Documentary Research: The Impact of ICT in EFL Education in Colombia

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Bogotá D.C., Colombia

2021

Dedication

To all my family, for giving to me their most sincere support in the most difficult moments of my degree and for all the things they have done for me, in order to fulfill my professional dreams. To my mother and father for being aware of the entire educational process that I have had since I was born. To Jackelin Aguirre for being the best teacher and sister that I could ever have and to my brother Miguel Aguirre for all the moments shared with me until today. Love you all.

Acknowledgment

The author expresses his sincere thanks to professors Ingrid Johanna Rodriguez and Francisco Antonio Pérez for their collaboration and guidance in the preparation of this manuscript.

To all my colleagues and friends who promoted and contributed their ideas to make this project possible, please accept my deepest thanks.

To all the teachers of the Universidad Pedagógica Nacional, who through their knowledge inspired me to grow and to become a better teacher. I am eternally grateful, I hope to be as good as you are.

Finally, thank you to all the people, who in one way or another contributed to the development of this study.

Abstract

The present qualitative research design was carried out to describe the impact generated by the use of ICT in EFL education in Colombia over the last 10 years. In order to get and analyze the data documentary research was implemented. This research study contains an analysis of a different compilation of documents that have been carefully selected to present an analysis of the state of the art regarding the use of ICT in the foreign language teaching and learning process in Colombia. Based on the analyzed documents, it was found that the implementation of ICT improves the processes in education (performance, autonomy and group work, student's interest.) However, training and preparation for teachers and institutions are necessary as well as the adjustment of curricula and governmental policies.

Key words: ICT, EFL, Virtual Learning, Teacher's perspective, English learning.

Resumen

El presente diseño de investigación cualitativa se realizó con el fin de describir el impacto generado por el uso de las TIC en la educación de inglés como lengua extranjera en Colombia en los últimos 10 años. Para obtener y analizar los datos se implementó una investigación documental. Esta investigación contiene un análisis de diferentes documentos que han sido cuidadosamente seleccionados con el fin de presentar un análisis del estado del arte sobre el uso de las TIC en el proceso de enseñanza y aprendizaje de lenguas extranjeras en Colombia. Con base en los documentos analizados, se encontró que la implementación de las TIC mejora los procesos en la educación (desempeño, autonomía y trabajo en grupo, interés del alumno). Sin embargo, es necesaria la formación y preparación de los docentes e instituciones, así como la adecuación de los planes de estudio y políticas gubernamentales.

Palabras clave: TIC, EFL, Aprendizaje virtual, Perspectiva del profesorado, Aprendizaje del inglés

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1. Introduction

Currently, the world is going through a great change as a consequence of the pandemic situation; the health system is facing a difficult challenge as well as the economy, tourism, social interaction, and education, of course. The education system has been forced to resort to new methods using the technology as a mechanism to give continuity to its processes, then the use of technology is not enough to counteract all the secondary effects of this pandemic. Let us remember that Information Communication Technology (ICT) is more than a way to keep connected, it is also necessary to go beyond the relationships that can be fostered, and see how technology and education can work together. In the case of English as a Foreign Language (EFL) and English as a Second Language (ESL) as it is defined by some authors (Stern 1983, Yoko Iwa 2011 & Gries & Deshors 2015), the panorama has not been different; the use of ICT has brought new challenges in the classrooms. Some teachers at national level in schools and even at the university level were not prepared to incorporate a virtual or remote environment, that inconvenience named by researchers has brought to multiple problems in teaching and learning.

1.1 Statement of the Problem

Currently, the world is going through a situation where virtual education has been a priority to continue with educational processes; however, this inclusion occurred almost in an irruptive way, which has led to different situations. First of all, some teachers and students from certain academic contexts were not ready for such a sudden change, not only in academic life but also in daily life activities. Problems related to time emerged; time that had to be invested not only in house activities, personal issues and working from home (which has led teachers to have more things to do and less time to accomplish their duties and responsibilities), then teachers had

to prepare their classes and do extra activities for students that allowed them to be engaged in classes. On the other hand, students were more concerned with uploading assignments than participating actively in classes, which in turn brings about lack of interaction with teachers and peers, causing bouts of anxiety, depression, and other emotional factors. The continuous use of virtual spaces has glimpsed some difficulties of the institutions, which have been constantly adjusting over time. Then, this change of dynamic has affected the way in which the learning and teaching processes are developed. According to Reynosa et al. (2020), teachers cannot use the same pedagogical strategies or resources, they must adapt themselves to these pandemic times; this change has also altered the procedures in classes, the participation, and the motivation of students towards EFL and ESL have been a topic to discuss during this pandemic situation. Khatoony & Nezhadmehr (2020, pp.102-104) mention that secondary schools and even universities were not prepared at all to adapt the curriculum for EFL (English Foreign Language) virtual classes, it means the articulation of content with the curricula, the adaptability of technological tools, the distribution of materials or even the work of teachers in the classrooms.

Additionally, the problem could be identified from different perspectives; diverse studies have shown the lack of preparation to assume the learning and teaching process in a virtual environment. To begin with, students were not prepared to implement technological devices in their daily life; according to studies carried out in Colombia by MINTIC (Ministerio de Tecnologías de la Información y Comunicaciones), (2019), 38% of people did not usually use the internet, and 50% of households did not even have it. Also, Piedrahita (2020, p.11), mentions that in Timbiquí, there are 2,250 students between ninth and eleventh grade, and only 3 percent of them have smartphones but without continuous access to the Internet. They only have some data connection for having access to WhatsApp. Another example of the problems reflected

during the pandemic was the study developed in Chile in 2020, it exposed that teachers of all educational levels were not fully trained to change the structure of their class and couple it to virtuality.

Teachers at all educational levels, including higher education, are not trained. The vast majority do not have competencies for effective remote teaching. Some have been tutors of online courses, but it is not the same. Designing virtual spaces is not that simple, it requires training and experience (Piedrahita, 2020, para.12)

Finally, some local studies related to the problem will be presented, these studies will provide an overview of the general themes of the theoretical framework.

In a national context, according to Hernández (1999) in Diaz, L. et al. (2017, p.17) the motivation could be affected by the form of displaying and organizing the task; the way of carrying out the activity in the class, the messages, or recommendations that the teacher provides students with. Also, the mentoring that the teacher carries out to face the tasks, and how to assess the activities carried out. Consequently, virtual classes require a transformation of the teacher and of the proposed activities in search of the improvement of the results, thus, continuing working with the same methods used before the pandemic only brings more problems (Bettina, 2020).

A clear example at the local level is the study carried out by Pascagaza & Rodríguez (2014) about policies, uses and appropriations of the use of ICT, the document highlights problems regarding the inclusion of some policies in the educational system. As they mentioned, ICT has been a booming topic in recent years, and Colombia has incorporated some laws and regulations that support the use of them in the territory; however, the proposal generated by these higher instances has produced many contradictions.

Among some of the problems to be highlighted are those generated by the Ministry of

Education regarding a civilized and connected world, although it is important to maintain

communication and connectivity with the world, these laws are written to involve the ICT as an

economic model, allowing the entry of unnecessary expenses for the nation as the purchase of

devices in large quantities. Some efforts have been made to distribute devices to remote corners

of the country, but many of these attempts are decontextualized from the realities that are

experienced, forgetting aspects as important as the quality and service of the internet, or even

problems related to the flow of energy, generating the trade and exploitation by foreign

companies and the creation of plans and projects with exaggerated values (Torres & Colorado,

2017, p.152)

Pascagaza & Rodríguez (2014, p. 28), also state from a social perspective, the importance

of those policies that meet the needs of the Colombian people and allow the improvement of the

infrastructure and adequate distribution of resources. Some of the aspects the Ministry of

Education may improve are teachers' education, the importance of involving ICT in classrooms

or the improvement of those platforms used by students. Due to the lack of good policies, Barrios

& Galeano (2012) explain the problems presented with a pilot plan platform in Colombia, which

seeks to strengthen attitudes of good coexistence in students of sixth- grade in I.E.D Manuel

Ruiz. Although the strategies proposed by the researchers had their difficulties, many of the

teachers were not familiar with technological tools, the institution did not fully have all the

resources to carry out the proposal and the students does not have all the technological access in

the schools or even in their houses.

