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Title:

**THE DUOLINGO APP AND THE DEVELOPMENT OF VOCABULARY
SKILLS IN STUDENTS OF NINTH-GRADE LEVEL OF ELEMENTARY
SCHOOL AT UNIDAD EDUCATIVA AMBATO.**

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Ambato – Ecuador

2017

Supervisor Approval

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I, Lcda. Mg. Lorena Fernanda Parra Gavilánez . holder of the I.D No 180303520, in my capacity as supervisor of the Research dissertation on the topic: “THE DUOLINGO APP AND THE DEVELOPMENT OF VOCABULARY SKILLS IN STUDENTS OF NINTH-GRADE LEVEL OF ELEMENTARY SCHOOL AT UNIDAD EDUCATIVA AMBATO.” investigated by Mr. Francis Marcelo Pacheco Diaz with I.D. 0502770720, confirm that this research report meets the technical, scientific and regulatory requirements, so the presentation of it is authorized to the corresponding organism in order to be submitted for evaluation by the Qualifying Commission appointed by the Board of Directors.



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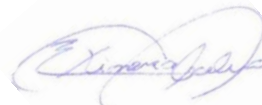
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Dedication

To:

Heavenly Father thank you for giving me the strength and ability to keep going day by day and guiding me on the path to good, my parents: my aunt, Eugenia Paredes, she taught me that I can accomplish and reach my goals wherever she is, watching over me, thank you, I did it, my father Marcelo Pacheco is a hard worker without his support this project would not have been developed. To my mother Yolanda Diaz brave and loving and my sister Roxi who made a great sacrifice, I owe her so much. I love you all. They are fundamental pillars in my life, because without their support and advice I could never have achieved this important step in my life.

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THEME: THE DUOLINGO APP AND THE DEVELOPMENT OF VOCABULARY SKILLS IN STUDENTS OF NINTH-GRADE LEVEL OF ELEMENTARY SCHOOL AT UNIDAD EDUCATIVA AMBATO.

AUTHOR: Francis Marcelo Pacheco Diaz

TUTOR: Mg. Lorena Fernanda Parra Gaviláñez

DATE: JANUARY 23, 2018

Abstract

Being able to speak another language requires time, practice, grammatical knowledge and vocabulary, now with technology it is possible. The purpose of this research was to identify the relationship between the use of the Duolingo application and the development of vocabulary skills. This study was developed with 70 students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato. A survey was used to collect information from students, the survey has 10 questions. Those ones measure the level of acceptance the application. To achieve the purpose of this research, quantity and qualitative method, and data collection were used. Furthermore, the information gathered was analyzed using a chi-square calculation. The results determined the acceptance and utility of Duolingo to develop vocabulary skills. The application has suitable and meaningful activities to develop vocabulary skills. In addition, the study revealed that the non-use of Duolingo app in the students. Consequently, students cannot develop the language skills with the use of technology. This application provides entertaining and challenging activities to develop vocabulary skills

Keywords: Duolingo, vocabulary development, technological tool.

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Resumen Ejecutivo

Ser capaz de hablar otro idioma requiere tiempo, práctica, vocabulario y conocimiento gramatical, ahora con la tecnología puede hacerse posible. El propósito de esta investigación es identificar la relación existente entre el uso de la aplicación Duolingo y el desarrollo de habilidades de vocabulario. Este estudio fue desarrollado con 70 estudiantes de noveno grado de la escuela primaria “Unidad Educativa Ambato”. Se utilizó una encuesta para recopilar información acerca de la aplicación Duolingo y el desarrollo en las destrezas de vocabulario, la encuesta consta con 10 preguntas. Las cuales miden el nivel de aceptación de la aplicación en los estudiantes. Para alcanzar el propósito de la investigación, se utilizó una metodología cualitativa – cuantitativa y la recolección de datos. Además, Los resultados se analizaron mediante del estadígrafo Chi cuadrado. Los resultados concluyeron con una gran aceptación y utilidad de la aplicación Duolingo en los estudiantes. La aplicación cuenta con actividades adecuadas e interesantes para el desarrollo en las destrezas de vocabulario. Además, se evidenció el no uso de recursos tecnológicos para enseñar vocabulario. Por lo tanto, los estudiantes no podían desarrollar sus destrezas del lenguaje con el uso de tecnología. Esta aplicación proporciona actividades significativas para desarrollar habilidades de vocabulario.

Palabras clave: Duolingo, desarrollo del vocabulario, herramienta tecnológica.

CHAPTER I

PROBLEM STATEMENT

1.1 Theme

THE DUOLINGO APP AND THE DEVELOPMENT OF VOCABULARY SKILLS IN STUDENTS OF NINTH-GRADE LEVEL OF ELEMENTARY SCHOOL AT UNIDAD EDUCATIVA AMBATO.

1.2 Research Topic

1.2.1 Contextualization of the problem

Around the world, English has become the most used language for business, education, and a way of communication among non-English speakers (lingua franca). It is the first and most spoken language in the world for communication and trading (Seidlhofer, 2002). Nowadays learning a language is easier because it can be learned on the internet or just by using any device. Technology has gone forward to make our lives easier, devices have become slimmer, lighter, and faster, which have more data storage. Technology is developing at a rapid rate even internet is growing to have an interconnected world. Mobiles provide with accurate and currently information to be updated what is happening in the world. Furthermore, they allow to make video calling, online presentations, arrange meetings, read books, and give the opportunity to learn almost everything.

Today technology has a well acceptance in people around the world, by its utility, facility and efficacy (Venkatesh & Davis, 2000). Davis (1993) stated that technology is useful and important to apply in daily work, thus users are well influenced to promote its use, too. New features are released every day with new appliances to improve the facility of those devices becoming useful, for that reason; it makes all people want to get them as a work tool or just for entertaining and communicating. The new software is produced to increase mobile's functionality. It is being so widely used in modern society since games until online courses to

offer users new and exciting ways to interact and understand information. There is a variety of applications to teach and learn a foreign language.

Ecuador is a developing country with a limited technology and connectivity, but it is enough to carry out this project that could increase student's lexicon. New ways of learning are displayed using technology. Educational software is developed to train people in any subjects to make the teaching-learning process faster. Using this kind of tool is not aimed to substitute teachers, but helps educators in their labor and allows students to learn using technology (Benalcázar, 2017). Here learners are not interested in learning English because most of the time teachers do not come up with meaningful activities to teach the target language, thus students feel unmotivated to participate in classes or work hard to become autonomous learners and sometimes they think the classes are uninteresting.

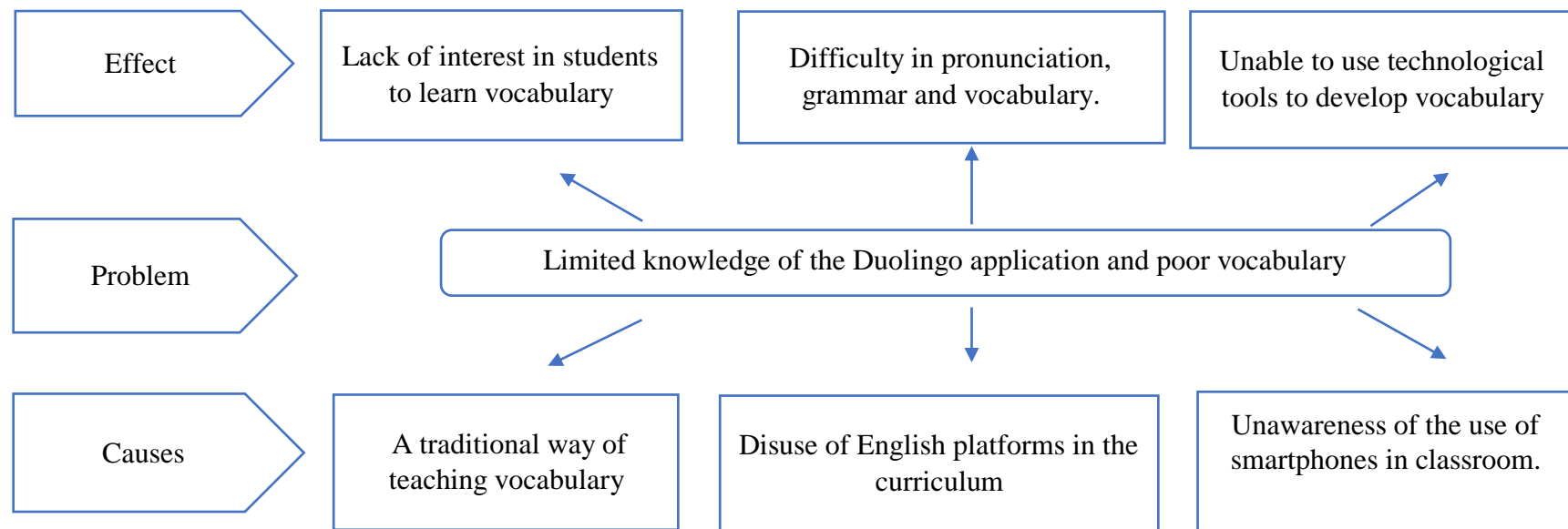
Technology plays an important role in learning since it increases the motivation and interest to get learners attention and improve their skills through technology. Genc Iiter (2009) stated that technology is used to encourage learners and foster motivation to fulfil learners goals. Nowadays, almost everybody has a smartphone especially young people. Mobile devices have a great impact on children with ailments such as autism or patients with strokes because they use devices for their recoveries (Kendrick, 2013).

In Ecuador, people like being online to meet people or being in contact with others, but they do not use devices and internet for educational purposes. They are not aware of the advantages that smartphones and internet have in the learning-teaching language process. On the other hand, this project aims to use devices as an educational software in classes to develop student's skills. Using smartphones, children, teenagers and adults could foster their abilities to learn new words as vocabulary since it is important to learn a language. Learners can store words in their memory to use in future situations. Devices focus on individual and interactive learning activities to implement in classes to develop vocabulary.

New ways of learning a language have been developing for over ten years. They offer online courses, face to face interaction, free or purchase software's, videos and podcasts to make the language learning process more meaningful. Few institutions over the world are already using technology in their classes. Those way of learning have improved learner's performance in the target language. Ecuador has implemented a law with the usage of mobile devices in schools to foster critical thinking by the use of technology. Technology never replaces teachers' role, technological tools are aids which will instruct teachers to improve their teaching methodology (Altamirano, 2013). Students can use their smartphones for developing their skills and learning new vocabulary of the target language. Some institutions have some technology in their classes to get good results from students. This project will be focused on identifying the acceptance of Duolingo application to engage students to develop vocabulary skills, to increase their repertoire of the target language and to present pedagogical advantages which for teachers.

1.2.2 Critical Analysis

Graphic 1: Problems Tree



Source: Field research

Author: Pacheco, F. (2017)

Relationship Cause and Effect.

The technological devices have changed considerably to satisfy people's needs. All these devices have collaborated with daily works and tasks. Cellphones, mp3 players, computers, and tablets have evolved so much in humans lives to make our performance better and faster. Problems have been detected in students from ninth level of basic education because of ignorance of educational applications that give as a result of non-use of learning tools for English classes. Traditional teaching techniques have caused lack of interest in students. The way of teaching has not changed at all the last few years, that's why learners are not motivated to learn new vocabulary. Mobiles and internet have encouraged to learners effectively, environmental influence and willingness showed a growth of outside motivation (Rau, Gao, & Wu, 2008). Students usually learn grammar rules deductively; students are instructed to memorize verbs, adjectives or any kind of word learned by heart one by one which are presented in large lists. Those instructions have been passed from generation to generation, it is done over and over again. New apps are released to overcome this common problem with children getting bored and not finding interest to attend their classes. Incorporating new learning ways will foster learners' skills and they will be engaged in the activities to learn new vocabulary. If teachers change the way of teaching, teachers and students will be more involved in the language learning process.

Another cause is the disuse of English platforms in the curriculum, students in high schools do not use this kind of tools to foster their language abilities. Using this material, the learner will develop vocabulary skills with ease and will improve their pronunciation as well. There is an inadequate way of teaching because students must be granted suitable material to learn new vocabulary. There are several ways to teach vocabulary such as writing the word, using cards, repeating the word in the mind and other ways. Duolingo has an adequate content to motivate students to learn and promote their self-learning. The incorporation of technologies to the teaching process has great benefits for learners and teachers as well.

Unawareness of the use of smartphones in classroom triggers teachers are unable to use technological tools, and it could affect the student's learning process. Now students are able to use their cellphones in classes, it means it can be used as a learning tool. This way of learning is easy and effective because students and teachers do not need to move to language laboratories, it is a great way to save time and keep control all the classes. There are several apps which assist learners to develop vocabulary skills. Thai's government has given tablets for all the students to learn vocabulary, this program was called "(OTPC)" the main purpose is helping students in their learning process with digital devices. The app installed in the tablets provides songs, images and other inputs to consolidate their learning (Vungthong, Djonov, & Torr, 2017). Children have received a new way of learning to foster their productive and receptive skills to master languages. Teachers need to know the best way to share the knowledge to pupils to acquire new words. Duolingo offers suitable activities applying interaction and playing, using Duolingo students will be able to communicate their ideas through the use of the duolingo app.

1.2.3 Prognosis

If this research project is not carried out, students will not learn vocabulary words and teaching will not improve at schools. This will not let teachers and students have a new tool or alternative way to learn the language. Children who start learning the language could be aware of using new ways of learning English and teachers will jeopardize the chance of using new learning tools to teach vocabulary. The problem will continue in the coming generations and could be reflected when learners want to convey their ideas. If students do not learn more vocabulary they will never understand spoken and written context. Also, they might not keep a conversation or get some ideas. Thus, knowing a wide range of vocabulary is an essential matter to success in a language. For this reason, teachers must come up with ideas to foster students' language learning. Those ideas should be related to using new teaching methods or another kind of methodology to access to the learners' attention and overcome the common problem that a beginner has. If

Duolingo is applied as learning tool in schools, students will be able to increase their repertoire, learners will understand and produce some language. Students' skills and subskills will improve as: pronunciation, grammar, vocabulary. Applying this new teaching idea, students will be engaged to learn new vocabulary. Furthermore, learners will not feel demotivation, they will be willing to learn the language. These are the advantages if schools put Duolingo into practice to enhance students' performance at the moment of learning vocabulary.

1.2.4 Problem Formulation

How does Duolingo influence on the development of vocabulary skills in the students of ninth-grade elementary school at Unidad Educativa Ambato?

1.2.5 Research Questions

How important is the use of Duolingo?

What is the theoretical support in vocabulary development?

What is the relationship between the application Duolingo app and the Vocabulary skills development?

1.2.6 Delimitation of the Research Object

Content: Duolingo app and the development of vocabulary skills in students of EGB ninth level.

