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**Carrera de Ciencias de la Educación en la Especialización de Lengua y
Literatura Inglesa**

**CALL (Computer-Assisted Language Learning): A Tool that Impacts EFL
Learners' Motivation and Autonomy**

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Resumen

Durante mucho tiempo, el idioma inglés se ha enseñado utilizando métodos tradicionales, los mismos que, por su poca efectividad, han provocado que los estudiantes pierdan interés en su aprendizaje. Con el propósito de ayudar a superar esta deficiencia, se ha llevado a cabo esta síntesis de investigación para proporcionar información adecuada sobre la inclusión de CALL (Computer-Assisted Language Learning) en el proceso de enseñanza de inglés para que el aprendizaje sea más significativo. Para cumplir con este objetivo, esta síntesis se desarrolló siguiendo ciertos pasos. Primero, se analizó el efecto del uso de este método en el desarrollo de la motivación de los estudiantes. En segundo lugar, se observó el efecto que CALL tiene en el desarrollo de la autonomía de los estudiantes. Por último, se determinó las actitudes y percepciones que tanto los docentes como los estudiantes tienen sobre el uso de CALL. Los resultados de esta investigación nos muestran que tanto la motivación como la autonomía se ven impactadas positivamente, debido a que en el ambiente tecnológico hay una amplia gama de programas disponibles para la enseñanza del inglés. Adicionalmente, se evidenció que las actitudes de los maestros y estudiantes que usan CALL son positivas en la mayoría de los casos. Los resultados de este análisis pueden servir como referencia futura para que los maestros incluyan en el currículo los programas de CALL disponibles en el proceso de enseñanza-aprendizaje de la lengua inglesa.

Palabras clave: CALL. Proceso de Enseñanza-Aprendizaje. Autonomía. Motivación



Abstract

For a long time, English has been sometimes taught in a traditional way, which has caused students to feel reluctant to learn it. Therefore, this research synthesis has been carried out with the purpose of providing teachers with adequate information about the inclusion of technological devices in the teaching-learning process in order to make it more meaningful. For this purpose, this work has been developed by following and discussing certain steps. First, the positive effect that CALL (Computer-Assisted Language Learning) causes in the learners' motivation has been analyzed. Second, a positive impact of CALL on the development of students' autonomy was observed. Finally, the attitudes and perceptions that both teachers and students have towards the use of CALL were determined. The findings of this research have shown that CALL has a positive effect on both motivation and autonomy, considering the fact that the technological world provides teachers with a wide range of programs which are available for English language teaching. Moreover, it has been evidenced that, in most cases, both teachers and students have a rather positive attitude towards the use of CALL in the classroom. The outcomes of this analysis can be used as future reference for teachers so that they may include CALL in the curricula of their English classes.

Key words: CALL. Teaching-learning Process. Autonomy. Motivation



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Dedication

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Introduction

CALL (Computer-Assisted Language Learning) for teaching English to EFL learners has been considered very important in the success of the teaching-learning process because that innovative methodology motivates learners and helps them to develop autonomy. Without a doubt, technology plays an important role in the English classroom because learners learn the target language while learning to work independently. However, it is noticeable that CALL tends not to be used so frequently due to traditional education, the teachers' lack of knowledge about its use, or the lack of technological resources. Therefore, this study investigates key information about the use of CALL for the development of EFL learners' motivation and autonomy by answering the following research questions:

- What is the impact of CALL on learners' autonomy and motivation in the process of learning English as a foreign language?
- What are the learners' perceptions of the use of CALL in the process of learning English as a foreign language?

This research synthesis consists of 5 chapters. The first chapter is the description of the research and includes the background, statement of the problem, rationale, objectives, and the research questions. The second chapter deals with the theoretical framework, which contains key definitions and terms of several authors associated with the subject of this study. The third chapter encompasses the literature review, which provides a quick description of the scientific studies that answer the research questions. The methodology used is explained in the fourth chapter. Additionally, some Tables are included within the fifth chapter. Finally, the sixth chapter includes both the conclusions we have arrived at and some recommendations for future studies.



CHAPTER I

1. Description of the research

1.1 Background

Several research studies carried out throughout history have demonstrated the effectiveness of Computer-Assisted Language Learning (CALL) in language learning, considering the fact that it is a tool that plays an important role in supporting and enhancing language learning (Kranthi, 2017). As defined by Levy (1997), “CALL is the search for and study of the applications of the computer in language teaching and learning” (p.1). Another clear and relevant definition is given by Beatty (2013), who conceptualizes CALL as “any process in which a learner uses a computer and, as a result, improves his or her language skills” (p.7).

According to Gündüz (2005), in the 1960s, American computer-based introductory courses were pioneering projects in CALL, but they were referred to with the name *Computer Assisted Instruction (CAI)*. In the 1970s, CALL evolved as a result of the research carried out regarding the use of computers for linguistic purposes (Dhaif, 1989). One decade later, in the 1980s, CALL witnessed the spread of computers in educational institutions, so they impacted language instruction. Nowadays, this impact has achieved a degree in which “computers are widely used in foreign language teaching and learning” (Amaral, Meurers, & Ziai, 2008, p.12). In summary, computers have been used for language teaching for more than four decades.

Various authors such as Benson (2010) and Miftachudin (2012) have deepened and collaborated on the expansion of CALL. These authors have found that CALL helps to improve autonomy in foreign language learners. In relation to autonomy, Holec (1981), who



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is considered to be the father of autonomous learning, defines it as “the ability to take charge of one's learning”. Similarly, Little (1991) states that “autonomous learners have a capacity for detachment, critical reflection, and decision-making, take independent actions and are expected to assume greater responsibility for and take charge of their own learning (p.4).” Then autonomy may be improved by many means through the use of CALL. Hedge (2001) claims that CALL provides a framework for teachers so they can understand how learners become independent in learning a foreign/second language and how they gain responsibility for their own learning.

Miftachudin (2012) affirms that the use of technology leads learners to become independent because they are able to access learning materials from everywhere and review a topic in case they have not understood it. Therefore, they can be evaluated instantly. Similarly, according to Benson (2001), CALL presents opportunities for learners to direct their own learning. Thus, autonomy may be increased through the application of CALL in the language learning environment.

In addition to autonomy, motivation is another area that may be improved, considering that the use of CALL and the technological devices that it offers provide students with topics that are of the learners' interests (Mutlu & Eroz-Tuga (2013). As illustrated by Strambi & Bouvet (2003), “CALL may improve motivation in language learning if it is integrated into the learning environment” (p.97). In the same way, Nachoua (2012) has concluded that CALL is a motivating method to develop students' learning skills while learning in a foreign language environment.