Other studies related to the problem in a foreign context show us how the use of ICT

during this pandemic time has affected teachers and students. According to the findings from

Universidad Nacional Autónoma de Mexico (UNAM) in 2020, one of the most problematic situations that teachers face are logistical (43.3%), technological (39.7%), pedagogical (35.2%), and socioemotional (14.9%), in contrast to the perspective they have of students' problems, the teachers mentioned that students face technological problems with a 61.6%, followed by logistics (51.2%), later education (39.2%), and, lastly, socio-affective (33.9%) these based on, 788 teachers' opinions regarding the problems they are currently experiencing due to Covid-19's contingency.

Additionally, from the aforementioned inconveniences, it is also highlighted that the lack of interest in teachers in using and professionalizing this new technological wave has occurred for several reasons. According to Fainholc et al. (2015, pp. 7-8), teachers have never needed or used tools different from video and audio. Teachers did not consider necessary in-person classes, they mentioned that the reason why they had that view emerged from the educational institutions that were not interested in teacher's working or the use of these technological elements; the institutions only wanted them to follow the established curriculum. Furthermore, teachers also affirmed that generating a change in educational policies, where the use of technologies is included, could transform the way in which learning and teaching is conceived. However, the reality of the students is different, not all of them have access to technological equipment, or the schools where they are, are not well-equipped with the necessary instruments. In contrast, Gómez et al. (2019, p.76) alluded to an important factor regarding the problem explained above; in this study carried out in public institutions, teachers who incorporate ICT widely in their classes have shown an improvement in results by students, most teachers only use it superficially, using the computer and USB as the only technological tool and keeping the same practices during class. In addition, the teachers mention that they only use the tools provided by

the technologies of information and communication for administrative tasks such as recording the performance and attendance of students and that the strongest inhibiting factor is the lack of training by institutions.

Despite national laws and the agreements that the government has established with different institutions such as the British Council, many of the problems already mentioned require training for teachers and students on the use of ICT. The pandemic showed us that Colombia was not prepared to face challenges that involve the use of technological tools mainly in the educational system, even though, it is stated in the Development plan called *ICT plan 2018-2022 the digital future is for everyone.* Ministerio de Tecnologías de la Información y las Comunicaciones MEN (2018, p.20)

On the other hand, the lack of preparation and instruction for the use of ICT has an impact on people's life, transforming their daily activities and seeking to improve their quality of life, however, the implementation of ICT has also brought secondary issues that arise when using ICT mainly in education: extra time for teachers, parents and students, lack of devices the need of support of technological companies as well as Internet services providers (ISP),

and finally, the need of real interaction.

In conclusion, in this text, the importance of ICT to be implemented in an educational context was presented. Firstly, the problems related to students and teachers were marked, highlighting the problems they have faced through ICT. Then, an explanation about the use and improvement of current tools explored by teachers was defined. Secondly, some documents related to the implementation of ICT in Colombia were mentioned, highlighting more problems. Finally, several studies related to the problem were exposed.

1.2 Rationale

To understand the proposal, it is necessary to present an overview of the concept of ICT and the importance of it in education. The first time that the term was used was in the 1980s in the United Kingdom; the term was employed to describe those technologies that were being incorporated. Nevertheless, this term has had some changes, which have been generated thanks to the use of Technologies in different spaces, bringing some facilities and tools to improve daily life. The inclusion of this term in educational institutions has gradually acquired more importance since it has allowed hosting new tools and methodologies. The implementation of ICT in the educational context has implied different objectives; Mukhari (2016, p.26) mentions the support functions offered to teachers such as the learning assistance and the new learning processes which ICT fosters. These educational processes have allowed the involvement of technologies over time and have also made possible their methodological advancement in the educational field. Meenakshi (2013, p.4), supported that idea and defended mentioning how the implementation of ICT in education system has become essential in learning and teaching process.

This section presents the rationale of the research proposal as well as some related studies that support the review of the principal topics of the study, it is also important to highlight some aspects in the educational context and the relation with the study.

According to the aforementioned, this documentary research explores and analyzes a systematic review of literature aimed to recognize how the ICT has been incorporated in synchronous and asynchronous classes in EFL learning settings in Colombia from 2013 to early 2021, and how virtual learning has been implemented and the perception generated in students and teachers. This research will provide a perspective on the use of ICT in the education of

English as a foreign language, mentioning some important aspects for future studies.

The interest and focus of this study started when face-to-face education was replaced, and new ways of teaching and learning processes came out due to the pandemic. However, during this process, many problems described before, emerged from the inclusion of virtual classes. Thereby, the present study is relevant since it presents in a very detailed way the description of the problems as well as advantages and characteristics of implementing ICT in the classroom. This research benefits not only the university but also those institutions that due to the pandemic, started implementing virtual classes or ICT because it provides a state of the art and invites all the academic community to take it as a basis for future research, evaluation, and implementation of new programs.

The use of ICT has played an important role in educational institutions and has gained relevance as the years go by. The ICT tools implemented in EFL classrooms have unveiled good results in those educational institutions where there is a focus and better implementation of technology over those that have not. This is also confirmed by a study carried out by Botello & Lopez (2014) in Colombia; fourth-grade students obtained better results in The Progress in International Reading Literacy Study test (PIRL) since students and institutions implement some ICT tools for EFL and ESL. Also, Bansal (2016, p.4) mentions how the implementation of the ICT has improved some usual problems of regular education, aspects that are mentioned by several educational institutions. The lack of motivation of the students, the low results, the socio-affective or intrapersonal problems, and the methodology used by the teacher are aspects that have been improved with the use of ICT. In addition, Yunus et al. (2014, para.4) argue that ICT in ESL and EFL classrooms can enhance language learning to promote authentic text-based language communication in electronic environments and increase students' motivation to

produce texts. Considering what was mentioned before, it could be said that the use of ICT

improves the pedagogical practices as well as learning process in EFL and ESL. However,

external factors like policies can affect the implementation and use of those tools.

Now the theoretical framework of the proposal will be exposed in the next section.

2. Theoretical Framework

This chapter introduces the main concepts that allowed the researcher to develop

principal ideas regarding the theory and the main objective of this study which aims at

identifying the relation between the use of ICT in EFL classrooms in Colombia context as well

as the impact of ICT in different stages of Colombian education, visualizing the impact

generated on teachers and students. There are three main constructs that weave the theoretical

background of this research: ICT as an infrastructure and technological component used in

education, EFL as main concept and central process subject of study related to ICT, and finally

virtual learning as the mechanism used in this pandemic.

2.1 ICT in Education

Firstly, the definition of ICT represents the main concept used for the whole study.

According to Khan et al. (2015, p.85), information communication technology (ICT) refers to

technologies that provide access to information through communication, also they added that

ICT is an umbrella term that includes any communication device, encompassing radio,

television, cell phones, computer and network hardware, satellite systems and so on as well as

the various services and appliances with them such as videoconferencing and distance learning.

Due to their potential and use in education as mentioned by these authors, it is essential to

continue the exploration and work with them in educational systems. Additionally, an important

role of ICT is transmitting, transferring, inculcating desirable goals and values through education

that cannot be overemphasized in any society. Kingsley's study (2017) found the following:

> In an educational system, ICT is a driving force in the process of transferring
>
> worthwhile goals from a teacher to expected learners that would make them useful to
>
> themselves and the society at large. ICT is an innovation that is yet to be properly
>
> unraveled in the educational system of the third world and least developed countries.
>
> (p.2)

About the digital and civic competence in relation with the ICT, Peart, Gutiérrez &

Delgado (2020), mention the influence that technologies have concerning other, and how those

processes are strictly associated with the digital era that the world is facing, allowing the

adaptation to a new set of knowledges and attitudes that are necessary to be competent in a

digital environment:

> We also address the development of socio-civic skills as a combination of
>
> knowledge, abilities and attitudes, to interact with the public and to express solidarity and
>
> interest in solving community problems. As with digital skills, it involves critical
>
> reflection to be active participants in a community and in decision-making processes.
>
> (p.3331)

Bearing in mind the above mentioned, it is now important to cite some general uses of