Field: Educational

Area: Language Learning

Aspect: Vocabulary skills development

Temporal: September 2017 – February 2018

Espacial: The following research will be done at Unidad Educativa Ambato with students of ninth grade level.

1.3 Justification

The main purpose of this research work is to verify the efficacy of using Duoligo in teaching learning process. This research presents a socio-pedagogical **interest** because it promotes the use of digital instruments in class, the implementation of educational software in order to develop vocabulary skills. Thai's is a good example of using tech in class and Brazil classes in its program PFL (Salomão, Rebelo, & Rodríguez, 2015). There is a personal interest in researching the present theme in order to contribute to the strengthening and vocabulary improvement.

The **importance** of this research project is essential because it looks for overcome students' problems to learn new and unknown vocabulary. Also it tries to introduce new ways of learning a foreign language with the use of technological tool "Duolingo app". Making the English language class more comprehensive and memorable to get students' interest, encouraging the way of learning English and developing vocabulary skills. The project's aim is to identify the acceptance that Duolingo app has in learners. Thus, Students will engage to develop vocabulary skills to produce and understand the language, improving their language skills through meaningful learning with great outcomes.

This project is **innovative** because it shows how Duolingo app engages learners to develop new vocabulary skills and to promote the use of mobile devices for teaching. The use of mobile phones bring advantages as creating an adequate environment to develop the English vocabulary skills, engaging students with significant activities (Kukulaska-Hulme, 2009). To date, there is not similar project which was applied before, which exposes the problem its causes and consequences. It will present a practical technological tool that will serve for improving language learning process. It is accessible to classes at any time, with a pace of each student and encourage them to have a personal interest in learning new vocabulary.

Students, teachers and the whole education field will **benefit**, this will be developed through the use of duolingo app so teachers and students can know the advantages of using a new learning method. Teaching tools using technology are new ways of drawing learners' attention to help students achieve the aim of learning vocabulary. Programs that allow critical thinking are invaluable to improve the domain and practice of the language (Bitner & Bitner, 2002). Today technology is a primary resource for the educational community that will be able to benefit with the use of this learning tool which is very useful for the development of vocabulary skills and it will contribute as a new tool to enhance students' lexicon as they lack of knowledge in the target language.

This program has a high **feasibility** because it has all the requirements to carry out this research. First, it has the authorities' approval of the institution to develop the research. Second, it has been approved by university authorities, which have allowed the research of this project. Furthermore, there are researches showing the reliability of using Duolingo to learn vocabulary. If it is possible not only and also with the purpose of improving the quality of education. In addition, the availability of technological resources, since the majority of students are affected.

1.4. Objectives

1.4.1 General

To examine the influence of Duolingo in the development of vocabulary skills in the students of ninth-grade elementary school at Unidad Educativa Ambato.

1.4.2 Specific

- ✓ To identify the impact of Duolingo app
- ✓ To investigate the theoretical elements of vocabulary skills
- ✓ To determine the activities that Duolingo app provides to develop vocabulary skills

CHAPTER II

THEORETICAL FRAMEWORK

2.1 Investigative Background

This present research work is supported or based on previous studies which have opened a research line that allows conducting other researches. There are some researches that have some relation to Duolingo app and the development of vocabulary skills in students of ninth-grade elementary school at Unidad Educativa Ambato.

First, it is essential to keep in mind about researches developed around the world which show how other countries have already used technology to improve vocabulary skills in students. Later, checking local thesis carried out at Universidad Técnica de Ambato which are related to the use of technology for teaching.

Learning purposes will serve as reference to point out the vital role of technology in teaching and learning the English language. There is a scientific article which relates technology with education. Salomão, Rebelo, et Rodríguez, (2015) stated “Defining Personas of University Students for the Development of a Digital Educational Game to Learn Portuguese as a Foreign Language” (Salomão et al., 2015). This research aims to develop an educational Portuguese digital game to teach student a foreign language PFL project directed by students who are interested in studying in Brazil and Portugal. Thirty international university students attended to academic courses to those countries were interviewed showing that 60% of students used informal learning to acquire the target language using duolingo as learning tool. This app offers different vocabulary based on the students’ level, interacting with native audios, text, typing with adaptations lesson pace and appealing design. Furthermore, it encourages challenges and feedback about learning content and progress to become the learning process meaningful. Script questions were prepared for the qualitative stage, using MAXQDA software. It

showed how apps and games assist in language learning process to develop vocabulary.

There is another research which shows the efficiency of Duolingo to train English to non-native speakers. This investigative work is called “Validity, Reliability, and Concordance of the Duolingo English Test”(Ye, 2014). It provides essential information about learners who used this app to pick up the language and those who study English to take test of English as a Foreign Language (TOEFL). Data collection lasted 2 months. Participants filled out personal information and their educational background. Learners used Duolingo for 3 months to improve their English proficiency. The participants took the Duolingo test twice, each one with a time of 2 weeks. There were 214 participants. The majority of students were Chinese, Spanish (33.6%), and few participants were Portuguese. The results gathered in Duolingo tests demonstrated that there is a highly correlation with (TOEFL), “Descriptive statistics and correlational analysis were conducted using SPSS 21” (Ye, 2014). As a conclusion, this research shows the validity and reliability of Duolingo Test, both results collected from Duolingo Test and (TOEFL) iBT scores are linked.

In addition, another research to prove how effective is technology in education to foster students’ skills. Eisenlauer (2014) is his research “Multimodality in mobile-assisted language learning” argued that learning foreign languages on devices such as mobiles or gadgets is the latest innovation to teach self-directed learning. The content of the applications provides technological facilitates as interaction such as better visualization with attractive learning material to improve students' productive and receptive language skills. Mobile-assisted multimodality applications are far from over, it will not get to the end, mobile applications with multimodality are unlimited as they use images with demonstrative meanings. To assess the significant potential of multimodality for mobile learning, this research is about semiotic features of verbal and pictorial signs and investigates the semantic relationships between models, the implementation of knowledge in educational theory multimodality in relation to the fact that mobiles help to identify the

relationships between text-image in assisted learning environments in devices. This article focuses on the patterns of creation of multimodal meaning in vocabulary tasks in the application of Duolingo, in which descriptive and empirical descriptions indicate that they integrate in group of text-image guidelines for vocabulary and language learning in mobiles.

There are some countries that encourage the use of mobile devices to teach students. Thai's Education provides digital devices to students to support their learning, the app installed assist to learn EFL, and there is an interesting research focused on how apps help students to develop vocabulary. This project was called "Images as a Resource for Supporting Vocabulary Learning: A Multimodal Analysis of Thai EFL Tablet Apps for Primary School Children" (Vungthong et al., 2017). This research was carried out to improve vocabulary, it suggested that learners need explicit and implicit language learning to develop the target language and instructions were the main part of this research.

The following researchers are regarding to local researches. There is a research which aimed to investigate how phones have influenced in the learning process of a foreign language, in this case English in the students of the eighth semester, presenting a great domain of the language for its best use and understanding. This project was developed to promote the use of technology in the classroom, this alternative way of teaching helped both students and teachers to transform the teaching-learning process, to set aside the traditionalist methodology commonly used in classes, the tool became the classes more meaningful and active focusing on the of beginners needs. Technology and language are constantly changing over time. For that reason, technology and educations were coupled to develop language skills in order to help students to master the language through the contribution of technology. A survey was carried out for teachers and students who belong in the eighth semester. The results showed that cell phones help to the language development for both students and teachers (Hidalgo, 2012). However, it is not possible to determine in detail which aspects have been improved through the use

of technology such as speech or writing, reading or listening. It suggests that the results be more concise, showing investigative data that determine the level obtained after the use of technologies.

Another research was developed in 2017 called “Software my english tutor y el desarrollo de la destreza oral en los estudiantes de tercer y cuarto semestre de la carrera de idiomas de la Universidad Técnica de Ambato del cantón Ambato, provincia de Tungurahua” (Benalcázar, 2017). The autor stablishes as a primary objective to apply the Computer-Assisted Pronunciation Teaching System (CAPT) in order to study the use of the My Education Tutor (MyET) and the development of oral skills in the third and fourth semester students of the Languages Department at Universidad Técnica de Ambato del cantón Ambato. First, it was done using a pre-test and posttest, software My English tutor was required to analyze the tests. A survey was designed to prove the level of admission that MyET has in the students who used the software. To prove the hypothesis regarding the relationship between the use of My English tutor and the development of English oral skill a T-test was used, the result gathered from pre-test and post-test in both groups show that did not have a considerable impact in the development of oral skill. As conclusion, the results after the application of My English Tutor show that there is not an improvement in oral skill using this software. This research wants to prove how technology influences in the learning process in order to introduce it in classes as a new learning tool for teachers and students as well.

2.2 Philosophical Foundations

The following research work is oriented to show how this app contributes to the learning process, Duolingo is an app which helps students to build their knowledge with practical activities, this foundation is focused on **constructivism** and how it related to education. First, this app allows children to construct their knowledge by the innovative activities that this app offers to develop vocabulary skills. Children will have a continuous interaction with the app to increase their vocabulary.

Vygotsky, L. (1928) pointed out that interaction plays an important role in the knowledge and cognitive development. There are several researches about constructivism which helps teachers to improve their pedagogy. It looks for proposing a possible solution to the development of vocabulary giving coherent and efficient solutions to the proposed objectives. The solutions will be obtained through the study of the independent variable, such as the use of the Duolingo application for strengthening language skills and their understanding (Manathunga & Hern, 2016). This research seeks to establish a link between the application Duolingo and vocabulary development at the time of learning English, since it wants to show how the app helps the vocabulary acquisition.

2.3 Legal Basis

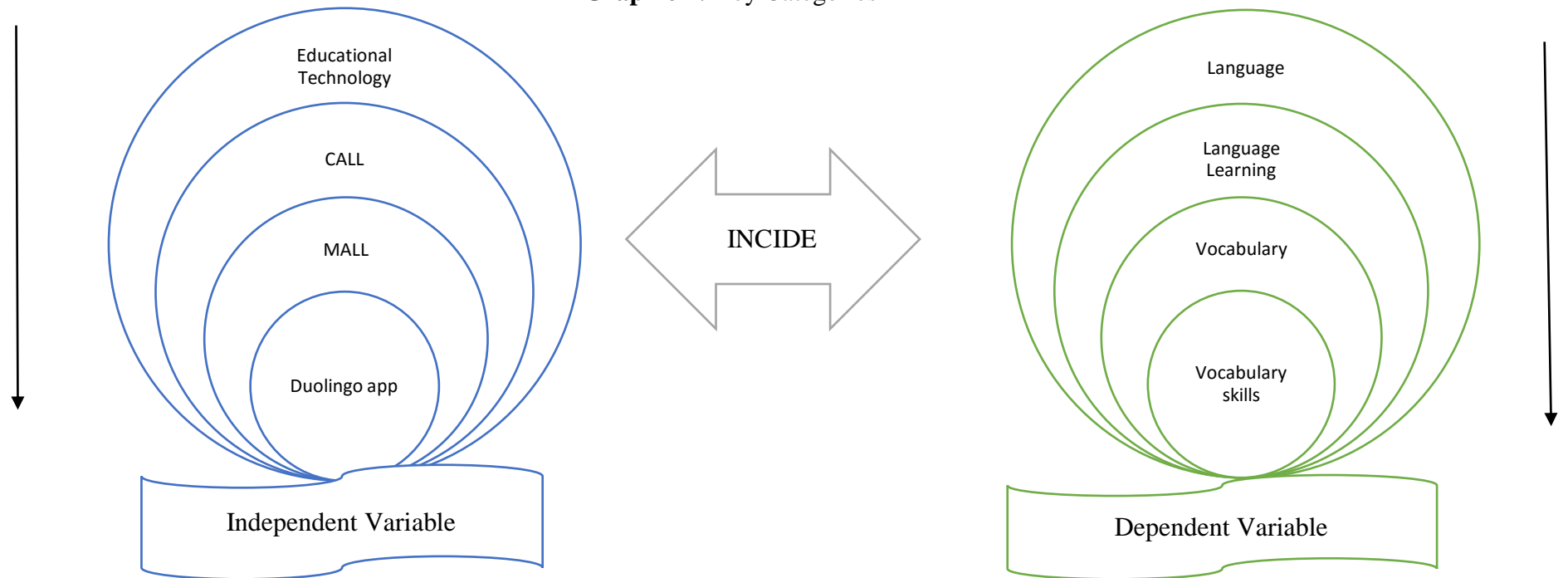
This research project is supported legally in the following articles expressed the Organic Law of Intercultural Education (LOEI).

Expedir las siguientes REGULACIONES PARA EL USO DE TELÉFONOS CELULARES EN LAS INSTITUCIONES EDUCATIVAS

Artículo 1.- Los teléfonos celulares, al igual que otros recursos tecnológicos de información y comunicación, pueden ser empleados como instrumentos opcionales generadores de aprendizajes dentro y fuera del aula (LOEI, 2011).

Artículo 3.- La utilización de teléfonos celulares en el aula, para fines pedagógicos, será autorizada por el docente única y exclusivamente a estudiantes de Educación General básica Superior y bachillerato (LOEI, 2011).

2.4 Key Categories



Source: Field Research

Author: Pacheco, F. (2017)

2.4.1 Dependent Variable Duolingo

2.4.1.1 Educational Technology

Educational Technology and also known as EdTech is directed to an area of technology development for education where new application tools (such as software, hardware) are created to encourage study and to engage students in the learning process. How technology helps in the teaching-learning process? It is important to keep in mind that there are several researches to imply students in the process. Technology makes the learning process more entertaining and memorable besides it helps teachers to incorporate new ways of teaching.

First, it develops students' knowledge and it becomes a useful and practical learning tool to produce and understand the language (Koehler & Mishra, 2005). Educational technology has been created to assist teachers with new ways of teaching. First, technology offers a wide range of activities to develop language. Second, educational technology is the application of art and science to solve educational problems and enrich the teaching process. It focusses on each field in Education, providing with suitable materials and resources to make the teaching-learning process meaningful. In order to remain at the forefront of technological development, new teaching techniques must form an integral part of teachers' instruction to promote quality education in order to achieve educational objectives (Eze, 2016). Gil, (1998) argued all people usually use technology for simple and difficult tasks such as; mobile devices and gadgets smart watches. It is difficult to be separated of technology once it was integrated into daily lives. It sometimes is posed as organizational and symbolic technology transform our world especially in the schools. This research was based on how technology help in teaching-learning process in the coming generations. Edtech seems to belong to the application of mechanical tools and materials (especially computers and software), this is related to the things that forms tech through electronic devices, which can be used in visual and auditory practice for the development of education.

