travel.  
B: You're right. But we have **many/much** days to raise money.  
A: It is true! We can do **any/a lot of** things to obtain the budget.
- ✓ A: I need to buy **some/many** food for the meeting.  
B: How **many/much** friends are going?  
A: I think five or six.
- ✓ A: Do you have **any/many** ice cream left for me?  
B: Yes, I do.  
A: How **much/many** ice cream do you have?  
B: Mmm... I think a lot.

**8. Choose the words in the box and write according to the sentences.**

<p>Some vegetables, many cookies</p> <p>Some kids, much rice</p> <p>Any meat, enough money</p>
--

- ✓ There are \_\_\_\_\_ in the park.
- ✓ There is \_\_\_\_\_ in the bowl.

- ✓ I save \_\_\_\_\_ for my vacations.
- ✓ There are \_\_\_\_\_ in the fridge.
- ✓ There isn't \_\_\_\_\_ for the barbecue.
- ✓ I like to eat \_\_\_\_\_.

**9. Choose the correct option.**

- ✓ I'm thirsty. I'd like to/'d prefer to drink that bottle of juice.
- ✓ I'd prefer to/'d like to start classes tomorrow.
- ✓ I'd like to/'d prefer English to French.

**10. Unscramble the words.**

- ✓ would / a / Goku / like / pizza / to / eat.

---

- ✓ some / Bob / like / would / water / to / drink.

---

- ✓ Homero/ would / a / like / to / sandwich / eat/

---

- ✓ a / Garfield / like / cake / would / to / eat.

---

## Annex 2. Format of the survey



UNIVERSIDAD TÉCNICA PARTICULAR DE LOJA  
*La Universidad Católica de Loja*

### TITULACIÓN DE INGLÉS

#### STUDENTS' SURVEY

Dear student,

The aim of this brief questionnaire is to obtain information concerning your opinion in relation to the use of Augmented Reality in the English classes. The following information will only be used for academic/research purposes.

Informative data: Please fill in the information below

**1. I am satisfied using AR in class**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below

.....  
.....

**2. I feel motivated when the teacher uses the following material:**

- ( ) Worksheets
- ( ) Mp3 audios
- ( ) Academic book
- ( ) Mobile Device
- ( ) Videos
- ( ) Applications
- ( ) Augmented Reality
- ( ) 2D flashcards
- ( ) Internet

**3. I think it is easy to use AR to learn English**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....  
.....

**4. I am interested in the English class when the teacher uses AR**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....  
.....

**5. Using AR increases my motivation to learn grammar**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....  
.....

**6. Augmented Reality helps me to learn English grammar**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....  
.....

**7. Augmented Reality improves my English grammar**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....  
.....

**8. Augmented Reality causes me to remember grammar easily**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below..

.....  
.....

**9. Augmented Reality allows me to practice grammar any time**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....

.....

**10. Augmented Reality helps me to complete grammar task more efficiently**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....

.....

**11. I like to use Augmented Reality in class to learn grammar**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....

.....

**12. I consider that Augmented Reality is a useful tool to learn English**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below

.....

.....

**13. I feel confident to use Augmented Reality**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below.

.....

.....

**14. I feel confident to use AR**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below

.....

.....

**15. AR encourages me to interact more with my teacher and classmates**

Totally agree ( ) Agree ( ) Disagree ( ) Totally disagree ( )

Explain your reasons below

.....

**Thank you for your collaboration**

## **Annex 2**

### **Teacher's interview**

1. Which is your opinion about the application of technological educational technology strategies to teach English?
2. Have you previously received training to use new technological tools?
3. Have you previously used the Augmented Reality technology in the English classes?
4. Do you think that applying AR facilitates teaching English grammar?
5. Do you think that applying AR increases students' motivation to learn grammar?
6. Do you consider that applying AR technology promotes students' participation in the English classes?
7. Would you like to apply AR in your English classes to teach grammar?