ICT in education. As reported by Ugwu & Kingsley (2019, p.12), ICT in education could offer

different strategies and features to involve the student and teacher. For instance, hardware refers

to the use of machines and materials provided by ICT, software to the use of methodologies and

strategies for the teaching-learning process, and systems to the management of technology

dealing with the systematic organization of the hardware and the software. Savita (2015) mentions that "Different software packages are used in different departments of education, e.g., library software, administration software, software related to managing the entire teaching-learning process" (p.10). Also, Ugwu & Kingsley (2019) affirm that:

"ICT in education is a support material in the hands of the human resource involved in the educational process in order to enhance the quality of education. Comprises the application of online and offline learning with the help of computer technology". (p.12)

To continue with these strategies mentioned, it is important to talk about the roles that are fulfilled in the management of these technologies. According to Baishakhim & Kamal (2016, p.5), teaching occupies an honorable position in society. So, ICT helps the teachers to update their-knowledge and skills by using the new digital tools and resources. In this vein, this makes students and teachers-more effective in their classrooms. Also, ICT is one of the major factors for producing rapid changes in our society. It can change the nature of education and the roles of students and teachers in the learning process. As an example, teachers in India recently have started using technology in the classrooms. Then, Laptops, LCD projectors, desktops, EDUCOM, Smart classes, memory sticks became the common media for teacher education institutions, improving state tests. Therefore, ICT has become a useful way to help both pre-service and service teachers also Kessler and Hubbard mentioned the relation with the skills that should be provide to teachers and teachers in service "Findings from research on teacher preparation include recommendations that teachers be able to evaluate technology for language learning, integrate tutors and tools, recognize relevant emerging technologies and align integration with pedagogical goals" (p.257). In the near future, the authors assure (p.5) that the

roles between student and teacher will be altered, promoting the student to be part of their own education and the teacher to be updated daily, which will encourage learning from the new technological waves.

In accordance with the aforementioned, it is possible to think about current technologies and future technologies that could be implemented in classrooms (virtual or face-to-face), promoting the updating of the teacher in the face of new trends, and how it will allow the development in various aspects of students and citizens, although currently the Colombian teacher should have certain skills there are 3 levels of knowledge, Explorer, Integrator and Innovative, each one has the following characteristics, Firstly, it recognizes a wide spectrum of technological tools and some ways of integrating them into educative practice, Secondly, it uses various technological tools in educational processes, according to their role, training area, level and context in which the teacher is. Thirdly, it applies the knowledge of a wide variety of technologies in the design of innovative learning environments and prepossess solutions to problems identified in the context MEN, 2013). Observing the teacher's competencies; it is possible to make a connection between the teaching work with the technological functions in the development of future teachers and next generations.

Likewise, it is very important to talk about the process of teachers, students and even society facing ICT. Ugwu & Kingsley (2019, p.14) affirmed life has become easier, due to the invention of ICT. In the last few decades, there has been tremendous growth in the use of ICT in all fields such as education (distance learning via electronic networks, open learning through students-controlled learning pathways, the process of changing teaching and learning styles by using a narrow range of Information Technology based), industry and businesses. Currently, educational institutions all over the world are integrating ICT with the teaching and learning

process to provide knowledge and skills to the learners with knowledge and skills to meet the challenges of the educational environment. According to Adu & Olatundun (2013), "It is only through the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change" (p.15). Also, they describe ICT as having revolutionized the way people work today and the way they are transforming educational systems.

To finish, it is imperative to mention the advantages and disadvantages that ICT brings to education. According to Cantillo in Aedo & Romero (2019, pp.10-11), some advantages are access to large quantities of learning resources; online libraries, information, the possibility for learning to occur anytime and almost anywhere. The implementation of collaborative learning that is fostered takes place, the teaching of different subjects becomes more interesting, providing the facility of distance education and finally giving access to the wide source of information. Nonetheless, Cantillo (2019 pp. 11-12), highlights the disadvantages related to ICT in the educational context like some content offered by ICT resources could also be a weapon of double edge and produce the opposite effect, promoting distraction and dispersion from the student. Also, excessive use of computers could lead to disorders related to anxiety. Finally, obtaining favorable results varies depending on the context as many students do not have the necessary resources or even some schools do not have enough material for supporting students and teachers.

The use of ICT has been implemented in the education system in different forms, helping them to achieve the goals proposed and offering many ways to teachers to create, design and share material with students. Now, it is important to state how it can help in the learning of a foreign language.

2.2 EFL (English as a Foreign Language)

In the following paragraphs, the concepts of EFL (English as a Foreign Language) and ESL (English as a Second Language) will be explained, followed by EFL teaching, then the implementation of policies in favor of English as a foreign language for Colombia and its relation with ICT.

Firstly, it is necessary to distinguish between the terminology that is around the learning of a foreign language. Richards (2020) says the terms ESL and EFL have been used differently depending on the place. He mentioned how in Canada and the US, the term ESL refers to English programs for immigrants. These programs are focused on the language skills that must be developed by integrating them into English-language-based environments. Traditionally, ESL is a term used to describe English in countries where it is a widely used language (e.g. India, Nigeria, Singapore). EFL is a term used where English is not an official language (e.g. Colombia, Japan, Germany). In addition to this term, Richards (2020, p.3), mentions how this process of including EFL education has been decisive for some countries to overcome economically, and a reason why Latin America has implemented projects to foster in schools, universities and even enterprises.

TEFL stands for Teaching English as a Foreign Language. Technically it refers to teaching English in a country where it is not the official language. However, it is often used as a catch-all term for teaching English to any non-native English students, wherever they are located.

As mentioned before, the importance of foreign language teaching has increased as the years go by, improving policies for different countries, regulating its teaching, and regulating the hours in institutions affirmed by Cronquist & Fiszbein (2017)

A well-developed policy framework is essential to guide English teaching and learning. An evaluation of the ELL policy frameworks of ten Latin American countries, including Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Peru, and Uruguay, demonstrates the advancements in ELL policy as well as the gaps and bottlenecks to improving English proficiencies. (p.3)

In Colombia the implementation of EFL began in mid-1994, guaranteeing that the implementation of a foreign language being necessary for the economic progress of Colombians, for this reason, requirements related to English started to be demanded as it is settled down in the General Law of Education, 115 of 1994 "The acquisition of elements of conversation and reading at least in a foreign language". February 8, 1994 (Colombia).

Although the authors confirm that those policies have tried to benefit the countries in various aspects in the inclusion of EFL, many of the attempts fail for various reasons, among which are the lack of preparation of teachers, lack of programs or aid in those programs, finally, some good policies that attend the realities of the countries.

On behalf of attending the aforementioned problems, Colombian government at the beginning of 2004, under the National Bilingualism program 2004-2019, began to implement these educational policies of EFL with the support of the information and communication technologies, declaring that "The Program links the use of media, new information and communication technologies to optimize teaching and learning, reducing the digital divide and take advantage of connectivity and new forms of literacy." (Al tablero, 2005)

All countries have made progress in the creation of teacher education standards, in the case of Colombia, it has been developed almost every 4 years different policies, however most of them fail to address the issue of teacher assessment (Cronquist & Fiszbein, 2017, p. 5), this

important element is related to government policies in favor of national advancement regarding the use of technologies, where each of the plans tries to strengthen teacher assessment and the basic *competencies* of each teacher (MEN, 2013). Even though the intention is the revision of programs and the constant improvement of technological bases of teachers, emphasizing the importance that teachers have in the education of basic areas with the help of technological tools (Technological Competency), the same problems already mentioned persisted.