Dewey (1916/1944) provides a complete and versatile description of education about learning day to day. Such as the continuous intellectual growth, interactive knowledge transformation, and learning from experience. Bruner (1956) emphasized that experience is essential in the construction and reconstruction of knowledge. Constructivism and instructional design focuses on the development of environmental constructive model designs that support the construction of knowledge, a meaningful context for learning and collaboration among students and the teacher.

Squires & McDougall (2001) found the following:

Proponemos un nuevo paradigma para pensar en el software educativo basado en las interacciones mutuas entre las perspectivas de los actores” en la utilización del software: el estudiante, el profesor y el diseñador. Esto conduce a un enfoque de selección de software relacionada con el uso del mismo, para las interacciones en el aula, las teorías de los procesos de aprendizaje y los problemas curriculares. (pág. 11).

Squires & McDougall (2001) establish educational software is a very essential tool that has been implemented many years ago and which is giving an optimum and perfect enhancement in the education of today's youth. Reason why teachers jointly working with a suitable software designer can help and facilitate the acquisition of knowledge to provide for the student, providing a more suitable and updated environment for learners using tolerable and attractive methods. The world of educational technology, what comes to mind are personal computers, laptops, tablets, smartphones and other stuff. Technologies change as knowledge advances, as it is expected. Technology arise according to the needs of the people, the goal is to use technology to support and facilitate learning and instruction. Chinnery, (2006) mentioned that the concept of new technologies is not far new, technology has been involve since 1950s with the audiolingual method, language laboratories. “Duolingo” as a virtual tool is automatically converted an innovation that positively affects the development of educational activities of society. In brief, Educational

technology has become one of the most used tools to improve teaching and learning, students work actively to develop skills.

2.4.1.2 CALL

Since the first computer appeared the world has changed too much, now people live in a world where is full of 0 and 1. Some decades before computers just were too huge and used for complex operations at work. Now computers have changed to assist in the teaching language process, today computers are used for almost all the subjects and purposes. Those devices provide updated information and some of the services that internet offers can be done from home. Nowadays, computers have become an essential part of our lives, minimizing time and extending tasks effectively. Computer Assisted Language Teaching (CALL) is a teaching-learning method that uses technological advances. Namely, the computer helps student in their learning process, at the same time teachers will be benefit through the new ways of teaching, presenting real content using computers (Kennedy & Levy, 2009). CALL is an acronym for (Computer Assisted Language Learning) was designed for educational purposes embarking all subjects in the school, this way of learning is faster and accurate (Bax, 2003). Learning using the computer allows students to reinforce their knowledge with innovative methods and interactive elements. Artificial brains or computers will not take teachers' place because students require mutual communication among mates or students and teachers, interaction is essential to teach the language, computers can be used as an aid for teacher to impart language (Dhaif, 1989).

The great welcome of CALL and its recent studies based on their use in the educational field, demonstrates that its application is a valuable academic contribution. At the same time, it makes teachers get involved in the learning process allowing students to use this new learning tools. Thus students will improve their skills and can construct their knowledge with the use of computers (Liu, 2011). Last decade computers have had a huge impact in the learning process. Just few

amounts of people consider that essential use of computers in classroom the especially in the west countries but multimedia role has become important over the word (Gündüz, 2005).

Some advantages that CALL offers to its users is wide as develop or select material according to the class directed group, do autonomous work, allow working at the student's pace, anyone who is using the computer and it can use it as main tool resource, or back up, revision, reinforcement, extension, and so on (Gündüz, 2005). CALL materials are created to provide meaning problem-based learning with a wide variety of activities to develop cognitive skills. Furthermore, a feature that it should be highlighted from these computer programs is the feedback that provides, which is focused on pronunciation, emphasis, time and intonation. This is vital as they allow users not only to know their shortcomings but also to correct them to improve their learning.

Kenning (1990) claims CALL has a wide variety of applications and content, keeping in touch with theories of language learning and pedagogical trends. Other advantage that technology presents with the languages. It can be taught or learned without mentioning the extra resources that course books possess as CDs, virtual dictionaries, corpora, online materials are all used through CALL (Spolsky & Hult, 2014). Now programs tend to develop both language and communicative skills. Artificial intelligence, psychology, linguistics and cognitive processes are integrated into CALL to develop students' skills, to go forward the next level of teaching and learning in education with new forms of interaction among students and machines.

CALL and multimedia offer an input and interaction that can be selected to suit into learners' level such as learning activities which provide controlled opportunities for learners to foster their linguistics abilities. These activities provide accurate knowledge and quick responses that help learners to understand the language (Chapelle, C.2008). The role of computers in class is essential during the teaching-

learning process to foster learners' performance in the target language. It provides users with multimedia resources to make their learning a pleasant and dynamic experience.

There are books that provides information for teachers to deal with computers and teaching "Tips for Teaching with CALL" (Chapelle & Jamieson, 2009), this books shows tips that can be adapted to classes. It tries to encourage students and teacher to use CALL, It is used to improve the way of teaching, to deal with ESL/EFL classes, it includes all information needed to develop meaningful classes. The use of computers is wide spread around the world, advising people to come up with new ways of learning to teach learners. CALL assist with interactive inputs to train students in every field and with activities well designed to contribute to learning-teaching process are included in this technology.

2.4.1.3 MALL

MALL is an acronym (Mobile assistant Language Learning), mobile devices comes from CALL; it is a small adaptation of computers into devices to be used anywhere. The use of portables is widespread in the last few decades, mainly for communicative and business purposes. Mobile devices have a variety of applications and tools to facilitate its use with can be used anytime and choose whatever lesson, but the main advantage is its portability and connectivity. Now these devices are used for educational purposes allowing students to interact with innovative content (Nezarat & Mosavi Miangah, 2012).

MALL is a method of learning language through the assistance of the mobile devices. The devices that belong to MALL are mp3, mp4, cellular, and PDAs. Using those digital devices students can access information or content wherever and whenever they think necessary. MALL is a new teaching method where users and machines work together to develop the linguistic skills necessary for communication. Educational software is in charge of creating new apps to

encourage students to learn the language. The apps created are updated each time so that learning process will be completed and meaningful. This a new way of learning a language covering areas such as grammar, pronunciation, and vocabulary.

Using mobile devices promote that learning a language will not be stressful and boring. The activities showed in the apps are created by teachers and technologist to deal with common problems that learners have which are demotivation, frustration and attendance. Kearsley & Shneiderman (1998) suggested that “collaboration, project orientation, and authentic focus” are the main factors to engage students, using interactive to develop language. Apps support learners with collaborative learning as synchronous and asynchronous interaction; besides, it integrates games to make the learning process more enjoyable and memorable (Kukulska-Hulme & Shield, 2008).

Learning a language in a non-native country is so difficult, because there are several factors which will not let you acquire the language. Employing mobile devices to the learning process will become beneficial to customize and optimize learning. There are researches which try to integrated multiple learning strategies into apps to develop a practical app which scaffolds students’ language process. In the project was needed to use a “humanoid robot integrated with a smartphone and developed an English-learning app that applied the design strategies to this environment” (Kim & Smith, 2017).

The last year mobiles have implement apps to for learning languages and lexis. The feature of those apps come with large pages of words to store them in the learner’s memory. To avoid these tedious activities, designers have developed cloze exercises where users have to fill gaps with words. It provides extra words to make it more challenging. To complete these activities learners have to know a wide range of knowledge (Knoop & Wilske, 2013). This research shows how well app are being developed to train non-native learners.

The use of language learning applications is currently the most fascinating teaching tool that teachers can apply in their methodology. The appealing interface which engages people provides interactive activities to enhance students' skills. MALL offers contextualized inputs and outputs that make each lesson memorable. To make apps more reliable and accurate the researcher can assess the most known applications; Duolingo and Babel. The conclusion gathered apps use text-links images for develop vocabulary (Eisenlauer, 2014).

2.4.1.4 Duolingo app

Duolingo is the most well-known language learning tool. It is an app which can be used in mobiles and computers, it is not a purchased app and students can download from google play or iTunes. The advantage of this app it can work online and offline. The app offers 16 languages to users but it can vary depending on which language speaker use, for instance English speakers benefit the most, they have 15 languages to pick, Spanish speakers can pick 6 and French people can pick 4 languages. The app uses mainly translations to learn the target language. According to Chang, S. (2011) "Grammar Translation Method is better than the Communicative Approach Nevertheless, the Communicative Approach emphasizes fluency and the Grammar Translation Method is concerned with accuracy". As he mentions the translation method can improve learners' performance in the target language. Duolingo was created for people who are willing to learn a new language no matter where user lives.

This app was designed by Luis Von Ahn and Severin Hacker and there are some collaborators such as Antonio Navas, Vicki Cheung, Marcel Uekermann, Brendan Meeder, Hector Villafuerte, and Jose Fuentes. It is designed for modern consumers. Duolingo works with the grammar translation method. Every content presented the learners must translate from the source language into the target language. Larsen-Freeman (2003) states that grammaring as the correct use of rules. It uses an

appealing interface that engages students' attention with interesting activities to foster their knowledge in the target language.

The way of teaching and learning in dueling is not common because this app uses gamed-based features such as thinking games, problem-solving, matching, pairing, and drills. All these elements make Duolingo a useful learning tool for languages. Several websites, platforms, and apps have adopted gamification to improve learners performance and engage them in the lessons (Huynh, Zuco, & Iida, 2016).

The advantage of gamification is providing a substitute of engaging activities to motivate learners in their attempt to learn a language. The essence of gamification is that it happens in a non-game context; it is a fun way to learn a new language. Therefore, it would be applied to make the learning process more meaningful without needing to change the existing practice of learning, and is in charge to make it more engaging and challenging for students. Some examples of gamification are: rewarding, leadership position, level of difficulty and badges: all those elements turn doubling into an engaging app for learners. It guides learners step-by-step through a sequence of tasks mainly focuses on translation (Huynh et al., 2016).

The use of Duolingo will carry great advantages to learners because it provides good activities which are according to students' level. Those activities are designed to draw students' attention, and it also uses gamification to make the teaching-learning process more memorable. Duolingo has an attractive interface and it has different levels for learners; beginners, intermediate and advanced, and it has level for each study session. This app teaches lexis: verbs, nouns, adjectives, articles, adverbs, adverbs of frequency, determines, prepositions. Users can access the app the time and when they prefer to do it, the advantage of duolingo is that learners can go forward to their own pace. Duolingo also provides feedbacks to reinforce learning. The feedback appears every time when learners make mistakes. Feedbacks display multiple answers that students could do or just correct what is wrong. Giving feedback improves the way of learning, when student receive

feedbacks to let them know if they are performing well or not. It arises the chance to success and know the error about something (Azmat, & Iriberry, 2010).

Registering in Duolingo is simple. First, it is needed to have an account in google or Facebook. (see in figure 1);

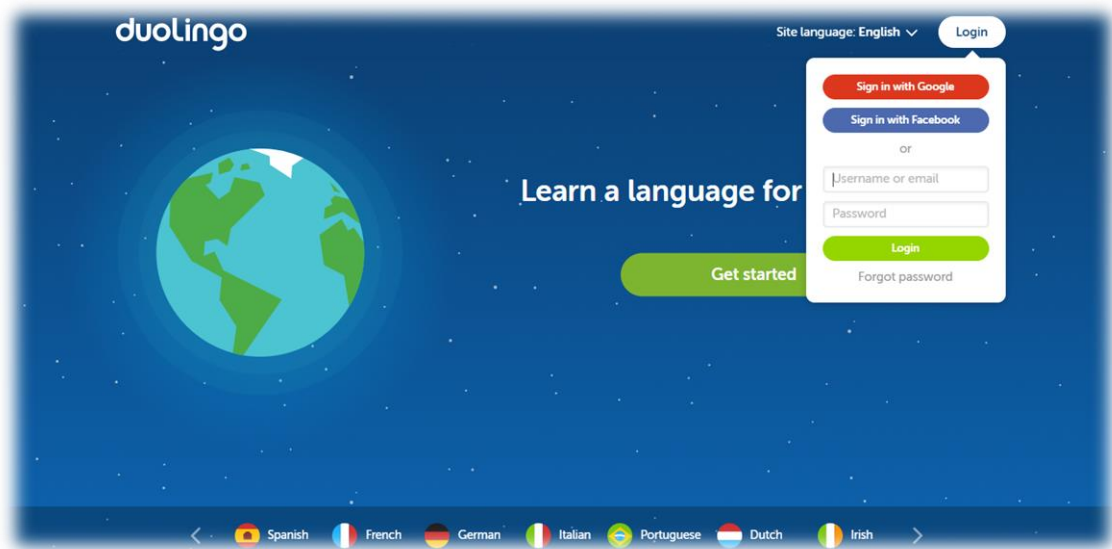


Figure 1: Sign up
Source: www.Duolingo.com

Later, a window will appear to pick “your daily goal” or “tu meta diaria”. It regards how long students want to train with Duolingo. The time is already stablishing. (see in figure 2);



Figure 2: Daily goal
Source: www.Duolingo.com

The app offers several activities to teach and train learners such as translation, matching, pairing, listening and speaking exercises.

Translation exercises. Here learners translate words, statement into target language or vice versa, Grammar translation method or know as Classical Method arouse around nineteen centuries. It is focused on accuracy and grammar rules. The grammar rules are though deductively. Some of characteristics of the method; L2 is taught in the native language, vocabulary is learned insolated, translation sentences into native language to the target language (Brown, 2006). It was remembering as repetitive and bored method to produce the target language (Richards & Rodgers, 2001).

Kong (2011) suggests the following:

“translation helps students to profoundly understand abstract meaning of foreign words and complex sentence structures; systematic grammatical knowledge develops students’ clear grammatical concepts, exact understanding of words and translation capacity; extensive reading and recitation of original works cultivate students’ reading and writing abilities” (pg. 76).

According to Chang, (2011) “The Grammar Translation Method is more effective in improving learners’ learning confidence, and motivation than the Communicative Approach.”, these researches prove that grammar translation method is really effective to develop language, vocabulary and knowledge.

In contrast Communicative approach provides meaningful activities, interaction, communication, and uses real or authentic language communication (Brown, 2006). This method develops students productive and receptive skills using language. The communicative approach engage students to learn vocabulary using interaction among students (Kong, 2011).

Nowadays there are several researches proving that if the Translation method is effective to train students to learn a language. Duolingo uses translation method

and communicative approach to illustrate knowledge to learners. The grammar translation method has a great feasibility to develop language, Duolingo mainly uses to train the learner in the target language.