1.2 Statement of the problem

The English language has expanded worldwide for many economic, political, social, cultural, and technological reasons. Thus, helping EFL learners develop autonomy is vital to make them become proficient speakers. However, according to Bravo, Intriago, Garzon, and Arcia (2017), the main methodology used to teach English in Ecuador is the traditional one, which basically consists of making students learn lots of grammar structures and memorize vocabulary, translate words, phrases, or sentences, and make students do a series of mechanical exercises like for example repetition, substitution, expansion, transformation drills and others, the teacher being the main actor, not the student. In fact, this study affirms that the process of learning English as a foreign language in our country is still teacher centered.

The importance of developing autonomy in Ecuadorian English learners is broad. Indeed, if teachers instruct learners how to become independent, they will acquire English successfully (Bravo, et al). For instance, a study by Reeve and Jang (2006) has shown that there was a high correlation (45%) between the degree of autonomy and the students' success in their level of foreign language acquisition. Therefore, Ecuadorian teachers and the educational curriculum should give the right tools for students to take their learning in their own hands (Bravo, et al). Similarly, Dafei (2007) established that students' English proficiency was significantly and positively related to their autonomy. Indeed, autonomy can be developed through the use of CALL because students are willing to keep learning without the teacher's assistance. If students learn to learn, they will be more proficient and motivated (Dafei, 2007). Consequently, the main purpose of this work is to study the effects of the use of CALL on students' autonomy and motivation in the EFL learning process.



1.3 Rationale

Martin-Rubio (2018) claims that technological advances in the 21st century have enabled instant global communication needed for a mutual language. English has fulfilled this need by becoming the global *lingua franca* of the XXI century. Therefore, it is important for teachers to instruct highly motivated students who are willing to learn English.

In an EFL environment, students usually learn English with teachers and tutors, but, on some occasions, students must take their language learning in their own hands, which requires an important skill that is referred to as autonomy (Holec, 1981).

Since learners' autonomy has been claimed by researchers to be the ultimate goal of education, it is important to give learners the right tools both in general and in the language learning area (Benson, 2001). Hence, developing autonomy is the focal point in the educational system, especially in learning a foreign language (Atherton, Dearden, Hirst, & Peters, 2010). One common issue in support of cultivating learners' autonomy is that it also promotes more meaningful and more effective learning in the short and long term (Dickinson, 1995).

Therefore, autonomy is an important skill that language learners need to develop to be successful learners. To support this, Dafei (2007) has found that the students' English proficiency was significantly and positively related to their autonomy. In fact, rather than relying on teachers' assistance, autonomous students are able to find opportunities to maximize their own learning potential (Benson, 2008). In the same way, according to Meri (2012), learners become more independent when they have access to other sources of language knowledge. Consequently, it is important for teachers to use CALL materials and applications in foreign language learning environments since they are considered to be efficient sources to enhance learners' autonomy (Meri 2012).



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Additionally, Mutlu (2012) states that autonomy and motivation can be achieved through the use of computers and Internet technology. Since technological devices allow students to choose the time, place, and suitable learning circumstances, their motivation to learn will be higher. When students are allowed to take charge of their own learning, it tends to increase their motivation (Ushida, 2005). Similarly, Spratt, Humphreys, and Chan (2002) have concluded that “motivation may lead to autonomy or be a precondition for it” (p.262). Therefore, the aim of this research is to synthesize the effectiveness of using CALL to increase students’ motivation and autonomy while learning in an EFL classroom.

1.4 Objectives

1.4.1 Aim

To synthesize the effectiveness of using CALL to increase students’ motivation and autonomy while learning a foreign language in an EFL classroom.

1.4.2 Specific objectives

- To analyze the effects of the use of CALL in students’ autonomy and motivation in the process of learning English as a foreign language.
- To determine the learners’ perceptions of the use of CALL in an EFL environment.

1.5 Research questions

This research synthesis has been carried out in order to analyze the different effects that CALL has on language learners’ autonomy and motivation when they learn English as a



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foreign language. Therefore, the two questions below have been proposed for this research synthesis:

- What is the impact of CALL on learners' autonomy and motivation in the process of learning English as a foreign language?
- What are the learners' perceptions of the use of CALL in the process of learning English as a foreign language?



CHAPTER II

2. Theoretical framework

2.1 Computer-Assisted Language Learning

2.1.1 CALL: Definition

Computer-Assisted Language Learning (CALL) is an approach that has been defined by many authors in similar ways. According to Richards, Platt, and Platt (1992), CALL makes reference to the process of using a computer in the teaching or learning of a second or foreign language. As defined by Levy (1997), “CALL is the search for and study of the applications of the computer in language teaching and learning” (p.1). Another clear and relevant definition is given by Beatty (2013), who conceptualizes CALL as “any process in which a learner uses a computer and, as a result, improves his or her language skills” (p.7). To conclude, another accurate definition is given by Egbert (2005), who conceives CALL as learning a language through computer technologies that facilitate the language learning process in any context with multicultural learners.

2.1.2 The history of CALL

According to Warschauer & Healey (1998), the history of CALL can be divided into three stages: behavioristic CALL, communicative CALL, and interactive CALL. Each stage corresponds to a certain pedagogical approach, as detailed below.

2.1.2.1 Behavioristic CALL

Behavioristic CALL was formed in the late 1960s and used widely in the 1970s under the influence of the audio-lingual teaching method. According to Gündüz (2005), “In this stage, the computer was seen as a mechanical tutor who never allowed students to work at an



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individual pace, which hindered motivation” (p.198). Further, it included extensive drills, grammatical explanations, and translation at various intervals (Warschauer & Healey, 1998).

2.1.2.2 Communicative CALL

In the 1980s, Communicative CALL corresponded to cognitive theories which stressed that learning was a process of discovery, expression, and development. Software developed in this period included text reconstruction programs and simulations (Gündüz, 2005). In communicative CALL, the focus was not what the learners did on the computer, but what they did to communicate.

2.1.2.3 Interactive CALL

In the 1990’s, a new approach appeared. It was called Interactive CALL. According to Gunduz (2005), this approach influenced many teachers and led them to use more social and learner-centered methods. In this approach, learners are enabled to use the technological devices that they want during the on-going process of language learning.

2.2 CALL as a methodology to teach EFL

The effectiveness of the use of computers in the language classroom depends on the way the teacher and students use them (Gündüz, 2005). An example of the good use of computers is that it enables learners to receive immediate feedback which, in a traditional classroom, will be difficult to occur. Hardisty and Windeatt (1989) state that examples of immediate feedback can be seen in word processing, spreadsheet, and simulation programs. Gündüz (2005) and Hardisty and Windeatt (1989) argue that learners should have an opportunity to share with the teacher the activities they have done on the computer; otherwise, they cannot learn effectively.



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2.3 CALL and language skills

Computers offer learners various activities for developing different language skills. They can provide a useful and motivating medium for both integrated skills and separate activities. Warschauer and Healey (1998) describe them as follows:

2.3.1 Reading skill

According to Gündüz (2005), there are three ways in which learners can improve their reading skill, which are:

a. incidental reading: CALL programs involve the learner in reading texts for the successful completion of an activity.

b. reading comprehension: CALL provides the traditional question and answer to increase reading comprehension.

c. text manipulation: There are many ways in which computers can manipulate texts. An example might be shadow reading, which provides students with authentic texts.