2.2.1 EFL and ICT Policies in Colombia

The implementation of policies and laws in favor of EFL in Colombia is an important aspect. From its beginnings, EFL in Colombia, as in a large majority of developing countries, has relied on foreign methodologies: Grammar-Translation approach, Audio-lingual approach, Direct Method, Communicative Approach, Task-Based Language. Le Gal (2018, p.5), affirms that learning and teaching have all been successively adopted without any real contextualization:

> While on the one hand, it makes sense to take advantage of the latest developments, theories, and research in the field to help build more modern and efficient teaching and learning practices, contextual (sociological, technological, sociocultural) specificities should be placed at the forefront at the time of importing methodologies. Imported technologies must be mediated considering environmental parameters and especially of sociocultural factors, as extensively discussed in the literature should also be analyzed and taken into account. For example, it is a lot harder to work within a Task-Based Learning or communicative framework when there are forty learners per classroom as is the case in many Colombian public schools. (Le Gal, 2018, p.5)

Furthermore, the policies created by the Colombian government reflect those problems mentioned by these authors. Le Gal observes that policies created to improve the foreign

language in Colombia, are not thought to be implemented by the National Bilingual Program

(NBP), a Colombian project developed from 2004-2019 by the Ministry of National Education

the author mentions:

> This project has been elaborated in cooperation with the British Council, which
>
> greatly benefits from the resulting sales of tests, pedagogic materials and courses...The
>
> PFDCLE has attracted important criticism from academics ... as well as from "the public
>
> sphere" which comprises learners, parents, and all the stakeholders who do not possess
>
> any specialized knowledge or training in foreign language education (SLE). According to
>
> Valencia (2013), relying on the expression "manufacture of consent" explains how media
>
> are used to fabricate public opinion in favor of "the political requirements of social order"
>
> argues that the PFDCLE generated an inclination towards international intervention in
>
> Colombia. Foreign influence can also be identified in the adoption of the Common
>
> European Framework...the framework, regardless of its qualities, has been most
>
> specifically designed for the European context. (Le Gal, 2018, p.6)

Additionally, Le Gal mentions how those policies have been inclined to the benefits of

particular people of people or foreign enterprises, buying, and including the program for the

learning of EFL without keeping a consent process or evaluating how the previous plans created

for Colombia have not completed their purpose, and how those plans were not taken into account

as a reference, noting the disadvantages and strengths for the improvement and expansion of

future in Colombia.

As mentioned above, the implementation of educational policies for strengthening the

foreign language has required the use and updating of ICT structure, however the established

model has followed foreign political ideals as reported in the 2004-2019 Plan and therefore, has

not been fully compatible with local realities. This plan prioritizes "methodologies, language

policies under foreign influence, imported materials, imported teachers" (Le Gal, pp. 6-9). Those

previous characteristics have affected the EFL process in Colombia for students, teachers and for

future teachers, since Colombia's plans have tried to copy a learning foreign system, with each of

the elements implicit in it, returning to misuse or waste of the nation's resources.

> These "technology importation" at all levels of the ELT process have weak
>
> didactic justification; they are more likely to be understood from an economic
>
> (liberalism, corporatization of ELT) and hegemonic discourse perspective (dominance of
>
> native speaker and central methodologies of the inner circle countries in peripheral
>
> classrooms [Canagarajah, 2001]) (Le Gal, p.9)

2.3 The Virtual Learning

The virtual learning term is a concept recently explored, the general term refers to any

virtual space where a person is enhanced using computers or tablets with the internet to the

facilities of the educational organization. Nonetheless, there is missing information related to

virtual learning; however, the next paragraphs develop some characteristics connected to this

term and how it has been implemented in the educational context.

Firstly, the definition of virtual learning has undergone some changes. According to

Racheva (2017), "The learning experience is enhanced through utilizing computers and/or the

internet both outside and inside the facilities of educational organizations. The instruction most

commonly takes place in an online environment" (para. 2). Also, Pando (2018, p.496) clarified

that the concept of virtual education, which is classified, generally, in e-learning (or remote), and

b-learning (blended) modalities, based on the Internet, provides a wide range of solutions that

combine skills and capacities of acquisition. Aguilar (2015, p. 34) explains the distance learning

conducted in a virtual learning environment with the use of electronic study content designed for self-paced (asynchronous) or live web-conferencing (synchronous) online teaching and tutoring.

Another definition that can help us to understand what e-learning is given by Clark, et al. (2016, p.82), who state some elements of e-learning, starting from the teachers' accompaniment with the students, continuing with the promotion of technological tools as well as the use of different techniques with examples and finally the feedback to students. These elements promote a better understanding of what they saw in class and promote their autonomy.

Related to autonomy, Benson (2006, p.33) mentions that "the most important underlying factor behind student autonomy is the continuing worldwide growth in the language teaching industry, ELT especially." The term autonomy has had several theoretical approaches in the last 30 years, one of the closest being that of Raz (1986) arguing that the idea of autonomy is a social construction where autonomy is socially defined in the goals or objectives, preferences or attitudes, and values of individuals, "the meaningful autonomy requires the existence of various social goods which the State has the duty to provide and which the citizens have duties to provide to one another." (p.83)

Hence, the autonomy relationship is not an abstract and individual process developed in a given time, but rather a process that develops by *mutual contract* (Benson)

> Therefore, foreign language teachers do have a responsibility to foster personal autonomy, because personal autonomy entails learning, and further, because it is our mutual responsibility to ensure that this learning takes place. In a sense, this is no more than to state a collective social responsibility that covers all areas of social life. (Benson, 2006, p.32)

Consequently, the relationship established between foreign language teachers with virtual

education is determined by the spaces of autonomy and reflection previously provided, where each of the tools and options that the teacher agrees with the student helps to improve the processes of acquisition of the foreign language along with autonomy, these spaces are increasingly due to the technological era and more recently due to the pandemic, allowing to glimpse the close relationship that exists between Virtual Learning, ICT and EFL (Reinders 2007).

Considering the connection presented above, it is imperative to mention the impact of virtual education in different spaces as reflected by some authors. Morales & Pulido (2016, p.90) mention that virtual education has become a clear and high-impacting strategy, improving coverage, relevance and educational quality at all levels and types of training, thanks to multimedia, hypertext and interactive characteristics that allow the medium in which it is supported. Also, the courses taught online provide students the flexibility to learn on their own schedule, instead of a mandatory class time. Thus, "Virtual learning gives students access to classmates all around the world, providing networking opportunities you can't get through an on-campus program." (Drexel University, 2019, para. 15). Finally, Crisol et al. (2020, p.2) affirm that virtual education encourages the use of a diversity of platforms and web applications that allow students to achieve their educational objectives.

Another concept related to virtual education, is the future of it in the educational context. As mentioned before, virtual education has been gradually implemented in all educational areas, since it apparently improves results in several aspects; however, we must also ask ourselves if virtual education will continue existing. As stated by *eLearning 101 – concepts, trends, applications.* (2014, p.16). Epignosis. E-learning is here to stay; the internet connection, the devices' speed, the power and intelligence of new tools, the speed of the internet, etc. These are

aspects that are improving day by day, therefore tools that improve and strengthen the E-learning experiences will continue boosting and be implemented throughout the world, giving a new way of teaching and learning.

Finally, the cited document, eLearning *101 – concepts, trends, applications*. (2014, p.75) by Epignosis, talks about some of those tools or techniques that could improve the work as teachers, maintaining a close relationship between education and technology, it invites to explore some strategies and tools that will help teaching material with the use of ICT. The first one suggested is Micro-learning, focused on the design of micro-learning activities through micro-steps in digital media environments. These activities can be incorporated into a learner's daily routine, trying to encourage the student to use technologies to solve the problems, in order to prioritize the performance of the task. On the other hand, it is presented as Gamification. Robson et al. (2015, pp.412-413) define gamification as the application of game design principles in non-gaming contexts; teachers should take into account the best design, implement, manage, and optimize gamification strategies in education to accomplish the goal.

In accordance with *eLearning 101 – concepts, trends, applications.* (2014, p.82). The importance of the personalization of spaces, learning and the exploration of topics of interest of the students are important in gamification. Taking into account the interests and abilities, the use of the game and gamification allows to enhance different capacities of the student, relating images with meanings, text with experiences and specially using what has been learned immediately. Gee (2003, p.13) mentions that today all types of images, symbols, graphs, diagrams, artifacts, and many other visual symbols are particularly significant. In accordance not only the text is the one read, but also video games also stimulate this ability through symbols and images. Thus, the idea of diverse types of "visual literacy" would seem to be an important one.

This perspective opens the panorama for gamification and for all the tools and concepts in favor of their use, and also new perspectives for the education of new generations.

3. Methodology

This chapter presents a clear description of the research methodology including relevant aspects such as the research approach, the research paradigm, and the research design. Moreover, the data collection procedures and the phases through which this study will be developed in the next sections.

3.1 Type of Study

This research project adheres to the principles of a qualitative study, which is defined by Creswell (2014) as a process of researching that involves the emergence of questions and procedures, data typically collected, data analysis inductively build from particular to general themes, and the researcher's interpretations and meaning-making of the data (p. 37). Hence, a qualitative study is pertinent considering it is intended to understand a particular phenomenon, which in this case is the analysis of the impact that the implementation of ICT has had on the EFL teaching and learning processes that take place in a virtual environment.