Matching exercises. This activity mixes pictures and words, the task here is that students have to match the images with the correct word. This is meaningful to acquire vocabulary; this activity has images or as well-known as visual inputs. Visual inputs improve learners' attention and consciousness to acquire knowledge (Schmidt, 1995). A researcher showed the method pictures and audio which helps the learner to memorize vocabulary, and the use of word makes students remember the word to understand context (Sidman, Cresson, & Willson- Morris, 1974).

Listening and speaking exercises. In this activity, learners have to listen to the word and then write it down. This activity is based on audiolingual method. This method is emphasized productive and receptive oral skill and drills are allowing to perform what was learned. Some characteristics of this method; set words learned by hearth, word consolidation, good pronunciation, no grammar rules (Brown, 2006). Students have to remain words listened, it encourages the learner to be involved in the activity which improves students' pronunciation (Mart, 2013). Thus, this activity will assist learners in their learning process because it will scaffold to construct language by repeating and listening.

Pairing activity. Learners have to find out the same meaning in target language or vice versa. Cieślicka, (2000) in his scientific research "The effect of language proficiency and L2 vocabulary learning strategies on patterns of bilingual lexical processing" which its aim is to proof how bilingual representation affects in vocabulary development. The results showed that learners were highly pressures on the pattern of vocabulary representation. This research shows how this activity helps to develop vocabulary skills.

All the activities provided by Duolingo show an effective result to develop vocabulary, each activity is supported by previous investigations and theories

which have displayed the great advantage of using technology, special with the Duolingo app. All activities present a high feasibility to improve learners' competence in the target language, those activities were created to foster students' skills.

Translation exercises. Here learners translate words, phrases or statements. (see in figure3).

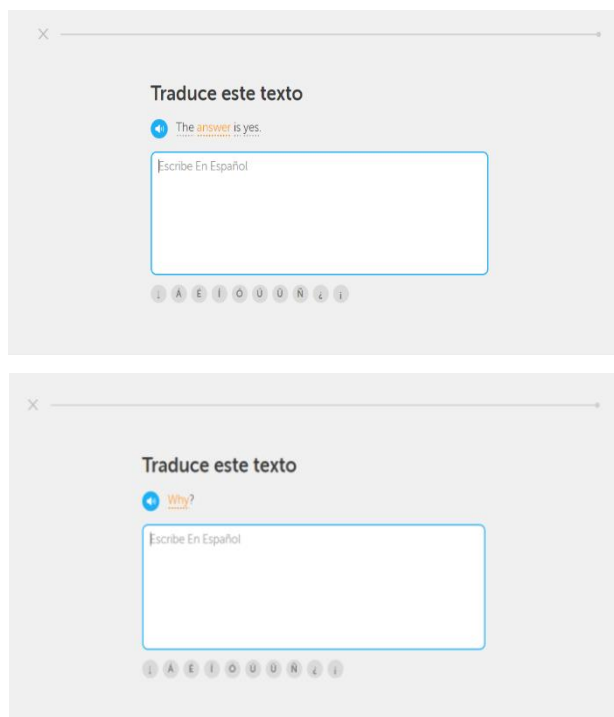


Figure 3: Translation exercises
Source: www.Duolingo.com

Matching exercises. Students see a picture and match it with the Word. (See in figure 4);



Figure 4: Matching exercise
Source: www.Duolingo.com

Listening exercise. Students listen and write the spoken words, (see in figure 5).

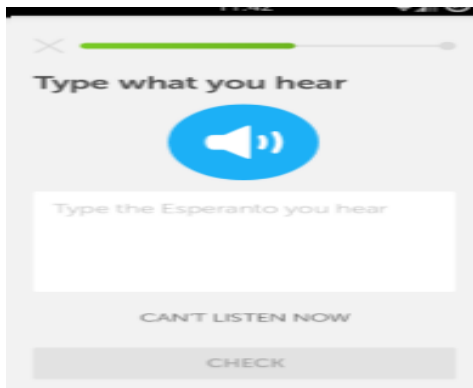


Figure 5: Listening exercise
Source: www.Duolingo.com

Pairing exercise. Several words are shown and learners have to pair the word with its meaning in both languages. (see om figure 7).



Figure 6: Pairing exercise
Source: www.Duolingo.com

Speaking exercise. Students listen and repeat the spoken words. (see figure 8)

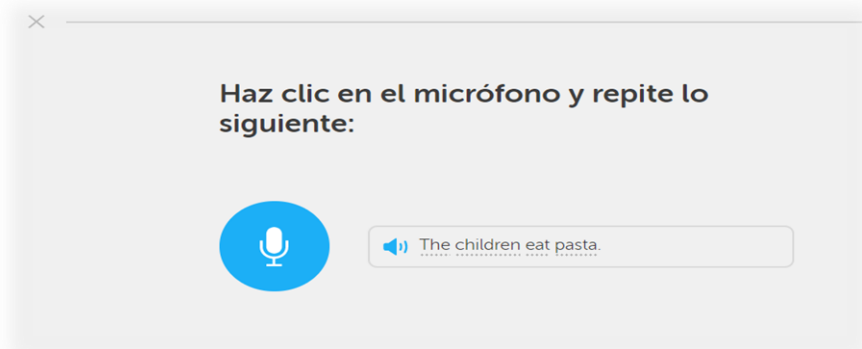


Figure 7: Speaking exercise
Source: www.Duolingo.com

The advantage of use Duolingo is it provides a wide range of vocabulary words essential to learn to language. To enhance learners' performance Duolingo offers the teacher an option which leads to the use in class which is called "Duolingo para escuelas". This effective option helps teachers with their classes. Here teachers can choose whichever lesson and which vocabulary they want to teach. It can be used to train and consolidated learning. In this option the teacher can create as many courses as they wish (Duolingo Inc, 2015). (see figure 9).

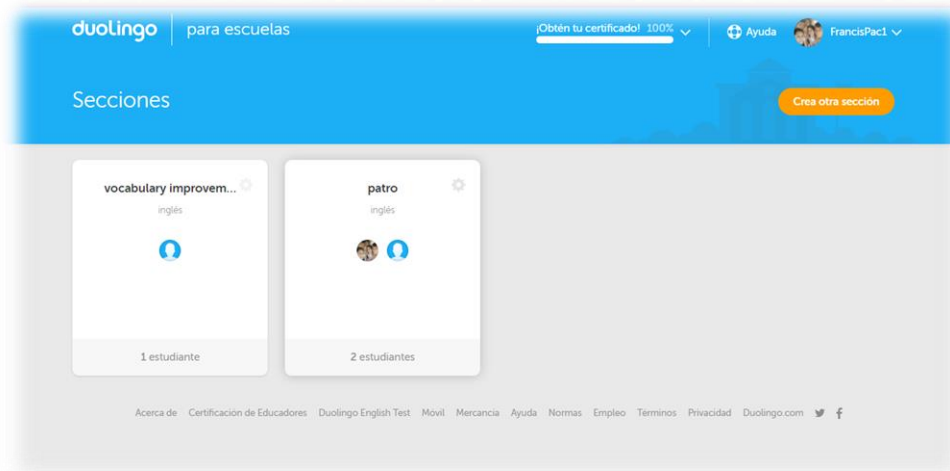


Figure 8: Duolingo Schools
Source: www.Duolingo.com

Also Duolingo offers three different levels to deal with any kind of students.



Figure 9: Duolingo Curriculum
Source: www.Duolingo.com

2.4.2 Independent Variable Vocabulary

2.4.2.1 Language

Cambridge dictionary (2017) establishes “Language as a sound, grammar and words” that people apply in daily speech. Language is a system of communication that humans share. Language refers to the code that societies use to communicate (Wardhaugh, 2006). Language is a purely human method of communicating ideas, emotions and desires by means of symbols (Sapir. 1921).

According to Eifring & Theil (2005) language “is a system of communication based upon words and the combination of words into sentences”. From the beginning humans have born the necessity to communicate, Homo sapiens in Latin (wise man) the first people in the world to interact with each other with symbols and sounds to maintain their survival. They have developed several signs to convey their knowledge (Gibson, 1991).

Language is a network of words and symbols which can be written, spoken or gestured. It innate in humans and it attends for communication (Brown, 2006).

Around the world there are 5000 to 7000 variations of languages, such as dialects of a language, regional dialects, which differs in pronunciation and use of words. Linguistics can determine how a person speaks comes from. Social dialect is characterized by social class ethnicity, gender, age they are the pidgin and creoles. Creoles and pidgin is the fusion of languages in the countries’ borders and boundaries for communication of people who share the same environment. These languages are considered lingua francas between their societies because they do not have another common language and are used for trading and business. English now is a lingua franca, it is the most spoken language and by far the most used for trading, business, education and communication (Crystal, 2003).

There is another theorist which refers to Language universals as innate set of linguistic rules that people possess; the ability to learn a language with ease

(Chomsky, 1960). A person can master a language, not only speak his native language, but also can understand others. This is known as second language, people can learn several languages through practicing and interaction. In conclusion language is the way of communication that humans use to convey ideas and thoughts, and is a set of systematic words.

2.4.2.1.1 Language Learning

It is the ability learn, acquire, pick up and understand a language. When children learned their mother tongue they do not have problems to acquire it. Children acquire the language without noticing the exposure to the environment and interaction with others. Those are the main factors to be able to produce language (Littlewood, 1984).

Children usually do not find any trouble to produce after their first years, learning a language is something natural. Language acquisition is gathered naturally. The language learning process is quite wide in children is unconsciously and it is influenced by the environment or surroundings (Skinner,1957). Krashen (1982) stated in his research “Monitor Model” that students learn a language by “acquisition” and “learning”. Acquisition is related to unconscious learning, it occurs when children just listen to words and later put them into practice.

Learning a language takes time and dedication, there are ways to learn it; acquisition of language (without studying it), or by learning rules or academic language deductive. The acquisition of language occurs from a very early age; this stage is known as a critical period, it begins at age 2, when children begin to develop their language and motor skills the cognitive part, brain organs become more receptive to the external stimulus which are essential for the acquisition of information and also relates to the acquisition of language. At this stage the children become sponges, they absorb all information from their surroundings. Every word that children hear will be kept in their long-term memory.

Acquisition begins with words, phrases, and so on until they convert them into sentences. Learners of a second language have 5 predictable stages: pre-production,

early production, speech appearance, intermediate fluency and advanced fluency (Krashen & Terrell, 1983). In this period children do not need to learn grammar rules to produce the language, children learn inductively through examples and the use of the language. On the other hand, learning is the complex process where the learner learns and analyzes grammar rules. In this process teachers use different models of language learning, for instance, Bialystok (1978) stated that language learning is affected for the sort of input and exposure to the language. It includes strategies or language principles that can be used in the learning process; Brown (2006) “Structural Linguistics and Behavioral Psychology, A Multidisciplinary Approach, Grammar Translation Method, Audiolingual Method, Communicative Language Teaching” (pg. 20).

While language learning is not as communicative. Since this method is based on instructions and memorizing grammatical rules, learning is related to conscious information that the learner receives, it is trained by rules and more deductive information. The learning is more technical and centered in theories, concepts and activities. The cognitive learning occurs when children with their mother tongue is Spanish and learn a second language at the same. They will be able to master two languages at the same time but this second language learning affects the mother tongue. It has led to children losing their primary language, it happens when the language is just spoken by family members at home; mother and father (Fillmore, 1991). It mentions learning a second language is essential but it carries some disadvantages to other language, at home children do not tend to foster their mother tongue because it does not provide language situations “conscious learning” where children could think critically to develop the language.

Consciousness plays an important role in language learning process. It currently happens in adult learners, they are concerned with how the language works, with rules and correctness. The conscious process is related to pay attention the form and the use of the language properly, besides another way to learn the language is the kind of input that learner receive to understand. Schmidt (2011) stated the useful

role of consciousness in the language learning process, this involves process of attention and is considered an important step to produce the language.

To learn a new language, teachers should be aware that not all students have the same learning style and to learn something students need teachers' help to be guided and to be able to fulfill the assigned task or to understand something confusing (Vygotsky, 1956).

2.4.2.2 Vocabulary

According to Oxford dictionary (2017), establishes that vocabulary is “The body of words used in a particular language”. Vocabulary is the words that make up a language, this is the essential part of language leaning. Vocabulary can be transmitted in different language situations as; asking for permission, clarification, requesting, etc. Vocabulary means more than simple and individual words since determiners until phrases. The variety of words know for people is commonly referred to as vocabulary knowledge or repertoire. This range of words can be related as receptive and productive vocabulary knowledge (Bardakçı, 2016). Vocabulary is defined as lexical items in second language development (Meara, 2002). It also refers to all grammatical forms which contain prefixes and affixes, all the smallest and largest words. There are several vocabulary words which are consider parts of speech or lexical items (Mary Spratt, Alan Pulverness & Melanie Willians, 2012). For vocabulary acquisition it is necessary to learn from the lexical chunks, phrases with consist on more than one word. Good morning, see you or what's up are defined as chunks, it is the most effective wat to teach young learners, Vocabulary is the core of each language, without knowing vocabulary a language cannot be understood or produced, if people have few words in their repertoire will not able to convey ideas, or express something (Wilkins, 1972).

New way of teaching vocabulary is released to overcome students' problems. Now technology offer this alternative. Joining together software and teaching method to create an effective learning tool, using multimedia inputs, opportunities to develop

vocabulary will increase. This method was efficient for learning process, it involves to memorize and think in the words. The result gathered are; pictures and words has a high influence to develop vocabulary items (Yoshii, 2006). The importance of vocabulary is crucial for learning another language without sufficient vocabulary knowledge people will surely not train what I try to express while without knowing grammar ideas can be conveyed. In contrast, Without Vocabulary nothing can be transmitted (Wilkins, 1972). Using a language means to pick all the vocabulary and order to make ideas or convey thoughts, there are three main factors in the vocabulary use; form, and meaning. All those elements are productive and receptive factors in a language (Lewis,1993).

2.4.2.3 Vocabulary skills

There is wide idea about vocabulary skills, what does it mean what are their elements. Vocabulary skills are the elements which are deep inside of vocabulary items, those elements are usually know as parts of speech and language network (Ordóñez, C. L., Carlo, M. S., Snow, C. E., & McLaughlin, B. 2002). Those elements include clear production of the words and the meaning of transferred words. There is not concrete definition for vocabulary skills, but there are some several authors express different ideas about word but all go to the same point. According to Sitthitikul (2014), vocabulary skills are several phonemes joint. The adaptation of phonemes together form syllables and words or best known as vocabulary items. Phonemes are the smallest part of the word; a word can have one or more phonemes such as /u/, /t/, /boot/, or /go/. The words lip has tree phonemes, bake has four phonemes and so on. Phonemes are the unit sounds produce by the mouth to differ in the word meaning (Snow, Burns, & Griffin,1998). Word reference dictionary (2017) points out that vocabulary “it is the unit of a language, it consists of one or more spoken sounds or their written representation and functioning as a carrier of meaning”. Blending phonemes form words and blending words form sentences. Each language has set of utterances to produce language. Vocabulary skills are powerful tools that human can use to express, feelings, opinions, ideas, orders, etc.