2.3.2 Writing skill

A Word-processing program is one of the most common uses of computers and it is regarded as the most powerful tool to use when starting to work with CALL. To use CALL for improving the writing skill, the learner must know a basic management of technologies and computers.

According to Gündüz (2005), “Word-processing programs transform the computer into a sophisticated and flexible writing aid that can improve the learners' writing skill and their attitude toward writing.” Vocabulary, grammar, punctuation, and reading tests have an obvious relevance to the sub-skills that are needed for writing (Duber, 2000).



2.3.3 Speaking skill

Computers offer a wide variety of activities to develop the speaking skill, which include activities like simulations, role-plays, and discussions. Computers are a great contribution to the development of oral skills if they are used wisely (Hammersmith, 1998).

2.3.4 Listening skill

As stated by Gündüz (2005), there are two ways to reinforce listening comprehension, and these are:

1. Using a multiple-choice or fill-in program in conjunction with the latest multimedia containing a recorder. In addition to the normal feedback given after a wrong answer, the computer can let the learner listen to the relevant part of the tape repeatedly so he/she will know in which part the misinterpretation has occurred.

2. Using a tape with a test-reconstruction program which enables learners to reconstruct a summary of a recorded anecdote on screen with the help of the tape.

The abovementioned activities not only help to integrate the listening and writing skills but also to evaluate the learners' listening comprehension skill in a more active way than in a non-CALL class (Jones & Fortescue, 1987).

2.4 Grammar development

Some grammar activities that can be done on the computer are matching, multiple choice, fill-in-the-gaps, or completion tasks (Blackie, 1999). The quizzes can be taken online, or learners can print a test and write the answers on a hard copy of it. After finishing the exercise, you can ask for immediate feedback by clicking on the submission button.



2.5 Motivation

Since the 1970s, many researchers have concluded that learners who have a positive attitude towards language learning will get higher levels of proficiency in the target language (Masgoret & Gardner, 2003). According to Dickinson (1995), motivation may be either intrinsic or extrinsic. Students who are motivated intrinsically will enjoy learning a second or foreign language for their own will. On the other hand, extrinsically motivated learners are persuaded by external rewards associated with language learning (Falout, Elwood, & Hood, 2009). Vallerand (1997) concluded that intrinsic motivation leads to positive learning results, while extrinsic motivation is more associated with negative learning outcomes. To conclude, motivation plays an important role in L2 achievement. For this reason, it is necessary to view motivation as one of the main factors that trigger the learners' desire to learn English as a foreign language.

2.6 Gardner's Motivation Theory

Motivation is a multi-faceted construction that has behavioral, cognitive, and affective components. According to Gardner (2001), motivation includes three elements -effort (the effort to learn the target language), desire (wanting to achieve a goal), and positive affect (enjoying the task of learning the target language). The role of orientations, which Gardner refers to as a "goal," aims at arousing motivation and directing it to reaching the goals (Gardner, 1985). *Figure 1* below clearly illustrates how motivation occurs.

The Socio-educational Model

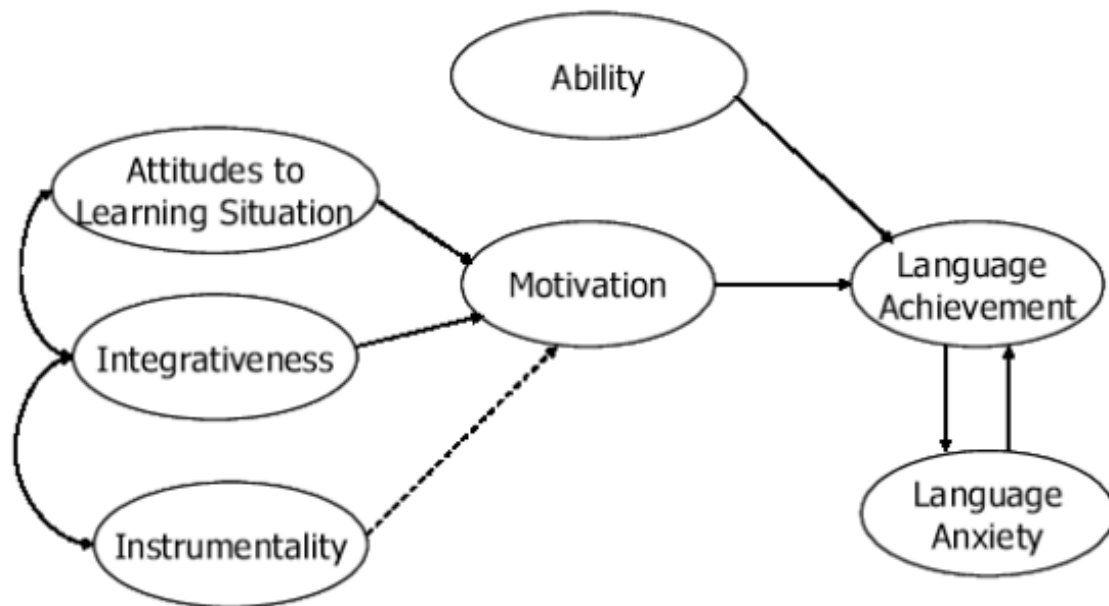


Figure 1. Motivation

2.7 Autonomy

2.7.1 Autonomy: Conceptualization

Paiva (2006) argues that autonomy is a socio-cognitive system in the language acquisition system. It means that it involves not only the individual's mental states and processes during learning but also some external political, social, and economical factors (Paiva, 2011, pp. 63). In other words, autonomy is not a state of the mind but a non-linear process, which is prone to periods of instability, variability, and adaptability. Autonomy will vary in many ways depending on the availability and psychological situation of the learner. However, it is an essential element in the EFL environment because it stimulates the learning process beyond classroom instruction. As Paiva (2011) states, "Autonomous learners take advantage of the linguistic affordances in their environment and act by engaging themselves in second language social practices" (p.63). To summarize, autonomy is a complicated skill to



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develop but learners can develop it by taking advantage of any particular situation that involves the target language.

2.7.2 Autonomy: Categories

Benson (1997) distinguishes three main ways in which language learner autonomy can be divided:

1. The first one is called the *technical perspective*. This perspective focuses on emphasizing skills or strategies for unsupervised learning. For instance, it identifies the different types of learning strategies (social, metacognitive, and cognitive) and their specific activities.

2. The second one is called the *psychological perspective*. It emphasizes broader attitudes and cognitive abilities which enable the learner to take responsibility for his/her own learning.

3. The third one is called the *political perspective*. This perspective is focused specifically on the emancipation and empowerment of learners through giving them complete control over their learning.

Omaggio (1978) states that there are seven main attributes that characterize autonomous learners:

1. They have insights into their learning styles and strategies.
2. They have an active attitude to the learning task at hand.
3. They show a predisposition to take risks.
4. They are good guessers.
5. They pay attention to both form and content.
6. They develop the target language into a separate reference system.
7. They have a tolerant and outgoing attitude to the target language.