Considering the qualitative study, this project follows documentary research, defined by Scott & Marshall (2015) as a type of document that uses personal and official documents as source material. "Most of those documents may include such things as diaries, directories, handbills, government statistical publications, records, tapes, and computer files" (p. 2)

The data collection is an essential part of the study of the research design; for that reason, it is important to define it. According to this, data collection has included the search of articles,

books, official documents, national and international research, which has been done in order to obtain as much information as possible and thus, carry out the analysis of that information.

According to Blaxter, Hughes & Tight (2010, p.211) analysis is about the search for explanation and understanding, in the course of which concepts and theories are likely to be advanced, considered, and developed. Also, the data analysis brings all data together, and then it progresses to reveal the contents of quality data, contrasting different points of view, highlighting what is most important to the researcher, and generating the necessary material to communicate with the research. Finally, with all the information collected, the most important aspects can be drawn, the results of that information displayed, and additionally, conclusions drawn for the investigation. The next graphic summarizes the process during documentary research.

3.2 Data collection Method

In this section, the type of method used for data research collection and analysis will be explained.

This study uses a descriptive procedure that starts from the author's survey, followed by the problematization of the subject and finally the knowledge obtained by reading or studying the information provided by other authors. According to Abreu, (2015, p.205), it refers to a method whose aim is to expose with the greatest methodological rigor, significant information about the reality understudy with the criteria established by the academy.

Additionally, the author mentions that the descriptive method allows creating categories that the author uses to analyze, group, and describe the realities that are being lived, generating a subjective perspective when interpreting it, but argued by objective events, thanks to the reports, texts and conclusions of other authors.

3.2.1 Searching Criteria.

This research contains different categories to organize data collection, in order to relate them to the main topic, thus, the studies that were taken into account, contain unique characteristics.

This first category arises from the necessity to glimpse the different studies carried out at the national level, it is imperative to start with a smaller (local) scale to continue on a national scale and finally mention some aspects also reflected in the global one. To carry out a global scale study, more extensive research is required.

Figure 1

Scale of studies to take into account

Study Scale	National Level	Local Level	Global level
Number of studies	20	29	1
		Total	50

Note: This first table relates the studies obtained with the population-focused for this study, where most of the information comes from studies carried out in rural areas of Colombia and on the other hand cities such as Bogota, Barranquilla, Cali, etc.

As a second category, to discriminate the information obtained, the topics addressed in the theoretical framework were considered in the search criteria. Thus, the main themes of this study are ICT, EFL and virtual learning. As stated in the theoretical framework the studies sought would have to address those subject matters in the study.

The EFL item is closely linked to the experience of teaching or learning a foreign language from diverse contexts. The item "other area teaching" refers to those studies in which technology influences the learning/teaching of other areas of learning without being strictly connected to English. Finally, we have the item in the chart called "tool", pointing out how technology is used as an element for multiple teaching activities, also some studies made a relation with the projects Colombia has with the students' population.

Figure 2

Use of ICT in classrooms

Use of ICT	Teaching of foreign language (EFL)	Teaching diverse areas	Tool
Number of studies	16	14	20
		Total	50

Note: This table shows the type of information handled in each of the studies taken into account, although it is important to keep the EFL as an important point, it was also found that the studies proposed a deeper pedagogical look, providing the ICT as a tool for teaching. Other areas of knowledge such as science, mathematics, geography, history and others were also taken into account since the studies maintain a close relation with the use of technologies.

The third criterion for the research is connected to the population of the diverse studies, having as priority secondary schools, followed by university and the contribution or inclusion towards teachers or the community, and finally primary schools. However, it is also worth highlighting that the information about primary schools has been impacted by the item of national and local studies.

Figure 3

Type of involved community

Study population	Teachers and community	University	Secondary Schools	Primary Schools
Number of studies	16	10	16	8
			Total	50

Note: The collection of data involves different communities, the diverse population allows a broader spectrum of the use of technologies in Colombia and also shows more characteristics of the same, although the majority of the current studies correspond to schools, there were another number of studies focused on the perception of teachers and the community.

In the same way, the present research identifies the objectives of all studies; For this reason, it seeks to classify those common topics into small key concepts that allow identification. The first most common theme is the role of the teacher with the impact and use of technologies in education; the second key concept is the influence that ICT has with teacher's academy life (how they use it, the different technics, the tools implemented in classes) and the connection that is made between students and the community through the use of diverse technologies. Third, other studies aim to generate a proposal or report an experience that the authors have in relation to technology.

Figure 4

General proposal of the study or article

Study proposal	Teaching role	Proposal	Problem

Number of studies	13	24	13
		Total	50

Note: The item *teaching role*, contains varied information of the current use of technologies by the teachers, where there is evidence of a general concern for teachers regarding the use of technology. The second item aims to generate an innovative proposal for a group where the data collected mentions proposals like (music, evaluative methods, games, pages, blogs, page creation, co-learning, web 2.0, simulations, etc). The third element, titled *problem*, mentions the different perceptions, drawbacks and records of the researchers facing the implementation of ICT, highlighting some problems and mentioning possible solutions for further research.

3.3 Research Question

Based on the above, different materials for documentary research were taken into account having a general question to guide the study.

What has been the impact generated by ICT on the EFL teaching and learning processes in the context of Colombia over the last 10 years?

3.4 Type of Study

The methodological design of the study is documentary research, this type of study helps with the purpose of the research question. Taking into consideration that information, this document research collects 50 documents to be analyzed of which 45 are undergraduate, postgraduate and doctoral studies and 5 articles. All the studies mentioned in the appendix correspond to different public and private universities in Colombia, these studies were reviewed, organized and classified for the elaboration of the documentary research.

In the appendix section, most relevant documents were included, in order to facilitate the reader the possibility of access to the literature review and additionally as a theoretical basis for the findings and conclusions of the present study.

3.4.1 General

To analyze the impact of ICT on the EFL teaching and learning processes in the context of Colombian education over the last 10 years.

3.4.2 Specific objectives

1. To carry out a systematic collection of data from studies related to the impact of ICT on the EFL teaching and learning processes in the context of Colombia over the last 10 years.

2. To characterize the process of some Colombian schools and universities in the inclusion of ICT for the improvement of the foreign language teaching and learning.

3. To identify the type of educational experiences and results that have been found in the area.

3.5 Phases of the study

The present paragraphs explain the phases necessary to collect all data, analyze, reduce the information collected, and organize. According to Blaxter, Hughes & Tight (2010, p.221), within these mentioned phases there are *reflection and design*, which highlight the main concern for a phenomenon, creating the main concepts that the study will have and the support statements for the investigation. Second, taking into account this general phenomenon, there is the phase of the fieldwork; a phase where the information, main concepts, and the documents are organized as well. Additionally, during the whole process, there is an informative phase in which the author adds information systemically to analyze and use it as input.

3.5.1 Coding

The coding refers to the term for creating categories for data collection, this coding allows groups of studies according to some characteristics (population, type of study, etc.) For this case, the coding of the study was resolved according to the data mentioned in the search criteria, (population, objective, type of study, conclusions). (View appendix AA)

3.5.2 Annotating

The phase known as annotation is the process in which small annotations are added to the document, said annotations can be next to the text or in separate documents, what is sought with these annotations is to have important information to use in the future or information to highlight.

For the present research, it was decided to create annotations of those studies that mentioned the contribution of technologies for the teaching and learning of the foreign language, in addition to those texts where an influence of ICT was seen on the perception of teachers and students. These texts allowed the classification and discard of some documents and also for theoretical support of the findings. (View appendix AB)

3.5.3 Labelling

The labels in the data collection phase allow each study to be marked with information for later use, for this research labels were used that were later used as search criteria, these labels allow organizing each of the documents according to the needs of the investigator.

The different labels used in this study arose initially from the theoretical framework, followed by labels that served to classify the population, the type of study and the objective of each number of the studies cited in the appendices. (View appendix AC)

3.5.4 Selection

A key process in the management of data information, through the investigator decides the most interesting, significant, unusual or representative items to choose and illustrate by arguments. This selection of data and studies allows selecting only what is important and useful for the researcher.