According to Hanks (2004), establishes that a word has four different meanings; “Orthographic words, Phonological words, Lexical items and Grammatical word-forms. This study reflects how important are vocabulary words in a language. Another definition of vocabulary can be divided in three aspects; form, meaning and use. The form involves pronunciation, spelling, and any outside word that can be introduced to alter meaning as prefixes and suffixes, (Nation, 2001). Meaning is that the word refers to something. Word’s use refers to how the word must be employed in the context.

So far, it is well-known the meaning of the vocabulary skills such as; it is small lexical items, utterances, set of phonemes, and phrases. The size of the vocabulary word is adequate to train learners in English, how important is the size of the word children learned vocabulary skills by small parts. In the early age, child will know twelve words, to develop new vocabulary skills children must surround by vocabulary sounds, utterances and statements (O’Grady, 2005). It suggests that learners have to learn vocabulary words by its sound, children acquire sounds to store them to produce it later. There is another research that suggest more or less the same concept. According Nelson, K. (1974) in his research called “Concept, word, and sentence: Interrelations in acquisition and development” here learners had to know the concept of the word, what it refers to, once they know the word, they will be able to create statements using vocabulary words. Vocabulary skills can employ some function in the language such as verbs, nouns, adjectives, adverbs, determiners, prepositions, pronouns, conjunctions, and also can be regarded as compounds, idioms, phrasal verbs, antonyms, synonyms, homophones, homonyms, false friends and collocations. All this words conform vocabulary skills or language elements. Compounds, homophones, homonyms are the language network (Hudson 2007).

If learners understand the different parts of speech, it extends the range of their vocabulary, because students can choose other words from the same set of elements. Knowing what an adverb is, allows students to select from a vast range of adverbs in speech and in writing. Not knowing what an adverb is tends to restrict the speaker

or writer to ‘soundbites’ - learned phrases instead of imaginative use of language with well-chosen words. To develop vocabulary skills and to make it more meaningful technology is needed to have good results. Constantinescu, A. (2007) in his paper named “Using Technology to Assist in Vocabulary Acquisition and Reading Comprehension”. It proves the effectiveness of learning vocabulary using readings, the vocabulary development gets when students use all the element available to in the devices and internet to learn the language; dictionaries, scaffolding vocabulary software, software memory (Constantinescu, 2007). This research as others promotes the use of technology in Vocabulary development. It is proved that technology is taking a great impact in teaching-learning process. Having this information there is a way to change the way of teaching language in schools to become English class more interesting and dynamic.

2.5 Hypothesis

The use of Duolingo has a positive effect in the vocabulary development in of ninth-grade level of elementary school at Unidad Educativa Ambato.

2.6 Pointing Variables

Dependent variable: The use of Duolingo app

Independent variable: Development of Vocabulary skills

CHAPTER III

METHODOLOGY

3.1 Basic Method of Investigation

This research work contained a mixed research, the approaches used are qualitative-quantitative to collect, analyze, interpret, and link data to answer whether Duolingo app can achieve a significant progress in the development of vocabulary skills (Hernández, Fernández, & Baptista, 2010). A qualitative approach was required to collect data because it uses students' views (experience and observation) through surveys. Those surveys displayed data such as percentages and statistics. It performs a controlled measurement of the situation and it was clearly oriented towards achieving a determined result. The gathered tests reflected students' perspectives and those determined the acceptance of Duolingo app to develop vocabulary skills. Quantitative researcher was essential in this research because it reported reliability and validity of any research. Reliability and validity and triangulation are important to measure relationship of variables to set the truth (Golafshani, 2003). Using those element, the research can determine if Duolingo has an impact on learners' acquisition and it shows how influence Duolingo has in the learning process using real data.

Grounded Theory Research

The following work research had theoretical support, criteria, codes and concepts which help to the research. The information is taken from primary sources about Duolingo and vocabulary development; books, texts, modules, newspapers, magazines, internet and documents as well, which contributes to develop a valid and reliable research. The use of several research projects and articles presented a great resource to prove and compare the results found about Duolingo app and the development of vocabulary skills. This type of research collects information to be analyzed in order to discover what problems exist. This research analyzes the

gathered data to be correlated with theorist one before to generate final result (Charmaz, K., & Belgrave, L. L. 2007). It requires information with data analytics gathered.

Field research

The research was developed where the problem arose thus all the investigation was entirely carried out to collect information (Herrera, Medina, & Naranjo, 2010). In addition, it was necessary to collect data to understand the context and the reality that happened in the students of ninth grade level at Unidad Educativa Ambato to facilitate the development of this research.

3.2 Level or Type of Research

Exploratory research

This type of research serves to reflected a general vision about what was happening with the teaching learning process. It took information about how Duolingo app is well accepted in students to develop their vocabulary skills. The exploratory research leads to new theories, and previous research work to show that efficiency of Duolingo app. Furthermore, this app provides with intersecting activities which foster their vocabulary skill development. this research explore which activities are suitable to develop vocabulary skill according to their point of view. This approach was used due to the observation and the global analysis of the phenomenon that is being investigated, the researcher is able to describe the gathered data using his own interpretation and can explore the subjects the stablsh problem (Armstrong, 1970). Using the data collected from the research can determine and understand the acceptance of Duolingo app and the development of vocabulary skills.

Correlational research

The correlation analysis was applied to measure the level of incidence that exists between the Duolingo app and the development of vocabulary skills through the variations that each variable presents (Herrera, Medina, & Naranjo, 2010). A chi square dispersion was needed to measure the relationship between the two variables through the use of hypothesis tests and statistical techniques.

3.3 Population and Sample

Behar (2008) stated that the sample refers subset elements of the population which belongs to a set of elements “small amount of the population”. On the other hand, population means the universe, the total set of elements which is address the investigation. This research had a sample of 70 students which was conformed with the students of ninth grade level.

Table 1: Sample

Description	Number of students
Ninth grade “A”	35
Ninth grade “B”	35
Total	70

Source: Field research

Author: Pacheco, F. (2017)

	Listening	Short recordings		
	Speaking	Pronunciation Drills Voice recognition		
	Motivation	Feedback Intrinsic Goal-setting tool. Bonus skills		

Source: Field research

Author: Pacheco, F. (2017)

3.4.2 Independent variable Vocabulary skills

Table 3: Operation of Independent Variable

Conceptualization	Categories	Indicators	Items	Techniques and instrumentalities
Vocabulary skills is a set language element which consist on lexical items, it is also known as the repertoire of any language or part of the speech which contain verbs, nouns, adjectives, adverbs, determiners, prepositions, pronouns, conjunctions, and also can be regarded as language network: compounds words, idioms, phrasal verbs,	1. Parts of speech	Matching	¿Do you think that matching exercises improve your vocabulary?	Survey Questionnaire
		Labeling	¿Does you think that labeling activity develop vocabulary?	
		Completion		
	2. Language network	Definition	¿Do you think that Yes/No questions help to increase vocabulary knowledge?	
		Translation		
		Yes/ No question	¿Do you think that gap filling question consolidate learning?	
		Multiple choice question		
		Gap filling/ Cloze test	¿Does multiple choice question provide enough help to learn vocabulary?	
		Embedded test		
Vocabulary size test				

<p>antonyms, synonyms, homophones, homonyms, false friends and collocations. All this words conform the language network (Hudson, 2007).</p>				
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Source: Field research
Author: Pacheco, F. (2017)

3.5 Information Collection Plan

To carry out the present investigation, a survey was used as instrument to measure the acceptance of Duolingo app and the development of vocabulary skills in students of Ninth Grade level. The survey was taken to a pilot group to verify its reliability. In addition, the Likert scale was used to measure the items, the survey was used to collect essential information in order to determine the usefulness of the Duolingo from students' point of view.

Table 4: Information collection plan

Basic Questions Explanation	Basic Questions Explanation
¿Why?	To achieve the aims set in the research
¿To what people?	Students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato.
About what aspects?	It is about Educational app: Duolingo app and development of Vocabulary skills.
¿Who?	Francis Marcelo Pacheco Diaz
¿When?	2017-2018
¿Where?	At Unidad Educativa Ambato.
¿How many times?	Once to the pilot group Once to sample
¿How?	Survey
¿Which techniques?	Survey and questionnaire
¿In which situation?	In the classroom

Source: Field research

Author: Pacheco, F. (2017)

3.6 Information Processing Plan

This research work follows several steps to be accomplished. First, the authorities' approval of the institution was gotten. Second, the students had to create accounts in Duolingo app, it was required to access to the virtual platform. Third, the survey was an essential instrument within the present investigation to obtain indispensable information for its development. Furthermore, each item contained a Likert scale to be analyzed later. The data was collected from those surveys was organized and processed through tabulation. At the same time, they are analyzed in a statistical way for the presentation of results in frames and graphs, in a way that facilitates the analysis and interpretation of the same.

3.6.1 Reliability of the Items.

For multiple questions scale the most reliable instruments is Cronbach's alpha, this measurement tool is used to collect information from people's view. It is essential to validate the items presented in the survey (Gliem & Gliem, 2003). In order to know if the items were reliable, Cronbach's alpha was used, if this tool shows a result of 0.75. To validate those items were needed 15 students from "Ramon Barba Naranjo" high school. Fortunately, students answered the items and showed a 0,759 percent of validity, it meant that the questions are reliable to start with the research.

Figure 10: Crombach alpha calculation.

1	items													
2	subjectos	item1	item2	item3	item4	item5	item6	item7	item8	item9	item10			total
3	subject 1	4	4	4	3	4	4	4	4	4	4	3		38
4	subject 2	2	3	0	3	4	4	2	0	4	4	4		26
5	subject 3	4	4	2	4	4	3	3	3	4	4	4		35
6	subject 4	4	3	3	2	3	1	3	4	4	3	4		30
7	subject 5	2	3	4	2	4	4	3	4	4	3	3		32
8	subject 6	4	4	2	4	4	3	2	3	3	3	3		32
9	subject 7	4	4	3	4	4	4	4	4	4	3	4		38
10	subject 8	2	3	3	3	3	3	3	3	3	3	3		29
11	subject 9	4	4	4	4	3	3	3	3	3	3	4		35
12	subject 10	4	4	3	4	3	4	4	4	4	4	4		38
13	subject 11	2	3	3	3	3	3	4	3	3	4	4		31
14	subject 12	3	4	4	4	4	4	4	4	4	5	3		39
15	subject 13	4	2	2	3	3	3	3	3	3	3	3		29
16	subject 14	4	4	3	4	4	3	4	4	4	4	4		38
17	subject 15	4	4	4	4	4	4	4	4	4	4	4		40
18		0,83	0,41	1,21	0,54	0,26	0,67	0,52	1,10	0,41	0,26			19,57
19	k	10												
20	sumvi	6,20												
21	vt	19,57												
22	alfa	0,759												

Source: Field research

Author: Pacheco, F. (2017)

CHAPTER IV
ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Analysis of the Results

The results were gathered once the students had worked in the Duolingo app. The survey contained 10 questions or items, all the questions were about the use of Duolingo app which one was done by students of ninth level of basic education. The survey was focused on this group because it is essential that students can develop their vocabulary skills. Participants had the opportunity to work with and utilize this app. The aim of the survey was determining the acceptance of Duolingo, if this helps learners in their vocabulary development. The results collected were positive, displaying a great acceptance by the students.

Question N° 1 ¿Have you ever used Duolingo as a resource to learn vocabulary?

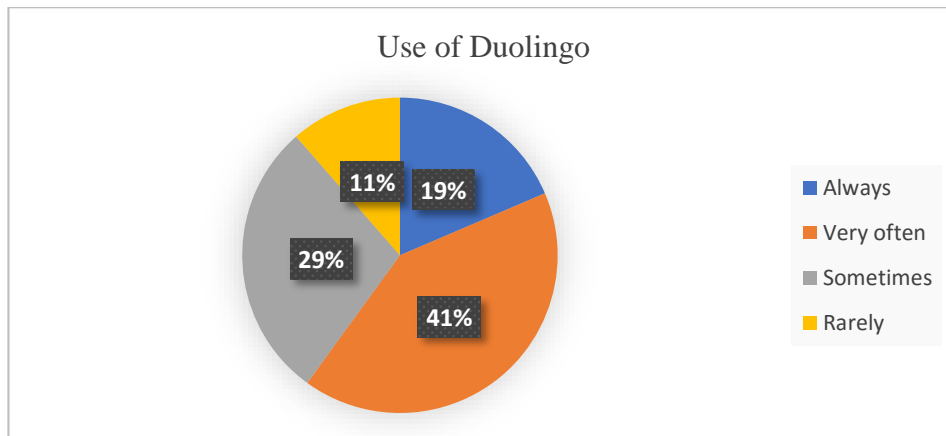
Table 5: The use of Duolingo as resource

Options	Frequency	Percent
Always	13	9.1 %
Very often	29	20.3%
Sometimes	20	14%
Rarely	8	5.6%
Never	0	0%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 11: Duolingo as resource



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

According to the results, 29 students, which represents the majority 46%, pointed out that they use Duolingo very often to learn English. In contrast, as observed there were 8 students showed that they rarely have used Duolingo to learn English, which stands for 11%. The following question reflected that learners use Duolingo very often to learn a language. It is important that students use the app to develop to learn new words. The lengthy use of Duolingo helps students to develop vocabulary skills. Duolingo can support learners in their vocabulary skills development.

Question N° 2 ¿Do you think that Duolingo interface is appealing?