2.7.3 Autonomy and English as foreign language learning

Autonomy is a difficult skill to develop for learners since the main methodology used to instruct is the traditionalist approach, which takes the learning process in a teacher-centered way. As Pemberton and Pierson (1996) state, “The development of autonomy in language learning environments has become ‘complex and multifaceted’.” Autonomy has been a ‘buzzword’ in educational areas for over two decades (Little, 1991). Similarly, Benson and Voller (1997) emphasize that “monolithic definitions of autonomy and independence have proved elusive.”

On the other hand, Holec (1981) conceptualizes learner autonomy as “the ability to take charge of one’s own learning.” Autonomy allows the learner to accept the responsibility for the language learning process. During this process, they acquire certain abilities, like the ability to learn a language and the knowledge for developing their skills of self-regulated and self-managed learning.

According to Benson (2012), the teacher’s role in an autonomous language learning environment is based on the interpretation instruction. Therefore, the job of a teacher changes and he/she takes on the roles of facilitator, helper, coordinator, counsellor, consultant, adviser, knower, and resource (Benson, 2012). Mutlu and Eroz-Tuga (2003), among other researchers, have focused their studies on showing how CALL and learner autonomy might contribute to learning or support each other. Hence, teaching institutions need to provide students with computer-based facilities and authentic materials for language learning.



CHAPTER III

3. Literature review

3.1 Autonomy

3.1.1 Autonomy development using CALL

Autonomy is a complex skill to develop during the process of learning English as a foreign language. However, Mutlu, and Eroz-Tuga (2003) have proved that autonomy could be developed through the use of language learning environments equipped with technology (CALL). Their study aimed at researching language learning strategies and students' high motivation, responsibility, and continuity with the learning process by themselves. Therefore, data collection was carried out using different instruments like questionnaires, face-to-face interaction, interviews, observations, and e-learning diaries. The participants were forty-eight intermediate students at a private university in Ankara, Turkey, and their ages ranged from 17 to 20. They were divided into two groups: The Strategy Training Group (STG) and the Non-Strategy Training Group (NSTG). STG students received a five-week language learning strategy training through CALL, whereas NSTG students continued to study with a specific curriculum. The study concluded that the STG group showed that learners were more willing to take learning into their own hands.

3.1.2 Autonomy in an EFL environment

Considering the fact that English has been taught mostly in a teacher-led environment, autonomy is still an underdeveloped skill. In this respect, a study carried out in Greece by Sert (2006) concluded that, due to the predominance of teacher-led English language instruction in Turkey, learners were seen as passive receivers of new information. Therefore, they were



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unlikely to develop the necessary skills to learn how to assess and control their own progress.

The aim of this study was to investigate whether EFL students were able to direct and monitor their autonomous learning process and how the environment influenced the development of autonomy. The participants of this case study were first year students in the English Language Teaching Program of a Turkish university. The data collection was carried out through qualitative and quantitative methods, such as structured and unstructured class observations and interviews. Additionally, the documents used during the instruction (annual/daily plans, assignments, and projects) were also analyzed (Sert, 2006, p.192). The major conclusion of this study was that autonomous learning was ineffective as a result of the use of traditional teaching and learning philosophy that the teachers had adopted even though they were aware of the availability of autonomous learning tools and techniques. Sert (2006) also concluded that teachers played a key role in autonomous language learning.

3.2 Motivation and autonomy

A study carried out by Spratt, Humphreys, & Chan (2002) intended to examine the relationship between autonomy and motivation in English language learning. Does autonomy precede motivation, does motivation precede autonomy, or does this relationship work in both directions? This study was carried out in a university in Hong Kong with 508 students who studied in eight different faculties of education (Building and Real Estate, Chinese and Bilingual Studies, Civil and Structural Engineering, Electrical Engineering, Hotel and Tourism Management, Management, Maritime Studies, and Mechanical Engineering).

The participants were all taking English language courses as a mandatory requisite for graduation (Spratt, Humphreys, & Chan, 2002), and they were provided with various independent learning facilities on campus, which included a self-access center, a guided



learning program, a Writing Assistance Program, and a home-grown English language webpage (the Virtual Language Centre). In this study, the participants had to self-report using the tools to work by themselves. In conclusion, the authors found that the absence of motivation seemed to inhibit practice of learners' autonomy. Furthermore, the lack of motivation was seen as an explanation for the lack of autonomous action. Therefore, there was a strong relationship between higher levels of motivation and greater engagement in outside class activities (Spratt, Humphreys, & Chan, 2002).

3.3 CALL and motivation

There is a correlation between the use of technological resources and motivation in language learning instruction. Shirani Bidabadia (2013) states that the use of computers motivates and stimulates learners to communicate with one another more effectively through the use of applications and platforms. For this purpose, a study was carried out by Shirani Bidabadia (2013) in a university in Isfahan with 84 female freshmen aged between 18 and 20 years old who were native speakers of Persian considered to belong to the intermediate level on the basis of their English proficiency performance. The aim of this study was to analyze and design motivational English language learning strategies using computers, with the purpose of finding out how learners' motivation to learn the target language changed with the help of technological resources. The research methodology used was a mixed approach. The participants were randomly selected after the instruction process in order to incorporate English language learning strategies through the use of computers. In conclusion, this study demonstrated that, in fact, the use of computers is correlated to motivation during the EFL learning process.



3.4 Motivation in an EFL context

Oxford and Shearin (1994) analyzed a total of 12 motivational theories or models including those from social-psychology, cognitive development, and socio-cultural psychology and identified five factors that impact motivation in language learning: (1) attitudes, (2) beliefs about self, (3) goals, (4) involvement, and (5) environmental support. Similarly, Goorchaei, and Rahmani (2018) showed that using Game-Embedded Training (GET) software had significant effects on EFL students' motivation. In addition, the results of previous studies are in line with Park and Son (2009), who arrived at the same conclusion in the sense that GET has positive effects on learners' motivation. The results also echo Nachoua (2012), Ghalami, Nobar, and Ahangari (2012), who found that it is an effective method to increase students' motivation.

3.5 Students' perception about CALL

3.5.1 EFL Students perceptions of the use of CALL

According to Meri (2002), the use of DynEd (Dynamic Education), a CALL-based course, proved that it triggered learners to learn autonomously, so their performance and confidence were improved, and, at that time, they did not feel any dependence on the teacher to learn the target language (Meri, 2002). The study was carried out in a school that had been implementing DynEd for over a year, with the aim of providing a more independent learning environment. The participants consisted of 60 males and 30 females whose ages ranged from 12 to 13. They studied in a Turkish primary school which had implemented DynEd before. Therefore, students had had a DynEd experience for a certain time. The participants' English language proficiency varied from beginner to intermediate levels. At the end of the study, the participants perceived that the time given to use the DynEd tools and laboratories was too



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short. Participants also stated that they would have learned and achieved better if they had been given more time with DynEd.