For the selection of the data presented in each of the studies, it was important to have all the previous steps (coding, annotating and labeling), this process allowed the information to be easily discriminated and to be taken into account over other information. (View appendix AD)

3.5.5 Summary

The last stage for data collection is the summary, this synopsis usually retrieves the most important classified information from the data collection. For the present investigation, a annotating bibliography as developed for each of the investigations that contains each of the previously selected steps (see appendix section).

The literature review allows one to consider the relevant information of each writing; however, the author can choose what type of information is important to mention in the abstract and which one to use to support the main ideas. Additionally, the information is edited to meet the institutional standards to be socialized to the community (View appendix AD).

3.6 Research Tools

To elaborate the documentary research the principal tool used was the literature review, obtaining and categorizing the main ideas of each of the texts, followed by the revision of the document and the date on which the document was published, in the same way, each of the added studies creates the findings and complement some studies already carried out. The literature review follows a structure (see appendix section from AE to BD), each review contains

the author, the year, the citation, and the analysis made by the researcher which comprises the

type of study, the population, the main objectives, the conclusions and how it can help to create

the documentary research.

3.7 Findings

After reviewing the documents and contrasting them with the previously indicated

characteristics, a wide range of difficulties and limitations were found. Nevertheless, most of

these situations relate to a common factor: the lack of understanding the Colombian government

has about each of the contexts people are involved in. Without the proper knowledge about the

conditions and environment surrounding the groups in which an IT-based teaching is

implemented, it has a high chance of not being effective.

Most of the problems unveiled by the different authors cited in this document are

presented in a similar way in their research, even when they were done in different years and

under different Colombian policies and governments. Duque (2017) and Rojas (2020) stated that

although all the plans regarding ICT were executed having a positive impact on the academic

community, most of them only benefit the principal cities of Colombia.

> The Plan Vive Digital (I) made progress in infrastructure to promote connectivity
> at the national level, with positive variations in the 9 regions previously presented in the
> graphs. However, it is still observed the advantage that the main regions have with the
> rest of Colombia. (Duque, 2017, p.33)

> Faced with these new uses of ICT in times of contingency, different situations
> arise and show a generalized infrastructural delay in the region, it generates the need to
> rethink the pedagogical and institutional competences in a scenario of the total
> virtualization. (Rojas 2020, p.65)

In fact, the figures presented by the Colombian government regarding the positive impact of ICT plans' implementation along the studies, were just taken from the data obtained from the principal cities.

It can be affirmed that the Plan Vive Digital (I) contributed to closing digital gaps in Colombia through ICT, bringing infrastructure to remote areas of Colombia, but, as stated in annexe 1, those regions have the highest income, institutional framework and economic power in the country, thus delving into existing historical regional gaps. (Duque, 2017, p.48)

Consequently, based on these results the technological gap between Colombia and other countries is being reduced, nevertheless, the gap between large cities, rural areas and remote regions of the country is increasing.

Although Colombia has led the expansion of ICT spending and increasing in the number of Internet users and servers, it continues to present the lowest regional penetration. In other words, Colombia continues with deficiencies that maintain the digital division in the country. (Peña, Cuartas, & Tarazona, 2017, p.63)

This was also supported by various international media, the OECD (Digital Government Review of Colombia) and even by the statistics released by the Ministry of Education and the national bulletin with the latest numbers on Internet usage in November 2018, mentioning verbatim that "The number of people accessing the Internet in Colombia continues to rise. While city dwellers have greater opportunities for access, connectivity in rural areas remains challenging." (Erb, 2019)

The Computadores para Educar Program and the proposal for teacher training shows a lack of effectiveness in educational practices for the lack of coherence between

the phases of the program and the implementation, when trying to carry out a change in

the educational practices of the teachers of the rural sector of Zipacón without having the

necessary resources for them. (Torres & Colorado, 2017, p.138)

The implementation of these plans has progressively brought some difficulties for all

Colombians, trying to respond to the demands of the market and an increasingly globalized

world. Hence, teachers, students, parents, independent workers, peasants and in general the entire

Colombian Community are involved in this implementation.

For instance, in relation to teachers Duran (2021, p.45), Torres & Colorado (2017, p.148)

and Salamanca (2019, p.10), it was found that the knowledge, of tools, didactics, methodologies

and the knowledge teachers have regarding technology affect the teachers' development in some

subject areas; the main reason according to the reviewed studies, is the lack of support that

schools receive concerning some factors such as: Technological distribution, connectivity,

internet speed, the use of new technologies, teacher's training among others. Then, it is relevant

to highlight that all those factors depend one on the other to guarantee the ICT plans work as

they are stated. The lack of only one may generate issues in the educational community. This is

only one example of a group that is affected by government plans. An additional finding in the

documents is the lack of pedagogical preparation that teachers have in relation to the use of

technologies Sanchez & Castro (2019, p.45), Chacon, Yañez & Fernandez (2014, p.110) and

Gómez (2020, p.59); this lack of preparation has brought teachers several problems in recent

years, where a whole virtual culture has been generated, demanding a new way of learning and

teaching for teachers and students, still, the lack of preparation is attributed to higher spheres,

such as the state or even the educational institutions themselves.

Buendía (2018) mentioned in his study that it can be clearly seen that the district educational institution has the necessary resources for the innovation and integration of ICT in the classroom. However, the District Educational Institution does not have leadership from the administration that helps and supports teachers in the process of innovation and integration of ICT in their teaching environments.

This lack of instruction is not only evident in teachers, but it could also be observed that educational problems affect the new generations, beginning with children, elementary students, high school students, university students and student-teachers at universities. Despite the growing acquisition of technological objects by Colombians, it has been shown that obtaining them does not guarantee the acquisition of certain knowledge related to learning tools. A clear example is named by Gutierrez (2019) who did a reflection on the role of parents in the technological education of children, being the family the first instance in educating and setting down technology and its good use. Based on this, it can also be affirmed that although the younger generations (digital natives) have technological facilities; teachers and parents should not fall into the popular belief that young people do not need to learn anything related to technology because they already know it. Forero (2017) and Arias (2012) mentioned how students had problems with some technological tools, making teaching-learning difficult, delaying results related to learning a specific area.

Finally, there were some difficulties that arose during the implementation of this research and were expressed by the students in the final interview... for some students, learning to handle the diverse tools, took some time because they did not have previous knowledge about them. (Arias, 2012, p.64)

However, despite the problems mentioned, most teachers are trying to include technology in the classes, especially in those where the learning of a foreign language is involved, the arguments used by the teachers mention the positive impact on students, their families and for themselves. According to the explored studies, in the case of students Leon (2020, p.107), McDougald (2018, p.184), Arias (2012, p.64), Parra & Riaño (2015 p.58) and Reyes & Núñez (2020 p.64), technology provides them easiness when relating concepts and understanding a topic, it also helps them because they discover new tools available to learn and in the same way these tools motivate the student to continue learning.

On the contrary, 19 students were interested and discovered new ways to continue learning and to deepen their knowledge thanks to the advantages offered by this type of technology, among which they highlight innovation, the ability they have to attract attention and the capacity stay focused as well as motivation and interaction. (Reyes & Núñez, 2020 p.64)

Those proposals structured additional activities allow students' experience process, governing their voices, mentioning the fears and their expectations. It is relevant to highlight how the technologies are an opportunity to become familiar with a foreign language, and how it has allowed students to create associations with some previous knowledge.

Although most studies show positive results regarding the use of ICT for learning a foreign language, Cristancho (2016), Moreno (2020), Arias, Gómez & Vera (2015) and Cabarcas (2017) and in general in some areas of knowledge Parra & Riaño (2015), Díaz (2015) and Gómez (2020), some changes generated in activities such as critical reading were also discovered. According to Colorado & Garavito (2021) found a decrease in results when passing an analog test to virtual test, but also improvement in tests created purely virtual.

A notable decrease can be identified in the results obtained by the students in the

virtual tests developed by the Milton Ochoa entity, who adapted and used computer tools

for the application of tests ... the results are significant in the three levels of reading

comprehension, taking into account the reflective exercise that was carried out to adapt

the technological applications and tools, with which the tests were developed digitally.

(Colorado & Garavito 2021 pp.100-101)

This suggests the new virtual media are changing the way of learning, therefore the

educational system. This establishes a new challenge for teachers and institutions, in which the

new virtual environment also requires new practices to teach and new methods to face virtual

classes.