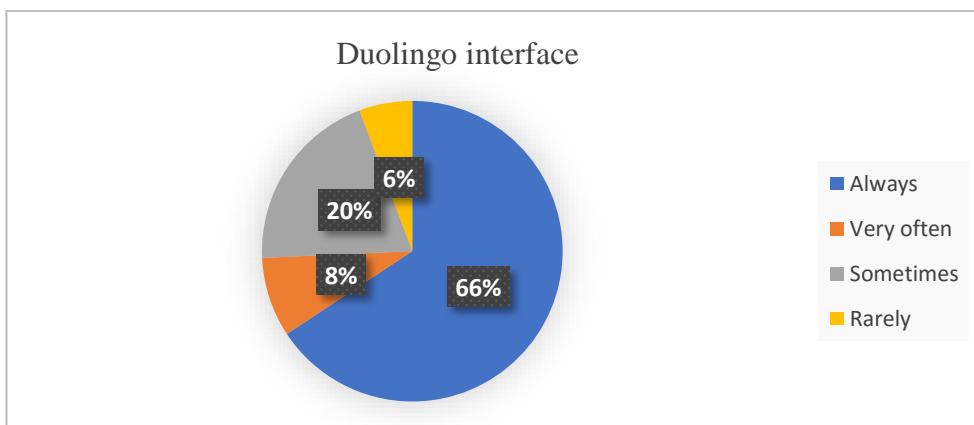
Table 6: Duolingo interface

Options	Frequency	Percent
Always	46	32.2 %
Very often	6	4.2 %
Sometimes	14	9.8%
Rarely	4	2.8%
Never	0	0%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 12: Duolingo interface



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

The table 6 shows a total population of 70 students, Accordingly, 46 students which constitutes the majority think that Duolingo has an appealing interface, it represents the 66 %. On the other hand, 4 students which constitutes 6% of the population believe that Duolingo rarely presents an appealing interface. In explaining this result, it can be stated that the majority of students think Duolingo interface is appealing. Duolingo's interface presents soft colors to draw students' attention to develop vocabulary. Its visual and auditory factors that attract lengthily their attention, illumination, font, and orthography.

Question N° 3

¿Do you think that Duolingo helps you with vocabulary pronunciation?

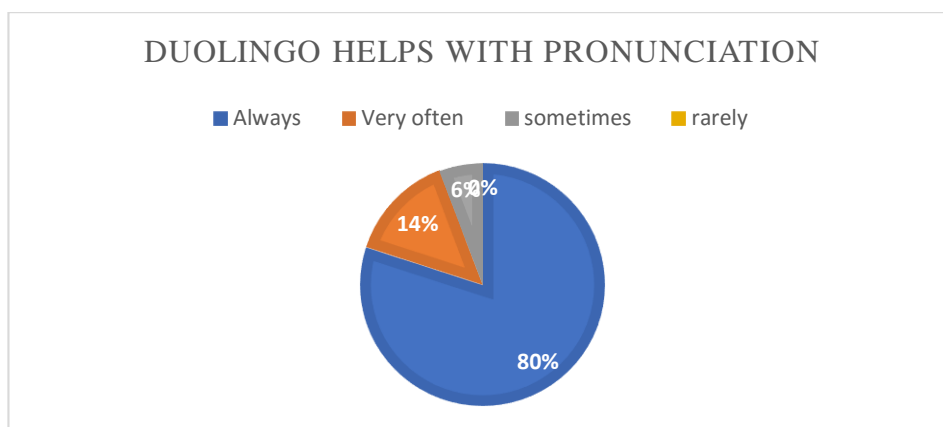
Table 7: Duolingo helps with pronunciation

Options	Frequency	Percent
Always	56	39.2 %
Very often	10	7 %
Sometimes	4	2.8%
Rarely	0	0%
Never	0	0%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 13: Duolingo helps with pronunciation



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

Accordingly, 56 students which represent 80 % of the population think that Duolingo helps with their pronunciation. Similarly, 4 students which represent the minority 6 % think that Duolingo sometimes helps with the pronunciation. The data analysis revealed that Duolingo really helps learners in their pronunciation. Duolingo provides activities where students have to record the word in order the app verify the pronunciation, it is useful for no-native speakers.

Question N°4

¿Are the activities displayed by Duolingo interesting?

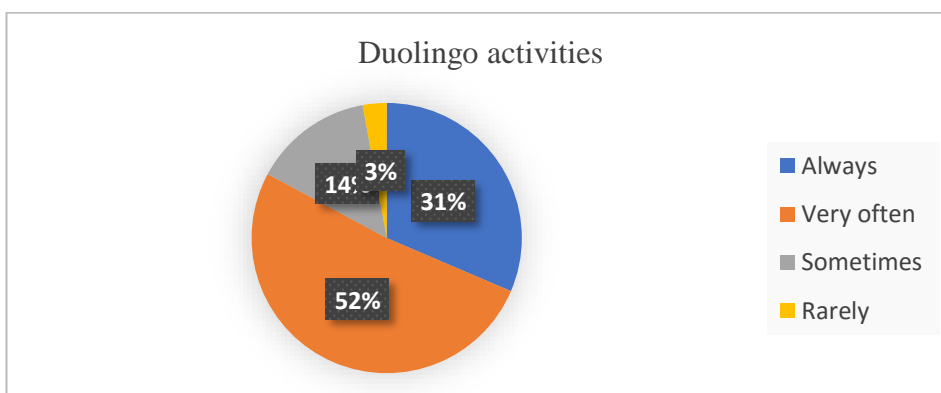
Table 8: Duolingo activities

Options	Frequency	Percent
Always	22	15.4 %
Very often	36	25.2 %
Sometimes	10	7%
Rarely	2	1.4%
Never	0	0%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 14: Duolingo activities



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

The figure 14 presents that 52 % of the students, which consist of the majority, think that Duolingo activities are interesting. In spite of, all the students agreed with the activities are interesting. There is a small minority of 3% of students think that Duolingo activities are rarely interesting. It is significantly related that Duolingo provides interesting activities to develop vocabulary skills. All the activities presented by Duolingo are designed to learners' proficiency.

Question N° 5

¿Does the tool Duolingo provides feedbacks to develop vocabulary?

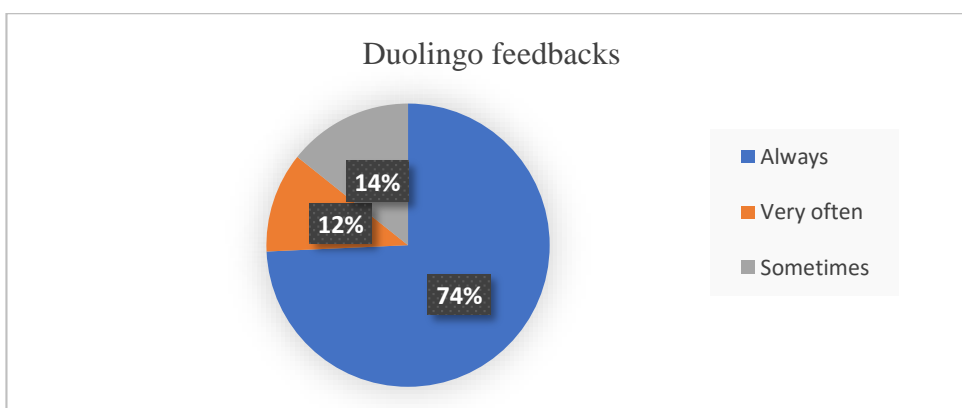
Table 9: Duolingo feedbacks

Options	Frequency	Percent
Always	52	36.4 %
Very often	8	5.6 %
Sometimes	10	7%
Rarely	0	0%
Never	0	0%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 15: Duolingo feedbacks



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

The illustrative figure shows a great acceptance of 74% by students that Duolingo always provides feedback to develop vocabulary. While 12% of the students, which present the minority, think that feedback appear very often. In explaining this result, it can be stated that this app offers feedback when learners are doing the activities. Feedback helps students to improve and get information what they are doing wrong and it let them know their mistakes to avoid and develop vocabulary skills.

Question N° 6

¿Do you think that matching exercises improve your vocabulary?

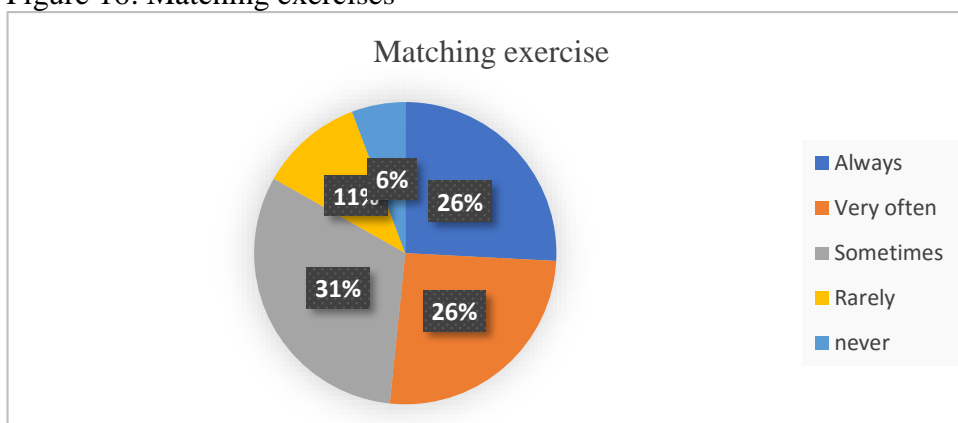
Table 10: Matching exercises

Options	Frequency	Percent
Always	18	12.6 %
Very often	18	12.6 %
Sometimes	22	15.4%
Rarely	8	5.4%
Never	4	2.8%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 16: Matching exercises



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

Table 10 shows that the majority of the population, 22 students, which constitutes 31% think that matching exercise sometimes improves vocabulary skills. On the other hand, 6% of students believe that matching exercises rarely helps learners to improve their vocabulary. The result establishes the fact that matching exercises can help learners to develop vocabulary skills using this kind of exercise. Using pictures and words improves learners' attention.

Question N°7

¿Does you think that labeling activity develop vocabulary?

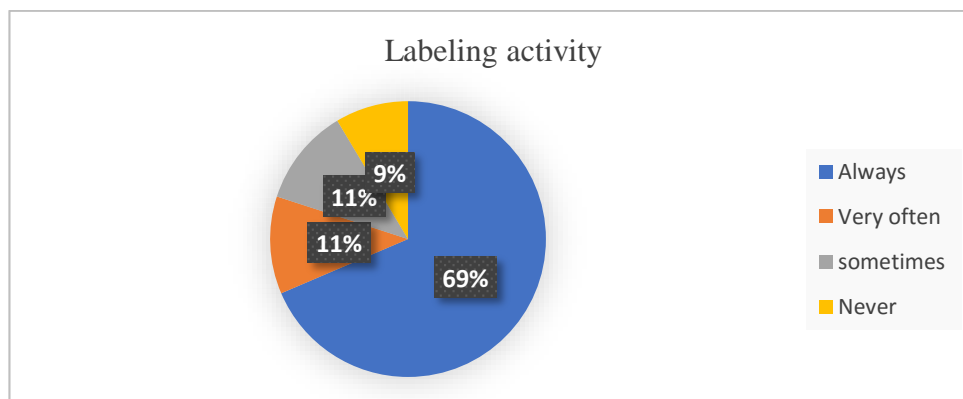
Table 11: Labeling activity

Options	Frequency	Percent
Always	48	33.6%
Very often	8	5.6 %
Sometimes	8	5.6%
Rarely	0	0%
Never	6	4.2%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 17: Labeling activity



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

Figure 17 shows that 69%, which represents 48 students, think that labeling activity develops vocabulary. While, there is a minority of 9% of students which think labeling exercise does not develop vocabulary. This finding suggests that labeling exercise helps learners to develop vocabulary. This kind of activity helps students to memorize the words to applied them in a context, it is really helpful for no-native speakers.

Question N°8

¿Does the translation exercise help to develop vocabulary?

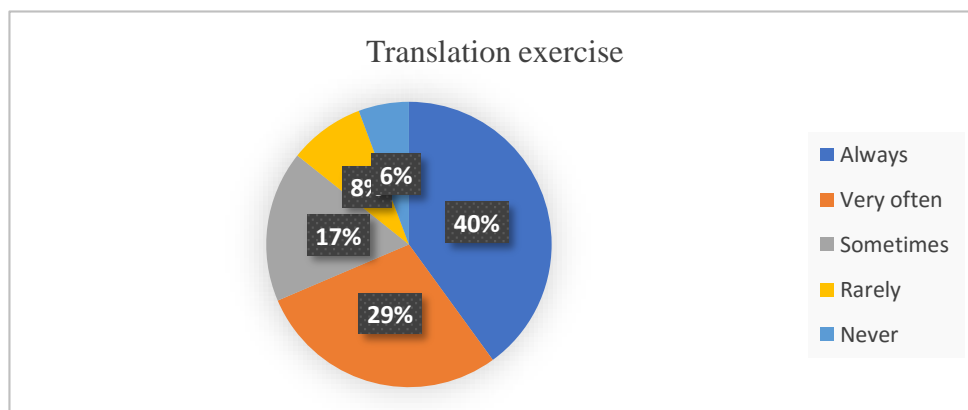
Table 12: Translation exercise

Options	Frequency	Percent
Always	28	19.6%
Very often	20	14 %
Sometimes	12	8.4%
Rarely	6	4.2%
Never	4	2.8%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 18: Translation exercise



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

According with the result gathered, 28 students which constitutes 40 % concluded that translation exercise develops vocabulary skills, whereas 4 students which represent 6% believe that translation exercise never increase vocabulary. As reflected in the graphic, the majority of students believe that Translation activities really help students to learn and develop new vocabulary in the target language.

Question N° 9

¿Do you think that gap filling question consolidate learning?

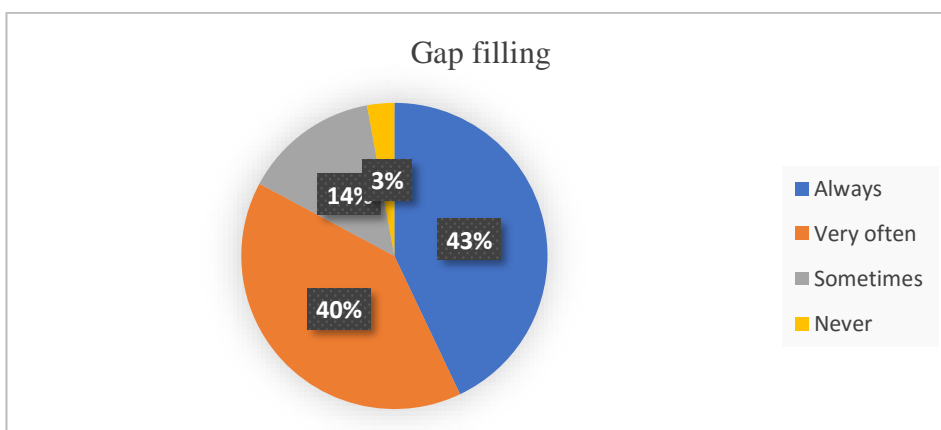
Table 13: Gap filling

Options	Frequency	Percent
Always	30	35%
Very often	28	19,5 %
Sometimes	10	7%
Rarely	0	0%
Never	2	1,4%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 19: Gap filling



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

According to the data collected, 50 students suggest that gap filling question consolidate their learning, this percentage constitutes 43%. Few students which constitutes 14% believe that gap filling never reinforce their learning. As observed, the highest result suggests that gap filling activities consolidate their learning. So this kind of activity is really helpful to develop their vocabulary.