In the study above (Meri, 2002), learners had varying views on the absence of the teacher and the preference to be taught by the teacher. For instance, 91.6% considered the tutor a helper and facilitator. 73.3% agreed that they needed teachers' assistance in carrying their own learning and called upon for help. On the other hand, 66.6% did not find it necessary to get help from the teacher for DynEd. In conclusion, Dynamic Education assisted language learners through the process of learning by themselves.



CHAPTER IV

4. Methodology

The aim of this work will be to carry out a research of bibliographical information regarding the effects of the use of CALL on student's autonomy and motivation in the EFL learning process. The research will start by collecting reliable information from primary sources concerning Computer-Assisted Language Learning (CALL) in the EFL context. For this, some relevant online databases will be considered, like for example Scholar Google, Research Gate, and the virtual library of the University of Cuenca.

The aforementioned studies will be synthesized and analyzed on the basis of the common characteristics found among them, such as the participants' age, the EFL environment, and their level of foreign language proficiency.

The main criteria to classify and select the relevant articles will be:

1. The articles must be empirical and might or might not prove the impact of CALL on EFL learners' autonomy and motivation.
2. All the studies chosen must have been published after the year 2000 in order to focus the research on the benefits of using CALL in recent years.
3. The articles should be related to the application of CALL in an English foreign language environment.

Some of the key words for the research synthesis will be CALL, English, autonomy, motivation, self-learning, EFL, learning process, effects, learners, and computers.



CHAPTER V

5. Analysis of the research

5.1 Introduction

This section of the research attempts to synthesize and analyze the outcomes of the 20 primary studies that were selected to answer the following research questions:

1. What is the effect of CALL on learners' autonomy and motivation in the process of learning English as a foreign language?
2. What are the learners' and teachers' perceptions of the use of CALL in the process of teaching and learning?

With the purpose of answering the questions above, the studies were classified into the following categories: year of publication, CALL programs, CALL programs effect on intrinsic and extrinsic motivation, CALL programs effects on autonomy, and context.

5.2 Year of publication of the studies

| Year of publication | Number of studies | % |
|---------------------|-------------------|------|
| 2000 - 2009 | 2 | 10 % |
| 2010 - 2019 | 18 | 90 % |

Table 1. Year of Publication

In the present research synthesis, the year of publication of the studies was considered. Table 1 shows the year of publication of the selected studies by taking a span of twenty years from 2000 until today. This period of time was divided into two parts, and, as it can be noticed, 18 studies (90%) are recent. Regarding the studies published before 2010, the number is minimal: 2 (10%).



This fact suggests that during the last ten years, there has been more technology implementation in EFL classrooms. The reason may be that at present both the educational system and teachers are trying to go hand in hand with technology development. It may be also considered to be a signal that teachers are always searching for innovative techniques and methodologies to make the EFL teaching process more meaningful. As stated by Beatty (2013), CALL transcends the traditional teaching model and reaches innovation, which takes advantage of technological opportunities for teaching and learning new things in new ways. Moreover, this fact may determine that researchers are trying to prove that technology is having either positive or negative effects on EFL instruction.

5.3 Area per continent

| Authors | Continent | Number of studies | % |
|---|---------------|-------------------|------|
| -Almekhlafi, 2006 -Fideoui, Bahous & Bacha, 2010 -Kaur, 2010 -Rahimi & Yadollahi, 2011 -Young and Wang, 2014 -Wu, 2015 -Zarei, 2015 -Yikhaunaman, 2016 -Ambrose & Palpanathan, 2017 -Hsu, 2017 -Khatoon, 2017 -Goorchaeai, 2018 -Prastikawati, 2019 | Asia | 13 | 65% |
| -Baş, 2010 -Meri, 2012 -Bozdogan, 2012 -Mutlu&Eroz-Tuga, 2013 -Ilter, 2009 | Europe | 5 | 25% |
| -Alvarez-Marinelli, et al, 2014 | Latin America | 2 | 10 % |



-Bedoya, 2014

Table 2. Area per continent

Table 2 shows that 13 studies took place in Asia: Almekhlafi (2006), Fideoui, Bahous, & Bacha (2010), Kaur (2010), Rahimi & Yadollahi (2011), Young and Wang (2014), Wu (2015), Zarei (2015), Yikhaunaman (2016), Ambrose & Palpanathan (2017), Hsu (2017), Khatoon (2017), Goorchaeai (2017), and Prastikawati (2019) and represent the total of studies carried out in Asia. Gokhan (2010), Meri (2012), Bozdogan (2012), Mutlu & Eroz-Tuga (2013), and Ilter (2009) are the five studies carried out in Europe. Finally, there are only 2 studies carried out in Latin America: Alvarez-Marinelli, et al (2014) and Bedoya (2014). As portrayed in Table 2, Asia is the continent where most of the studies were conducted. This may suggest that CALL has been implemented in Asia before it started to be used in Europe and Latin America. This fact may be proved by referencing Hubbard (2009), who stated that the earliest organization in Asia related to computer use in education was the Association of ROC (Rockling I) Computational Linguistics, founded in 1988. On the other side, CALL was implemented in Latin America after the year 2000.

On the other hand, Latin America is the continent with the least quantity of research carried out regarding CALL. Even though in Latin America CALL was implemented after 2000, it has not been an area of concern. Lately, after the implementation of technology in the EFL classroom and the relevance it reached, researchers started to think about the effectiveness of CALL in language learners' development. Considering the fact that CALL was included in the Asian educational system earlier, the results seen there are more significant and advanced. This fact shows that CALL positively influences EFL learners' acquisition.



5.4 Settings

| Authors | Level | Number of studies | % |
|--|--------------------|-------------------|------|
| -Almekhlafi, 2006 -Baş, 2010 -Fideoui, Bahous, & Bacha, 2010 -Meri, 2012 -Rahimi & Yadollahi, 2011 -Alvarez-Marinelli, et al, 2014 -Young and Wang, 2014 | elementary school | 7 | 25% |
| -Hsu, 2017 -Ambrose & Palpanathan, 2017 -Bozdogan, 2012 | high school | 3 | 25% |
| -Ilter, 2009 -Kaur, 2010 -Mutlu&Eroz-Tuga, 2013 -Bedoya, 2014 -Wu, 2015 -Yikhaunaman, 2016 -Khatoon, 2017 -Prastikawati, 2019 | university | 8 | 40% |
| -Zarei, 2015 -Goorchaeai, 2018 | language institute | 2 | 10 % |

Table 3. Settings
N=20

Table 3 presents a classification of the studies according to the setting where the different research studies were carried out. As shown in Table 3, the majority of studies -Ilter (2009), Kaur (2010), Mutlu & Eroz-Tuga (2013), Bedoya (2014), and others- were carried out in a university setting and represent a 40% of the total, whereas the rest of studies were carried out in three different educational environments, which include intermediate school: Almekhlafi (2006), Gokhan (2010), Fideoui, Bahous, & Bacha (2010), and Meri (2012), high school: Hsu (2017), Ambrose & Palpanathan (2017), and Bozdogan (2012), and a language



institute: Zarei (2015) and Goorchaai (2018). All the studies will be taken into account to analyze how CALL affects both motivation and autonomy.