An additional finding from documents that are related with the implementation of ICT in

the teaching of a foreign language, is the different resources that English teachers have

implemented to improve the language, some resources mentioned by Martinez, Vargas &

Ramirez (2018), Moreno (2020), Arias, Gomez & Vera (2015) and Jáuregui, Chavez, Roselis &

Fuentes (2019) are web 2.0 platforms, microblogs, podcasts, blogs, Oculus rift (virtual reality),

gamification, Ova's and TED talks.

"TED talks prove to be a useful material for English teaching as a foreign

language considering that they assemble many characteristics that catch students'

attention and get them related with the language spoken in actual contexts. One of the

main points made when using TED talks is that students are not just listening to the

speaker, that is what would happen in a recording, but they are watching the speaker's

movements and facial expressions that permit the students to gather much more

information about the speech and include it in their repertoire to use it in future

occasions." (Martinez, Vargas & Ramirez, 2018, p.112)

"Computer-based materials are definitely a motivating factor to learn English as a

foreign language as it was reported in the first category. As could be seen, the learning

environment raised learners' high interest not only in the virtual trip to the United States,

but also in improving their listening skills with the integration of other skills such as

reading and writing...The fact that this Hypermedia material offered the students the

possibility of planning their own route along the trip, based on their interests, previous

knowledge, or curiosity, seemed to increase their levels of excitement to learn in more

significant terms. " (Arias, Gomez & Vera, 2015, p. 157)

"The fourth objective was also completed, children and adolescents interact

naturally in digital environments, access to them and create spaces for reflection oriented

towards peace and healthy coexistence, which implies that teachers must live up to what

the world today offers in terms of technology, and to make use of these, in favor of a

pedagogy that considers the importance of peace-related concepts in a way that reach

those generations that are very receptive to digital media." (Jáuregui, Chavez, Roselis &

Fuentes, 2019, p.93)

 Although the studies consulted do not show a detailed chronological record, it is possible

to observe how the implementation of technologies has increased since the last 10 years, with the

pandemic being the definitive trigger for the exploration of technologies. Without a doubt, the

commitment highlighted by the teachers is evident in the different studies cited, however, it is

important to emphasize that although the teachers are aware of the importance of technologies in

current education, they are not receiving any type of training or education in the face of

information and communication technologies. These perceptions show how teachers are facing the challenge to implement technologies in and outside the classrooms. Clearly, many complaints regarding the implementation of technologies have surged in the last 3 years, especially due to the lack of preparation of many foreign language teachers regarding the use of ICT.

Finally, as an important observation, it was found that of the numerous studies reported in the appendices, among which are, the incorporation of ICT in the areas of knowledge, Colombian policies in favor of the incorporation of technologies and finally studies on EFL, where most of the aforementioned and cited studies are in Spanish, including those where the incorporation of EFL in schools or universities is the main topic.

3.8 Timeline of activities

Figure 5

General proposal of the study or article

Month /activities	September 2020	October 2020	November 2021	December 2020	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
Selection of the topic and analysis of the problematic situation	▓ (green)														
Theoretical framework design		▓ (blue)													
Data Collection		▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)	▓ (red)		
Data reduction and analysis						▓ (purple)	▓ (purple)	▓ (purple)	▓ (purple)	▓ (purple)	▓ (purple)	▓ (purple)	▓ (purple)		
Identification of findings								▓ (yellow)	▓ (yellow)	▓ (yellow)	▓ (yellow)	▓ (yellow)			
Conclusions												▓ (blue)	▓ (blue)		
Presentation of final document	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)	▓ (gold)

Note: This table shows the general progress of the study carried out with each of the phases and the estimated time for the development until the completion date.

4. Conclusions

Through this chapter it is intended to make the conclusions of the data collected, analysis and findings of the same. Via these conclusions the general perception of all the information mentioned in the previous chapters will be given, additionally it will also mention some personal considerations as a final reflection and possible ideas to include in future research.

The general objective of this research was to collect information about the process and influence those technologies have had in relation to the teaching of a foreign language in Colombia, however in order to talk about this general objective it was necessary to collect all the information about not only the proposal of Colombian technology in favor of the teaching of the English as foreign language. Additionally, about the change that has been generated from the plans and inclusion of ICT in Colombian geography. According to the aforementioned, the data collected mixed the principal concepts of the study, ICT, methodologies, Virtual Learning, Teacher's perspective. This point of view obtained from data has generated even more enrichment to the study in general, glimpsing the problems in the teaching / learning of the foreign language and offering clues to the possible solutions of the technological problem that Colombia faces.

In relation to the objective of the study, it can be concluded that the influence and demand of ICT on English as foreign language in Colombia has been growing over the years, this demand for favorable results has been accompanied by state policies that seek strategies to comply with the global requirements of the use and understanding of the foreign language.

"From 2004 to 2016 a national bilingualism law and four national bilingualism plans were launched in order to regulate the English language instruction in the country.

The new policy and plans have aimed to increase the competitiveness of Colombian

citizens so that they can participate in international dynamics by speaking English (MEN,

2014b)." (Gómez, p.142)

Those educational plans created until now exposed several factors, named by Gómez (2016) as

factors that have not allowed the successful progress of Colombia regarding the learning of the

foreign language and the relationship with ICT. Among them the author list it like *Lack of*

Continuity and Consistency, *Employability Instead of Social Development*, *Misconception of*

Bilingualism, *Privileged Position of English*, *Adoption of Foreign Models*, *Bilingualism Plans as*

a Lucrative Business.

Each of the previously mentioned characteristics is evidenced in the documents collected

for the analysis concluding that government policies do not address the social realities of

teachers, students, workers and Colombian people in general as stated by Buendía (2018) and

Serrano (2019).

Apparently, the involvement of ICT in education is inevitable, however, the

reality of many institutions is different, because although the ICT involvement is

unavoidable, they are not being integrated into the practices pedagogical and this is

related to the attitudes that teachers themselves have developed towards the use of ICT in

their pedagogical practice, coming to consider that the ICT use has nothing to do with

them. (Buendía, 2018, p.21)

These projects have brought to the teaching / learning of foreign language many

problems and inconveniences, leaving Colombia among the last places in relation to the level of

English. Although the educational policies mentioned in this document do not address the

realities of Colombia and are dedicated to wasting resources (Gónzales, p.150), there is also a

general thinking of teachers about the inclusion of new technologies for teaching a foreign language.

Despite the poor coordination and effective implementation of the government policies plans in favor of the EFL and the technologies, the documents yielded positive figures about a basic program implemented in schools or universities. However, many of the efforts to include technologies in the classroom have been executed most of the time by teachers and not by the educational institution or the secretary of education, showing again that those plans are an idea more than a true implementation. Some authors that pointed out that idea are Buendia(2018), Garzon(2018), Rojas (2020), De la hoz (2020), and Chacon & Fernandez (2014).

> The fact that there is a limited technological resource (first-order barrier) and policies institutions that do not support teachers in mediating learning in their areas specific through the use of ICT, allows the formation of second-order barriers such as negative attitudes around the use of them, however the instruments of data collection shows that teachers are willing to do so if they counted with the necessary support from resource to qualification (Buendía, p.68)

> In this study, the BC noted that, due to the centralized nature of the Colombian state, the lack of resources, and qualified teachers, the implementation of national policies by local authorities is a challenge. (Garzón, p.16)

> Caballero et al (2007) explain that the little use of ICT in educational institutions It is due to two factors: economic and attitudinal. Economic factor refers to the lack of resources, support, financing, training, equipment, technical support and / or availability of times and spaces. Attitudinal factors are those negative behaviors on the part of teachers and / or the community towards the implementation of ICT. Caballero et al

(2007) highlight the role that the State performs in the support and development of ICTs through programs that guarantee efficient performance of economic factors and decrease negative attitudinal factors. (Rojas, p.8)

In the results, it is found that most of the teachers have confidence in relation with ICT and their attitudes are positive, for this reason, they are not anxious in the use of these. However, they are not necessarily competent in integrating them into their class and feel some external barriers to ICT integration, such as lack of resources and the layout of classrooms ... Likewise, teachers expressed the need for diverses and appropriate software and hardware for the lack of technological resources such as computers, projectors and others to integrate ICT in a more effective way. Finally, in relation to ICT training, the teachers suggested increasing the hours of training in the use of ICT and expressed the importance of integrating courses related to these in different study programs, and to be implemented in undergraduate degree curricula to better training for future teachers. (De La Hoz, pp.39-40)