Question N° 10

¿Does multiple choice question provide enough help to learn vocabulary?

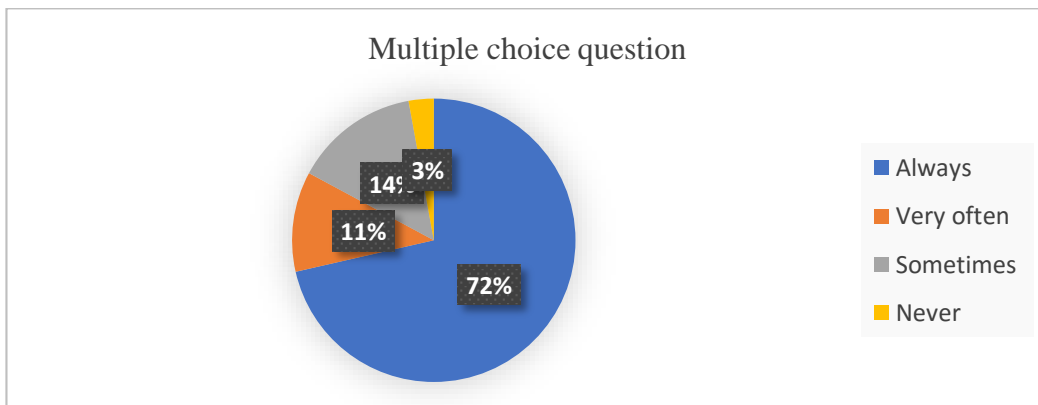
Table 14: Multiple choice questions

Options	Frequency	Percent
Always	50	35%
Very often	8	5,6 %
Sometimes	10	7%
Rarely	0	0%
Never	2	1,4%
Total	70	100%

Source: Field research

Author: Pacheco, F. (2017)

Figure 20: Multiple choice questions



Source: Field research

Author: Pacheco, F. (2017)

Analysis and interpretation

Accordingly, 50 students, which represent 72 % the majority, believe that multiple choice question provides enough help to learn vocabulary. On the other hand, 2 students which constitutes 3% think that multiple choice questions never provide enough help oy learn vocabulary. It can be stated that most of the student think that multiple choice question gives facility to complete and learn vocabulary.

4.3 Verification of Hypotheses

Getting together the results of the study in both, theory and application show a direct correlation between null hypothesis and alternative hypothesis. It was used a survey for two groups, the students who use the app and those who do not use the app. To verify the hypothesis a scatter plot was used to show the correlation between both hypotheses.

- **Dependent variable:**

Duolingo app

- **Independent variable:**

Development of Vocabulary skills

4.4 Hypothesis Statement

Null hypothesis (H₀).

The use of Duolingo app does not affect the development of vocabulary skill in students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato.

Alternative hypothesis (H₁).

The use of Duolingo app affects the development of vocabulary skills in students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato.

Selection of Significance

An error level of $\alpha=0.05$ is used for the verification of the hypothesis

Description of the Population

In the current research work was developed in Unidad Educativa Ambato, the group of study corresponds 12-13 years old students from the ninth year of Basic General Education, belonging to courses “A” and “B” total of students 70, those were taken a survey of 10 items.

Specification of the Statistical Analysis

The following formula will be used to calculate the statistical results.

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

χ^2 = Chi squared

\sum = Summation

O = Observed frequencies

E = Expected frequencies

Specification of Acceptance and Rejection Regions

To decide about acceptance and rejection regions. First, it is needed to determine degrees of freedom which were conformed with 4 rows and 5 columns, it was expressed with (df).

$$df = \text{Rows} - 1 * \text{and columns} - 1$$

$$df = 4 - 1 * 5 - 1$$

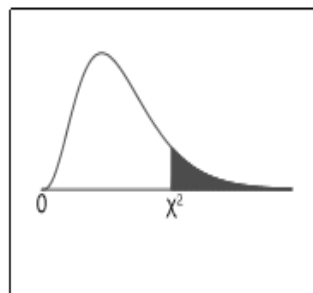
$$df = 3 * 4$$

$$df = 12$$

This research showed 12 degrees of freedom (df). In social sciences is recommended to work with 0,05 of reliability. As observed Chi-square distribution table shows 21.026 of significance, it is linked with degrees of freedom and 0.05 of reliability. In this way, it is accepted the null hypothesis if chi value is lower than 21.026, otherwise it accepts the alternative hypothesis.

Figure 21: Chi-square distribution table

Chi-Square Distribution Table



The shaded area is equal to α for $\chi^2 = \chi^2_{\alpha}$.

df	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	0.000	0.000	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997

Source: https://drive.google.com/file/d/0B9JliAFuFn_IZU9nY0p6c1o4cWc/view

Author: Neil H, T (2002)

Data collection and statistical calculation

Table 15: Observed Frequencies

	Always	Very often	Sometimes	Rarely	Never	Subtotal
Question 3	56	10	4	0	0	70
Question 4	22	36	10	2	0	70
Question 5	52	8	10	0	0	70
Question 6	18	18	22	8	4	70
Subtotal	148	72	46	10	4	280

Source: Field research

Author: Pacheco, F (2018)

Table 16: Expected Frequencies

	Always	Very often	Sometimes	Rarely	Never
Question 3	37	18	11,5	2,5	1
Question 4	37	18	11,5	2,5	1
Question 5	37	18	11,5	2,5	1
Question 6	37	18	11,5	2,5	1

Source: Field research

Author: Pacheco, F (2018)

Table 17: Chi2 calculation

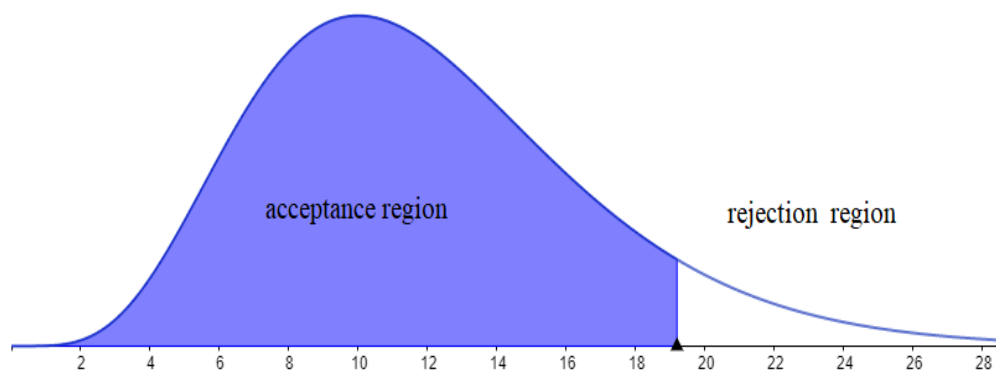
O	E	$((O-E)^2)/E$
56	37	9,75675676
22	37	6,08108108
52	37	6,08108108
18	37	9,75675676
10	18	3,55555556
36	18	18
8	18	5,55555556
18	18	0
4	11,5	4,89130435
10	11,5	0,19565217
10	11,5	0,19565217
22	11,5	9,58695652
0	2,5	2,5
2	2,5	0,1
0	2,5	2,5
8	2,5	12,1
0	1	1
0	1	1
0	1	1
4	1	9

Source: Field research

Author: Pacheco, F (2018)

Figure 22: Statistical curve of chi-square

$\mu = 12 \quad \sigma = 4.899$



Source: <https://www.geogebra.org/classic/probability>

Author: Pacheco, F (2018)

Decision

According to 12 degrees of freedom and 0.05 of reference in the Chi square distribution table value is 21.026, but the value of Chi square calculated (χ^2) is 102,8564. If the value of Chi square calculated (χ^2) is greater (\geq) than Chi square distribution table value. This finding suggests that (Ho) the null hypothesis is rejected and (H1) the alternative hypothesis (Ho) is accepted. “The use of Duolingo app affects the development of vocabulary skills in students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato.”

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

- It was possible to analyze the perception of students in relation to the use of the Duolingo app. Therefore, the acceptance of the software can be supported by the majority of the students who agreed that Duolingo is a great source of learning: dynamic and easy to use. Furthermore, students consider that this app contains several activities to improve their language skills regarding vocabulary.

- Duolingo is an excellent app to develop vocabulary skills that is why all the students show a great interest in using this app due to it makes the learning process more memorable and entertaining. Furthermore, the majority of students agreed that Duolingo interface is appealing. All these elements as; activities, design, font, and curriculum makes an outstanding learning process.

- English curriculum does not include virtual platforms to teach vocabulary, it does not allow learners develop their linguistic skills. For that reason, this app contains parts of speech; verbs, nouns, adjectives, adverbs, among others. All these elements are presented in Duolingo. The application also teaches those words in an inductive way making the learning process easy.

- Duolingo has meaningful activities to develop vocabulary and improve learners' performance. The activities presented in Duolingo makes students to get involved in the learning process. As consequence, Duolingo has a positive influence on the development of vocabulary skills in the English language because it allows learning to be more dynamic and illustrative.

5.2 Recommendations

- This research suggests teachers to use Duolingo or any technical tool in order to develop new vocabulary words and to improve learners' proficiency. Teachers should apply alternatives other ways to teach vocabulary to make classes more memorable and meaningful. One of this alternatives is the use of Duolingo. Since the research show a great acceptance of this app.
- Using Duolingo in a more controlled environment is required, because it help students to completed the activities assigned by the teacher. The use of Duolingo 30 minutes per day will foster your skills, suggest all beginners to use to avoid future problems with the language. Institution should implement Duolingo, because they have equipment necessary to carry out this project such as: headphones, microphones, enough computers for all students and internet connection in each computer.
- It is essential that teachers know all the theoretical elements of vocabulary such as: parts of speech and language network. Those elements are essential to develop linguistics skills. With this in mind, teachers are aware which apps and material they have to use in order to develop vocabulary skills.
- Activities of Duolingo are memorable and interesting to develop learners' vocabulary. Using the activities of Duolingo students can increase their repertoire. The efficacy of Duolingo is well-known, because it possesses activities to foster students' performance. For instance: matching exercise ordering sentences and repeating activities are useful to develop vocabulary.

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Annex 1: School Approval



UNIVERSIDAD TÉCNICA DE AMBATO
FACULTAD DE CIENCIAS HUMANAS Y DE LA EDUCACIÓN
CARRERA DE IDIOMAS

Av. Los Chasquis y Río Guayllabamba/Campus Huachi/Teléfono 032410189 Ext. 120/Ambato-Ecuador



Memorando Nro. UTA-FCHE-CI-2017-437-M
Ambato, 25 de octubre de 2017

PARA: Doctora Monica Montalvo
RECTORA
UNIDAD EDUCATIVA AMBATO

ASUNTO: Implementación Proyecto de Investigación

Por medio de la presente y a través de un cordial saludo de la coordinación de la Carrera de Idiomas me permito solicitar a usted muy comedidamente se sirva autorizar al señor **FRANCIS MARCELO PACHECO DÍAZ**, con Cc: 0502770720 estudiante de Décimo nivel de la Carrera de Idiomas, modalidad Presencial de la Universidad de Técnica de Ambato, a realizar su Proyecto de Investigación con el tema : "DUOLINGO APP AND VOCABULARY DEVELOPMENT IN STUDENTS OF NINTH GRADE LEVEL OF BASIC EDUCATION" previo a la obtención del título de Licenciado en Ciencias de la Educación mención Inglés.

Atentamente,


Ph.D. Veronica Chicaiza Redin
COORDINADORA



Recibido
25/10/2017
17h45

c.- Carpeta Estudiantil
VCH/dl.

Autorizado





Annex 2: Survey



**UNIVERSIDAD TÉCNICA DE AMBATO
FACULTAD DE CIENCIAS HUMANAS Y DE LA
EDUCACIÓN
CARRERA DE IDIOMAS**



This survey is applied to students

Objective: To examine the use of Duolingo in the vocabulary learning process in the students of ninth-grade elementary school at Unidad Educativa Ambato

Instruction: Dear students, please read the questions carefully and put X in your answer.

QUESTIONS	ANSWERS	
1. ¿Have you ever used Duolingo as a resource to learn vocabulary?	Always	<input type="checkbox"/>
	Very often	<input type="checkbox"/>
	Sometimes	<input type="checkbox"/>
	Rarely	<input type="checkbox"/>
	Never	<input type="checkbox"/>
2. ¿Do you think that Duolingo interface is appealing??	Always	<input type="checkbox"/>
	Very often	<input type="checkbox"/>
	Sometimes	<input type="checkbox"/>
	Rarely	<input type="checkbox"/>
	Never	<input type="checkbox"/>
3. ¿Do you think that Duolingo helps you with vocabulary pronunciation?	Always	<input type="checkbox"/>
	Very often	<input type="checkbox"/>
	Sometimes	<input type="checkbox"/>
	Rarely	<input type="checkbox"/>
	Never	<input type="checkbox"/>
4. ¿Are the activities displayed by Duolingo interesting?	Always	<input type="checkbox"/>
	Very often	<input type="checkbox"/>
	Sometimes	<input type="checkbox"/>
	Rarely	<input type="checkbox"/>
	Never	<input type="checkbox"/>
	Always	<input type="checkbox"/>

5. ¿Does the tool Duolingo provides feedbacks to develop vocabulary?	Very often	
	Sometimes	
	Rarely	
	Never	
6. ¿Do you think that matching exercises improve your vocabulary?	Always	
	Very often	
	Sometimes	
	Rarely	
7. ¿Do you think that labeling activity develop vocabulary?	Always	
	Very often	
	Sometimes	
	Rarely	
8. ¿Does the translation exercise help to develop vocabulary?	Always	
	Very often	
	Sometimes	
	Rarely	
9. ¿Do you think that gap filling question consolidate learning?	Always	
	Very often	
	Sometimes	
	Rarely	
10. ¿Does multiple choice question provide enough help to learn vocabulary?	Always	
	Very often	
	Sometimes	
	Rarely	
	Never	

Source: Field research

Author: Pacheco, F. (2017)

THANKS FOR YOUR WORTHY COLLABORATION

Annex 3: Academic Paper

Duolingo App and The Development of Vocabulary.

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Abstract:

Being able to speak another language requires time, practice, grammatical knowledge and vocabulary, now technology can make it possible. The purpose of this research is to identify the existed relationship between the use of Duolingo app and development of vocabulary skills. This study was developed with 105 students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato, a survey was used to collect information from

students. The students were divided into groups which used the app and those who do not use it. The survey application determined the acceptance and utility of Duolingo to develop vocabulary. The information gathered was analyze using a scatter plot, the results concluded that the development of vocabulary was absorbed in one group while the other one was not.

Keywords: Duolingo, vocabulary development, acceptance, technology.