5.5 CALL programs used in different settings

| CALL program | Setting | Number of studies | (%) |
|-----------------------------------|--------------------|-------------------|------|
| CALL | elementary school | 4 | 20 % |
| | high school | 3 | 15% |
| | university | 7 | 35% |
| | language institute | 1 | 5% |
| DynEd (Dynamic Education) | elementary school | 2 | 10 % |
| | university | 1 | 5% |
| GeCALL (Game Embedded) | elementary school | 1 | 5% |
| GET (General English Training) | language institute | 1 | 5 % |

Table 4. CALL programs

The objective of the use of CALL in the classroom will vary depending on the necessities of both teachers and learners. Table 4 illustrates the variation that exists in the branch of CALL. Dynamic Education (DynEd) is defined as a computer program designed to help English language learners to be successful in learning the target language (Prastikawati, 2019). Game Embedded (GeCALL) is another program designed to create the possibility of acquiring vocabulary through gaming in order to develop interactive and autonomous learning (Young and Wang, 2014). Finally, General English Training (GET) is a computer software



consisting of a placement test and instruction lessons (Gorgachoi, 2018) and includes sub-programs based on the CALL approach. These three variants of CALL will be taken into account in the present research synthesis.

However, in the interest of this research, the terms DynEd, GeCALL, and GET will be addressed as CALL because they are categorized into the CALL approach. However, it is important to highlight that these different programs are used in different settings. For instance, DynEd is used in both elementary schools and universities. Similarly, GeCALL (Game Embedded) is used in elementary schools only since it mostly uses games to teach the target language. GET (General English Training) is generally used by language institutes. Finally, CALL is applicable to all settings: elementary schools (4), high schools (3), university (7) and language institutes (1), as may be seen in Table 4 above.

5.6 CALL impact on motivation based on the setting

| Motivation | Setting | Number of studies | (%) |
|----------------------|--------------------|-------------------|-------------|
| extrinsic motivation | elementary school | 2 | 16% |
| | university | 1 | 9% |
| intrinsic motivation | high school | 3 | 24% |
| | university | 3 | 24% |
| | language institute | 1 | 9% |
| both | elementary school | 1 | 9% |
| | university | 1 | 9 % |
| | | | 100% |



Table 5. CALL impact on Motivation

CALL has been a major source for enhancing student achievement and, consequently, may prove to be a useful tool to enhance motivation among foreign English language learners (Felix, 2005; Pennington, 1996) in different settings. As illustrated in Table 5, 12 studies have been included in this section since they exclusively analyze CALL and its effect on motivation in accordance with each setting. The papers considered were classified into three subcategories: a) CALL effect on extrinsic motivation; b) CALL effect on intrinsic motivation; and c) CALL effect on both extrinsic and intrinsic motivation. They are also related to the setting.

Table 5 suggests that extrinsic motivation is less studied than intrinsic motivation. There are 3 studies (Fideaoui, Bahous, & Bacha, 2010; Young & Wang, 2014, and Wu, 2015) that are focused on extrinsic motivation. Table 5 also suggests that extrinsic motivation is a field that is not deeply studied in CALL environments. However, there are ways in which students will be extrinsically motivated while learning the target language using CALL. For instance, Wu (2015) and Young & Wang (2014) have carried out studies in elementary schools and they state that children love the idea of having a computer and having the opportunity to use it. However, computers not only intrinsically motivate kids but also university learners. As stated by Bahous & Bacha (2010), the use of computers is more exciting for students than just having a pen and a piece of paper. Similarly, Fideaoui, Bahous, and Bacha (2015) concluded that the extrinsic motivational factors were the computer's special functions. For instance, students were motivated to use new means of writing in addition to the professional, technical, and technological support that their university has offered them.

On the other hand, to sustain intrinsically motivated students, CALL should reflect four elements: challenge, curiosity, control, and fantasy (Pintrich & Schunk, 1996). In relation to



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the setting, high schoolers (Rahimi & Yadollahi, 2011; Hsu, 2017; Khatoon, 2017), university learners (Bozdogan, 2012; Mutlu & Eroz-Tuga, 2013; Bedoya, 2014), and learners in a language institute (Zarei & Shahemipour, 2015) reported that their intrinsic motivation was increased by “either its enjoyment or its usefulness” (Hsu, 2017). For instance, Hsu (2017) concluded that students at the end of the course were keen to have a higher level of intrinsic motivation (IM=5.79) compared to the initial deviation (IM=0.99). Additionally, intrinsically motivated learners feel motivated towards this new kind of learning and they love to learn in this way, where both their willingness and confidence are improved (Khatoon, 2017).

Finally, there are two studies (18%) that involve both intrinsic and extrinsic motivation. These studies were carried out with the purpose of studying the impact of CALL on both intrinsic and extrinsic motivation in two different settings: elementary school and university. According to Yiamkhamnuan (2017), "Students had improved intrinsic as much as extrinsic motivation concerning their desire for mastering English" (p.171). According to Yiamkhamnuan (2017), university learners reported that intrinsic motivation is improved when they are aware of their weaknesses when learning the target language, hence CALL motivates learners to overcome those difficulties. On the other hand, the factors that impact extrinsic motivation are expectation of good grades and pressure of course requirements (Yiamkhamnuan, 2017). Similarly, Gokhan (2010) concluded that elementary learners who were instructed using CALL (DynEd) were both more successful and had a higher intrinsic and extrinsic motivation than the students who were instructed with the traditional methodology.



5.7 CALL effect on autonomy

| Autonomy components | | Studies | Setting | % |
|----------------------------|---------------------------|----------------|--------------------|-------------|
| cognitive attributes | decision-making | 1* | language institute | 5% |
| | | 1 | elementary school | 5% |
| | independent action | 1 | elementary school | 5% |
| | | 1 | university | 5% |
| metacognitive capacities | 1 | university | 5% | |
| psychological attributes | confidence | 2 | elementary school | 10% |
| | | 3 | university | 15% |
| | attitudes | 2 | elementary school | 10% |
| | | 1 | high school | 5% |
| autonomy as situated | 1 | university | 5% | |
| autonomy as components | willingness | 2 | university | 10% |
| | ability (language skills) | 3 | university | 15% |
| | | 1 | high school | 5% |
| | | | | 100% |

Table 6. CALL impact on autonomy

N= 14

** Some studies belong to different subcategories.*

Table 6 was designed by considering 14 studies that focused on the effects of CALL on autonomy components and subcomponents. There are four main components of the development of autonomy, which are cognitive attributes (25%), psychological attributes



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(40%), autonomy as situated (5%), and autonomy as components (30%). These components will be analyzed in relation to the setting in which they are developed (elementary school, high school, university, and language institute).

The cognitive attribute is a component of autonomy which is subdivided into 3 subcategories: decision making, independent action, metacognitive capacities. The first subcategory, decision-making, is noticeable in settings like elementary school (Meri, 2012) and language institute (Zarei & Hashemipour, 2015). These authors state that the CALL methodology requires a greater responsibility which must be taken by learners if they want to be independent learners. In this case, institute language learners are capable of making decisions that will improve their language skills. At the end, those decisions will determine the development of their autonomy. Regarding independent action, Meri (2012) concluded that language learners' ability to control their learning was increased in CALL settings. Likewise, Almekhlafi (2006) states that, since CALL is an independent tool, it promotes independent actions to be carried out by learners. While on the subject, independent action was noticeable in settings like elementary school and university.

Correspondingly, learners' metacognitive capacities are an essential requirement to achieve learners' autonomy. Wenden (1998) classifies metacognitive capacities into two main dimensions: 1) knowledge, and 2) strategies. Metacognitive knowledge is defined as the information learners have about their learning, whereas metacognitive strategies are general skills through which learners manage, direct, regulate, and guide their learning (Wenden, 1998). These skills include how to plan, monitor, and evaluate their learning progress. Thus, Nunan (1997) emphasizes that the initial step in developing autonomy in learners should begin by raising their awareness of metacognitive strategies. As Yikaunaman (2016) concludes, learners need to be aware of using appropriate metacognitive strategies because it



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will lead them to work independently. Metacognitive strategies are a complex part of autonomy, this being the reason that university learners are capable of acquiring them.

Psychological attributes are the second component of autonomy and are subdivided into confidence and attitudes. Confidence in language learning is a determinant of success or failure in different settings. In this context, high school (Ambrose & Palpanathan, 2017) and university levels (Khatoon, 2017; Meri, 2012) are taken into account. CALL effects are noticeable in university learners' confidence. As stated by Khatoon (2017), language learners feel motivated towards this new kind of learning (CALL) and they love to learn in this way because their willingness and confidence is improved. Similarly, high schoolers reported that they felt more confident when writing and publishing in Google documents rather than in papers (Ambrose & Palpanathan, 2017).

In addition to confidence and willingness, another determinant for improving learners' autonomy is attitude. Attitude is based on learners' beliefs and discernment. According to Fideaoi, Bahous, and Bacha (2010), learners believe that using computers will enable them to edit their work, organize their ideas, correct their mistakes, produce neat products, design, and publish creative products.

Autonomy as situated is the third component of autonomy which is mainly concerned with the resources available in CALL. Nowadays, due to the technological advances and their incorporation into the educational system, there is a vast quantity of CALL resources. The programs can be chosen depending on the learners' necessities. When working with CALL, many students base their choice on careful contemplation of its benefits (Yikaunaman, 2016). Therefore, the learners' goals and attitudes towards CALL will be the main determiner to consider when choosing a suitable CALL program.



Table 6 also depicts the categorization of autonomy as components. Autonomy as a component (35%) is subdivided into two subcategories: willingness and ability. Willingness to learn the target language is related to learners' motivation and confidence. As concluded by Mutlu and Eroz-Tuga (2013), when using CALL, learners were more willing to take responsibility for their learning, hence they were more engaged. Additionally, "Learners showed increasing motivation during and after the CALL strategy training, which contributed to their development of autonomy" (Mutlu & Eroz-Tuga, 2013).

Table 6 also shows the last component: ability. Ability mainly refers to language skills. For this research, language skills will be addressed as subskills (vocabulary & grammar), receptive skills (listening & reading), and productive skills (speaking & writing). According to Yiamkhamnuan (2010), DynEd courses improved learners' vocabulary acquisition through drilling and practice. In the same way, the application of CALL helped learners retain the knowledge of the target words for a longer period of time (Wu, 2015).

Regarding receptive skills, Bedoya (2014) evidenced how a group of students in training manifested autonomy in a virtual reading comprehension course and what factors influenced students positively. Therefore, at the end of the course, many students showed behaviors associated with autonomy, such as self-confidence, cooperation, and self-monitoring. Moreover, CALL may also impact productive skills. As stated by Ambrose and Palpanathan (2017), CALL (Google Docs) is the tool that supports students in learning without being confined to a particular time and place. Also, there was a significant improvement in the computer-based writing task as compared to the in-class paper-pen writing (Ambrose & Palpanathan, 2017). Finally, CALL (DynEd) courses are beneficial for receptive skills (listening and reading) as much as for productive skills (speaking and writing), since students



have great fun while learning as well as they have the opportunity to be aware of their learning progress (Khatoon, 2017)

5.8 CALL perceptions

5.8.1 Students' perceptions of CALL

| setting | interesting | useful | interactive | authentic | necessary | engaging | informative | supportive | progressive |
|-------------------|-------------|--------|-------------|-----------|-----------|----------|-------------|------------|-------------|
| elementary school | | | 1 | | | 2 | 1 | | 2 |
| high school | 2 | 3 | 1 | 2 | 1 | 3 | 2 | 1 | 1 |
| university | 3 | | 1 | 2 | 3 | | 1 | 1 | |
| language | | | | | | | | | |
| institute | | 2 | 1 | 1 | | 1 | | | |

Table 7. Student's perceptions of CALL

* Students reported only positive perceptions.

**Numbers indicate how many studies mention the attributes.

To develop Table 7, 16 studies were included since they provide information to answer the second research question of this study, which is, “*What are students' and teachers' perceptions of the use of CALL?*” Table 7 portrays the variety of perceptions that students have regarding CALL. There are four most mentioned attributes: interesting (Mutlu & Eroztuga, 2013; Hsu, 2017; Bozdogan, 2012, & Bedoya, 2014), useful (Zarei & Hashemipour, 2015; Wu, 2015; Bozdogan, 2012, & Ambrose, 2017), authentic (Rahimi, 2011; Khatoon, 2017; Wu, 2015, & Ilter, 2009), and engaging (Almekhlafi, 2006; Meri, 2012; Hsu, 2017, & Bozdogan, 2012).



Interesting is an attribute majorly recalled by learners. For instance, Bedoya (2014) stated that "some students manifested through the questionnaire and the forums that the virtual course was good and interesting" (p.95). The second attribute is *useful*. As concluded by Ambrose and Palpanathan (2015), the implications from the findings support that CALL, through the use of Google Docs, is a useful tool that enables online learning. The third attribute is *authenticity*. CALL authentic material supports English language learning. As corroborated by Rahimi & Yadollahi (2011), using computer-assisted language learning provided EFL learners with authentic materials to study, increase motivation, practice more intensely, and acquire skills. Last but not least, *engaging*, as exposed by Ambrose & Palpanathan (2017), is the application of CALL that indirectly allows students to engage in exploratory learning with a large amount of language data. Similarly, learners "accredited that the use of DynEd encouraged them to become autonomous and engage in learning" (Meri, 2012. p.4). The attributes described above represent the variety of perceptions that learners might have regarding the use of CALL. However, it is necessary to be aware of many other attributes that might be defined as interactive, necessary, informative, supportive, progressive, accessible, easy to use, enjoyable, among others (Bozdogan, 2017).