Introduction

Throughout the world, English is considered as the most spoken language, this means that people use it for business, education, and way of communication among non-English speakers (lingua franca). English is regarded as the language for communication and trading (Seidlhofer, 2002). Today it is possible to learn any language from the comfort of home, with the help of technology. Mobile devices and computers are created to have an interconnected world, technology offers updated and wide

ranges of information. Now people can use technology and its interconnected world to learn new things. Davis (1993) stated that technology is useful and important to apply in any field. Technology plays an important role in the teaching-learning process. Teachers are trying to introduce tech to their classes to make the lessons more meaningful and memorable. Students easily lose their attention, and that is why teacher need to find new ways to teach, this project is aimed to use technology to improve learners' performance and their language comprehension using pedagogical advantages presented in apps. Students

sometime feel demotivated in regards to certain school subjects, it is a common problem that teachers must overcome. Mp3 devices, laptops, cellphones and tablets contribute in the learning process especially for non-speakers. Those devices can provide with effective and interactive activities to master the cognitive section (Stahl, 2006). It is a great advantage because students do not have to attend to a class, learners can learn anywhere, whenever, and there is no time limit. Some activities displayed in apps are interesting and joyful, which draws students' attention providing different activities to interact with the app (Goldenberg, 2008). Duolingo presents playful and challenging activities to foster learning, it also has cognitive and communicative learning strategies to master the target language. Apps and their software provide a great range resources as listening, videos, readings, and video chats to reinforce and improve learning and teaching. The purpose of this study is to identify the impact of the Duolingo application, whether it helps students to learn the target language, investigate the theoretical basis of vocabulary acquisition, to know the easiest way to acquire vocabulary and what allow this process, and determining the relationship between Duolingo and the development of vocabulary.

Computer Assisted Language Learning (CALL)

Call is an acronym used to refer to computers in the learning process, call is a system of software that helps learns of any subject use computers. These

machines can provide useful tools and updated information, computers help people with difficult tasks, such as math calculations, and the design of buildings and emulators, etc. call is a technological method which help teachers and learners to acquire information through pictures, videos, audios, etc. the advantage of using call is that teachers and students can use new alternatives of teaching and learning with the use of real context (Kennedy & Levy, 2009). Learning using computers allows students to reinforce their knowledge with attractive elements and new teaching methods. Call uses a wide range of materials for all ages and needs, it allows autonomous work so that students study at their own pace. Call and Mall can select the material to be taught according to students' level.

Mobile Assisted Language Learning (Mall)

Mobile devices have arisen from computers or PDA's, it is a small adaptation of computers into a small gadget. Those devices are small and portable to be used anywhere, for that reason, mobiles have become so popular. Nowadays those devices have a wide range of applications to improve and make users lives better. The last few years, designers have released applications to enhance the educational field, the apps allows students to have interaction with innovative activates and content (Nezarat & Mosavi Miangah, 2012). Those applications are used for

educational purposes as apps to learn languages, to do math calculation, measure degrees and etc. Learning a language is very difficult especially for a non-native speaker, employing mobile devices the learning process is meaningful for customizing and optimizing learning. the current use of language apps is the most fascinating method that teachers can use because apps have appealing interface, entertaining activities to interact with the app one of those apps to learn a language is Duolingo.

Duolingo

Duolingo is a clear example of CALL and MALL because this app can be used in both platforms. Duolingo is a free language learning tool which offers more than 15 languages. Users can easily download this app or go to the web site. The advantage of this app is that when used in mobiles, it can work offline while on the web page this does not occur. This app mainly works with translation, pictures, short recordings, this app was designed by Luis Von Ahn and Severin Hacker, every content presented must be translated from the source language into the target language. Duolingo uses an attractive interface that draws students' attention with interesting activities to foster their knowledge in the target language. This app also has gamed-based features such as thinking games, problem-solving, matching, pairing, drills, those elements make Duolingo a useful learning tool. Some webpages, platforms, apps have applied gamification to improve learners'

performance and engage them into the lessons (Huynh, Zuco, & Iida, 2016). Duolingo provides activities for each level as beginners, intermediate and advanced, this app offers users the opportunity to learn parts of speech and language network, the app has Translation exercises, Matching exercises. Listening and speaking exercises. Pairing activity. One advantage that Duolingo has it has a section where teachers can keep track of students' progress, if students are doing their task, this option also can customize vocabulary according to the lesson.

Vocabulary skills

There is wide idea about vocabulary skills, what does it mean what are their elements. Vocabulary skills are the elements which are deep inside of vocabulary items, those elements are usually know as parts of speech and language network. Word reference dictionary (2017) points out that vocabulary "it is the unit of a language, it consists of one or more spoken sounds or their written representation and functioning as a carrier of meaning". Blending phonemes form words and blending words form sentences. Each language has set of utterances to produce language. Vocabulary skills are powerful tools that human can use to express, feelings, opinions, ideas, orders, etc. According to Hanks (2004), establishes that a word has four different meanings; "Orthographic words, Phonological words, Lexical items and Grammatical word-forms. This study reflects how important are vocabulary words in a

language. Another definition of vocabulary can be divided in three aspects; form, meaning and use. The form involves pronunciation, spelling, and any outside word that can be introduced to alter meaning as prefixes and suffixes, (Nation, 2001). Meaning is that the word refers to something. Word's use refers to how the word must be employed in the context.

Investigative Background

Due to the efficiency of using Duolingo for learning, some research has been carried out to prove the meaningful role that this app plays in developing vocabulary in learners. It was found reliable and real information the improvement of students using Duolingo. An investigation was done to teach Portuguese PFL, the university developed a digital learning game to teach Portuguese., some students mentioned they used Duolingo to learn the target language. They say this app offers different vocabulary according to students' level, has interactive audios, text typing and lessons pace (Salomão et al., 2015). A research was done in 2014 to prove the efficiency of Duolingo in non-native, Validity, Reliability, and Concordance of the Duolingo English Test", this investigation lasted 2 months. Participants used Duolingo for 2 months to increase their English proficiency. Learners took the DET twice, and the results collected were correlated with TOEFL test (Ye, 2014). In conclusion, this study shows a validity and reliability of Duolingo Test. Multimodality in mobiles provide technological facilities

as interaction and visualization using attractive learning material to improve learners' skills. There are countries that use mobile devices to train EFL, those countries are focused on apps which teach vocabulary, especially the Thai government that supplies tablets to students to train them English, this study concluded that students need explicit learning to improve their language, using these mobiles and apps makes it possible to get this aim so that learners improve their level English proficiency.

2 Method / Methodology.

With the aim of measuring, the relationship between Duolingo and the vocabulary development was needed students from ninth grade level of elementary school. 70 students worked in this study. Beforehand, other 15 students took the survey to highlight its reliability. The result gathered was analyzed using Cronbach's alpha. 0,759 percent of validity showed the survey. Once survey was ready, students took the survey. The result gotten from students were qualitative due to the fact that the results collected come from the students' perspectives. The types of research used are exploratory, ground theory and correlational research. The survey was used to measure the acceptance of Duolingo by students, 70 students used the Duolingo app and they witnessed all of the advantages that Duolingo provides to learn a language. After students had used the app, they took the survey about Duolingo. This survey has 10 items with Likert scale answers. Most of them showed great agreement with the questions displayed. To prove students' acceptance was required to set a hypothesis. This was calculated with Chi

square calculation and chi square distribution table.

Results.

After students took the survey, the data tabulation was performed with its respective graphic representation, analysis, and data interpretation. Next the data will be presented to display the most relevant results obtained in the research.

Table1: observed frequencies

	Always	Very often	Sometimes	Rarely	Never	Subtotal
Question 3	56	10	4	0	0	70
Question 4	22	36	10	2	0	70
Question 5	52	8	10	0	0	70
Question 6	18	18	22	8	4	70
Subtotal	148	72	46	10	4	280

Source: field research

Author: Francis Pacheco (2018)

Table2: Expected frequencies

	Always	Very often	Sometimes	Rarely	Never
<u>Question 3</u>	37	18	11,5	2,5	1
<u>Question 4</u>	37	18	11,5	2,5	1
<u>Question 5</u>	37	18	11,5	2,5	1
<u>Question 6</u>	37	18	11,5	2,5	1

Source: field research

Author: Francis Pacheco (2018)

Table 3: chi square calculated

O	E	$\frac{(O-E)^2}{E}$
56	37	9,75675676
22	37	6,08108108
52	37	6,08108108
18	37	9,75675676
10	18	3,55555556
36	18	18
8	18	5,55555556
18	18	0
4	11,5	4,89130435
10	11,5	0,19565217
10	11,5	0,19565217
22	11,5	9,58695652
0	2,5	2,5
2	2,5	0,1
0	2,5	2,5
8	2,5	12,1
0	1	1
0	1	1
0	1	1
4	1	9

Source: field research

Author: Francis Pacheco (2018)

As observed, all the results were analyzing to get the chi square. According to 12 degrees of freedom and 0.05 of reference in the Chi square distribution table value is 21.026, but the value of Chi square calculated (χ^2) is 102,8564. If the value of Chi square calculated (χ^2) is greater (\geq) than Chi square distribution table value. This finding suggests that (H_0) the null hypothesis is rejected and (H_1) the alternative hypothesis (H_0) is accepted. "The use of Duolingo app affects the development of vocabulary skills in students of Ninth-Grade Level of elementary school at Unidad Educativa Ambato."

2. Discussion:

There are several researchers which have identify CALL and MALL really support students with their learning. Artificial brains help students with their academic subjects providing the enough support to reach this aim, using innovative way of presenting information with attractive content (Kennedy & Levy, 2009). Both call and mall are technological tools which turn the traditional teaching into a dynamic learning, which allows to transform teaching-learning process more accessible for all learners. Those technological tools engage students to train as many time as they want. Advantages that MALL and CALL have in education are; learning tool resource, or back up and revision lessons, knowledge reinforcement, lessons extension (Gündüz, 2005). Technological tools released apps and software based on gamification.

Gamification makes the learning process fun and meaningful. The activities designed with gamification are interesting, meaningful and effectiveness (Huynh et al., 2016).

Duolingo have a great effect to learn languages. the use of this app improves the academic performance, making the learning process memorable. The advantage that this app possess is grammarian, this feature explains grammar in a inductive way, no grammar rules, all the activities present in Duolingo are done in that way. So students do not have to concern about the tedious rules which make lessons not memorable (Larsen & Freeman, 2003). This study rushed done cause of lack of time nevertheless good result were collected from students of ninth grade level of elementary school at Unidad Educativa Ambato. As observed is accepted the alternative hypothesis and is rejected null hypothesis, it means Duolingo has a positive effect on vocabulary development in students. As this study there are several which shows Duolingo effectiveness, in the research called "The Reliability of Duolingo English Test Scores" done in 2014 showed the reliability of using Duolingo to improve their English proficiency. Participants of TOEFL around the world were called to participated in this investigation. All the learners practiced Duolingo for 2 months, once students have accomplished this tasks. They were able to take DET test to measure their English (Ye, 2014). The result gathered were compared with TOEFL test. Both results were almost the same if a

participant got a 106 in TOEFL test is highly probable that the same person got in DET test 9 over 10. As a conclusion the result showed a highly correlation between TOEFL and DET test. This investigation accurately showed Duolingo Effects on learning, if it is used properly, learners got good results.

3. Conclusion

As conclusion, if instructors use this technological tool learner surely improve their English level and their vocabulary knowledge as well. Students will be able to deal with standardized test in a near future. Furthermore, there is not help from the participants, they do not really care about their vocabulary development.

they cannot realize the advantages of using is technological tool. For that reason, teachers have to use this tool as extra resources in class or at home to reinforce the language part to increase students' vocabulary.

It was possible to analyze the perception of students in relation to the use of educational software in the Duolingo app. Therefore, the acceptance of the software can be supported by the majority of the students of the experimental groups who agreed that Duolingo presents a great source of learning: dynamic and easy to use. Furthermore, students consider that this app and the several activities included in it to improve their language skills.

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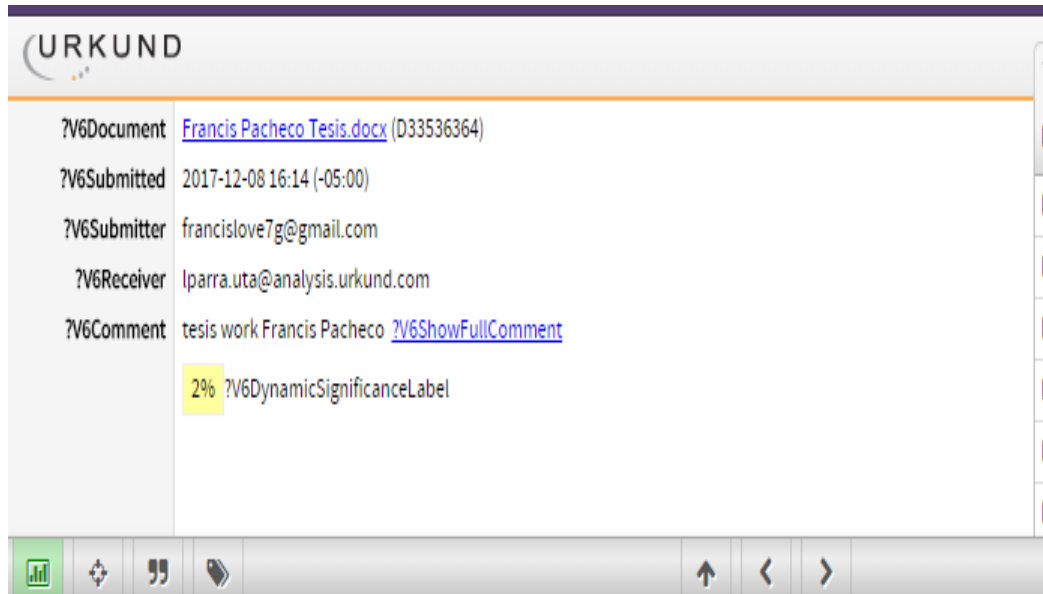
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Annex 4: Urkund Report



The screenshot displays the URKUND interface with the following details:

- ?V6Document:** [Francis Pacheco Tesis.docx](#) (D33536364)
- ?V6Submitted:** 2017-12-08 16:14 (-05:00)
- ?V6Submitter:** francislove7g@gmail.com
- ?V6Receiver:** lparra.uta@analysis.orkund.com
- ?V6Comment:** tesis work Francis Pacheco [?V6ShowFullComment](#)

A yellow highlight is present on the text "2% ?V6DynamicSignificanceLabel".

The bottom of the interface features a toolbar with icons for a bar chart, a search icon, a quote icon, a document icon, and navigation arrows (up, left, right).