5.8.2 Teachers' perceptions of CALL

| Authors | Perceptions | Number of studies | Percentage |
|--|-------------|-------------------|------------|
| -Bozdogan, 2012 -Fidaoui & Bacha, 2010 | positive | beneficial | 2 33% |
| -Meri, 2012 -Baş, 2010 | | active | 2 33% |
| -Young & Wang, 2013 -Ambrosi & Palpanathan, | negative | time-consuming | 1 17% |



| | | | |
|----------------------|--------|---|-----|
| 2017 -Ilter, 2009 | boring | 2 | 17% |
|----------------------|--------|---|-----|

Table 8. Teachers' perceptions of CALL

Table 8 intends to show the perceptions of teachers towards the use of CALL in the classroom. Seven studies were selected to answer the second research question, "*What are the teachers' perception of the use of Computer-Assisted Language Learning?*" In these studies, teachers mentioned their perceptions during the use of CALL. They were divided into positive and negative perceptions.

Table 8 indicates that *beneficial* and *active* are the positive attributes of CALL expressed by teachers. The beneficial attribute is based on the fact that it helps teachers to provide better instructions and facilitate the language learning process. Fideaoui, Bahous, and Bacha (2010) concluded that teachers perceived the use of CALL as beneficial since it helped students' research skills to a certain degree and also it helped to improve student-teacher and student-student relationships. Similarly, the active attribute is another positive aspect that is related to the classroom environment. In a CALL-assisted class, learners are "actively participating" in the courses, hence the learning-teaching atmosphere is "student-centered" (Baş, 2010, p.25).

On the other hand, Table 8 also portrays some negative perceptions of the use of CALL. Time-consuming is the main disadvantage that teachers face when dealing with CALL. When using CALL, learners share their teacher's attention, and this may reduce the amount of time that each student spends producing language output (Young & Wang, 2013). Additionally, the excessive use of CALL could make students lazy and lose the ability to think by themselves, hence the learning process may become monotonous and boring (Ambrosi & Palpanathan, 2017). Likewise, Ilter (2009) believes that it could be boring when the teacher uses CALL every time.



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In conclusion, the twenty studies considered in this work have been analyzed deeply in order to answer the proposed research questions. These studies were classified in eight Tables which were later analyzed. At the end, the most relevant result is that CALL variety is wide; for this reason, not only motivation and autonomy may be increased, but also other areas of language learning. Similarly, there is a wide range of options when using CALL. The choice depends on the necessity and objectives of the teacher. An interesting fact is that CALL is seen as a tool that is highly beneficial for both language learners and teachers. However, CALL also presents some negative aspects. For instance, if overused, it may become boring. Finally, it is clear that learners enjoy learning through the use of CALL since it helps them improve both their motivation and autonomous work.



CHAPTER VI

6. Conclusions and Recommendations

6.1 Conclusions

This study aimed at analyzing the impact of the use of Computer-Assisted Language Learning (CALL) on EFL learners' motivation and autonomy and to determine the perceptions of teachers and learners regarding the use of this approach. The positive impact of CALL on students' motivation and autonomy has been demonstrated after analyzing 20 research studies. Additionally, both learners and teachers reported positive perceptions towards the use of CALL in their EFL classrooms as well.

In terms of motivation, CALL impacts positively on intrinsic motivation as well as on extrinsic motivation. Extrinsic motivation is improved through the computer's special functions, like for example immediate feedback (Gunduz, 2005). Students like working with Word or Google Docs instead of using the traditional method, which uses only pen and paper (Fideaoui, Bahous, & Bacha, 2010). Similarly, children love the idea of having a computer and having the opportunity to use it in class.

On the other hand, intrinsic motivation is enhanced through the challenge, curiosity, control, and fantasy that CALL presents (Pintrich & Schunk, 1996). Hardisty and Windeatt (1989) affirm that word-processing, spreadsheet, and simulation programs represent a challenge for EFL learners. Not only this approach impacts EFL learners' motivation positively, but also it is useful.

Regarding the settings, it was found that university learners, high schoolers, and language institute learners are intrinsically motivated because of the use of CALL. On the other side, elementary school learners are mostly extrinsically motivated.

In relation to autonomy, Holec (1981) conceptualized it as the ability to take charge of one's learning. For this reason, CALL has been proved to be a useful tool that helps learners



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work on their own. Not only autonomy's cognitive attributes like decision-making, independent action, and metacognitive capacities are highly enhanced (Yiamkhamnuan, 2017) but also autonomy's psychological attributes like confidence and attitudes are upgraded when using CALL. According to Khatoun (2017), CALL is the only way in which confidence can be improved since it offers authentic materials. Finally, the most important area improved regarding autonomy is the development of the four skills (both receptive and productive) and subskills (vocabulary and grammar).

Similar to the positive results of CALL on motivation regarding the settings, university learners and students from language institutes are immediately more willing to be responsible for their own learning. Also, students in higher levels of education are capable of managing their metacognitive skills, which are essential for autonomy development. Conversely, elementary school learners and high schoolers slowly develop their autonomy along with their attitudes and confidence.

Finally, in response to the second question, "*What are the learners' and teachers' perceptions of the use of CALL in the process of learning English as a foreign language?*" learners reported only positive perceptions of their experience using CALL. They perceived this approach as "interactive, necessary, informative, supportive, and progressive, accessible, easy to use, enjoyable" (Bozdogan, 2017) among other positive attributes like authentic and interesting. Although learners had positive attitudes towards CALL, teachers had different experiences and reported not only positive but also negative perceptions. Teachers expressed that this approach helps them create a dynamic environment which is beneficial when teaching. However, teachers also reported that it is sometimes time-consuming and boring. In conclusion, according to teachers, CALL is perceived as both positive and negative in EFL language teaching.



6.2 Recommendations

This research synthesis focuses on the impact that CALL has on learners' motivation and autonomy. An aspect that is important to point out is that none of the studies used for this analysis were carried out in Ecuador. Researching in our country could display different variables aside from motivation and autonomy, hence the conclusions could be different from the ones provided in this study. Therefore, future studies should be conducted in our country to obtain more results related to our context.

Another recommendation is that the studies should focus on extrinsic motivation since in this research synthesis there were not enough studies to determine the features of CALL software that kept EFL learners motivated. Additionally, another focal point should be to carry out a study that would clearly compare and state the effects of CALL on both intrinsic and extrinsic motivation.

Since age is a crucial factor in EFL language learner's proficiency, our final recommendation is that future studies should be carried out by taking into account the participants' age or proficiency level to provide more accurate results concerning the influence of CALL regarding age in the development of autonomy.



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