Even though the institution advances in the inclusion of technological resources in the classroom, this process is carried out only empirically and there is not motivation of the teaching staff to support project initiatives aimed at improving the technological part. In general, these projects are formulated but cannot be developed due to lack of resources, since there is not support from the Secretary of Education of Caquetá and the coverage of training programs in the application of new technologies offered by the Ministry National Education are not enough. Faced with this situation, it is proposed to present training proposals to the Departmental Education Secretary, requesting support from specialized personnel on the subject. (Chacon & Fernandez, 2014, pp.115-116)

Although the aforementioned problems limit teaching work in the face of foreign language teaching and the inclusion of technologies, those studies that demonstrated an element of the technologies for teaching English suggest the positive impact they have on teachers and students. The inclusion of different strategies used by teachers, such as games, web pages, blogs, gamification, game-based learning, podcast, virtual activities wikis and others, have shown an improvement in all aspects related to foreign language learning, such as critical reading, the acquisition of concepts, the improvement of basic skills (reading, writing, listening and speaking). Language skills are closely related to the EFL concept that were enhanced by the use of technologies in accordance with Martinez, Vargas & Ramirez (2018), Calderín (2015), Munar (2018) and Arias, Gómez & Vera (2015).

> ...the specific characteristics of the video such as movement, sound, and color, permit students to get engaged, be motivated, and understand the topics presented easily; thus, students remember vocabulary easily, faster and improve significantly their listening skill than when the class does not involve videos. (Martinez, Vargas & Ramirez, 2018, p.107)

> It is reasonable to think that World of Warcraft can be regarded as a stimulant setting in which EFL learners are inspired to engage in a set of multimodal literacy practices. The results of the study showed that their language learning opportunities were characterized by the development of a range of multiliteracies: basic or core literacies (traditional reading & writing), visual literacy, information literacy and computer literacy. (Calderín, p.150)

> Learners' narratives let me conclude regarding advantages, that online platforms

were useful to manage their own learning, to do assignment turned enjoyable, their

interest increased in the learning process and they observed progress in some language

skills. Learners felt they became more responsible and autonomous, and their relation

with teachers and classmates increased. (Munar, p.74)

In regards to linguistic knowledge, students stated that audios, texts, and audio

transcripts, not only improved their listening skills, but also provided them with the

opportunity to learn vocabulary, to correct pronunciation, and to clarify grammar points

when they had to listen to authentic speeches given by native speakers. Most of them

pointed out that they were able to understand authentic language at a normal speed and

affirmed that it was appropriate to their current language level. (Arias, Gómez & Vera,

p.118)

This registry has been established and has been made with documents published since

2010 until early 2021, however, as the years go by there are more documents that support and

validate the aforementioned data.

Other aspects that have been affected by the use of technologies in foreign language

learning are related to the interest, experience and motivation that students obtain when

exploring new tools that allow them to have another type of perspective and become interested in

how to learn. "According to initial research findings on games it was seen that videogames

could be a means to increase motivation and engagement. Student engagement is a very key

aspect in academic performance and specially to reading and literacy" (Calderín, 2015, p.24).

Also expressed by Cabarcas:

We are in a distant area, with fewer possibilities of access to real situations of

communication and contact with the foreign language... It is necessary to promote a

higher level of motivation, and, therefore, make an essential use of the ICT, with tools

such as the internet (2017, p.98)

In addition to the motivation that ICT can generate in students, teachers assure that these

technologies have great potential to learn a foreign language.

The pedagogical potentials of ICTs are diverse and also the factors that influence

its success, on the one hand, the teaching of learning the English language makes many

contributions to both teachers and students in terms of repeated use of materials,

availability of materials everywhere and at all times, without cost of materials, and

effective learning in a short time. (Pinzón, 2018, p.50)

The use of Virtual Reality revealed a significant improvement in the learning

process and the acquisition of knowledge by students. You can see an improvement in

qualifications, the acquisition of knowledge and the improvement in performance that is

both desirable and beneficial. The perception by students and teachers of this technology

is positive and they find it encouraging, motivating and capable of promoting an

improvement in the teaching and learning process (Toledo & Sánchez, 2017, in Reyes &

Nuñez, 2020, p.15)

With the data given by the students (Pre-service teachers) they consider the tools

useful when it comes to learning and teaching the language. They expressed that during

the course they could see the usefulness of Web 2.0 as a pedagogical tool that enhances

motivation and innovation in learning, that allows learning the language and practicing it,

that supports the construction of knowledge and encourages teamwork and that promotes

autonomy. (Arias, 2012, p.67)

However, the effort to involve technologies in different stages of learning and with different population, such as web pages, gamification, podcasts, and resources in their virtual lessons, etc. Emerged some difficulties and some limitations as mentioned in the previous paragraphs These problems include the lack of preparation, "Currently within the institution there are no physical or virtual spaces in addition to conventional classes that allow the development of mathematical skills or competencies or the preparation of students for the saber tests." (Leon, 2020, p.9), lack of resources, technology and infrastructure, "it becomes evident the diverse difficulties that the ICT implementation in the rural sector of Colombia, due to unsustainability financial, lack of infrastructure, lack of energy supply and suitable personnel for the implementation "(Torres & Colorado, 2017, p.14), lack of support by institutions and currently the inconveniences generated after virtualization of classes by the covid -19 "The pandemic has made it clear...it is necessary to strengthen the ICT infrastructure and competences of all educational actors in virtuality.(Rojas, 2020, p.20)

The perception that foreign language teachers and the educational community in general have, is shared and highlighted in all the previously cited documents, with this affirmation it can be concluded that the relationship that exists between technology and the learning of the foreign language, is recurrent and applied in other areas of knowledge. This conclusion leaves an even greater problem related to the Colombian educational system and how the policies created have been compromised.

Another important aspect to name has been the consequences that the changeover from face-to-face classes to virtual classes has left due to the global pandemic. The pandemic has forced the educational system to adapt to new teaching and learning methods, however this change has generated an enormous number of problems, as mentioned in 2019's studies, it

became imperative to involve ICT in the areas of knowledge, in spaces like school but also

spaces like work and commerce. This sudden change gave a glimpse of all the problems that

Colombia has been presenting related to technology. Students without the possibility of

connection or even use of tools, teachers with a lack of preparation and tools for their classes and

families without the possibility of working due to the sudden change from presence to virtuality.

These aforementioned problems are only a small sequel that the pandemic has left us, but also

due to the lack of commitment generated by the government when implementing these plans.

4.1 Pedagogical considerations

In accordance with the abovementioned, this section called *pedagogical considerations*

seeks to give a personal opinion of the results obtained in this study and of some general

suggestions.

First, the results obtained leave a feeling of emptiness in face of the educational process

experienced in Colombia (the process carried out over the last two decades and the

implementation of policies in favor of the incorporation of EFL and technologies), although

these problems are solvable, they require hard work by the institutional entities in charge of the

creation of plans and distribution of resources, although the plans have the desire to make a

change and generate good results, if the needs of the smallest communities are not met, a

significant change will not be generated in the future.

Second, the influence of ICTs in the educational process of the foreign language has

allowed several significant avenues, since it is sought from new perspectives that students feel

interested and acquire new tools for effective learning of it, however as it was previously

mentioned, the participation of the entire community is necessary to attend to the study of the

foreign language, this active participation and use of resources will provide effective results, as

shown in the studies cited in the annexes.

Third, the abrupt change from face-to-face to virtual classes has shown most of the technological problems that Colombia suffers. Although currently virtual classes or distance classes are being used commonly in colleges, institutes and universities, it is most likely that all institutions return to the presence in the coming years, however this new normal, far from leaving the problems related to ICT, must embrace them and learn about the problems that emerged through the Colombia's situation.

Fourth, as a researcher and student-teacher I am sure that technology provides the necessary instruments to learn anything, despite the good use, resources, a general guide, etc. It must be taught to all people of the 21st century. These technologies are open and should be exploited in the best way possible, nevertheless a support for the exploration must be generated from higher entities and educate students, parents and the community in general.

Fifth, for the present investigation there was not enough information about the use technologies in international tests; it is suggested to the educational community an exhaustive investigation, which verifies the improvement of results in international tests from the use of ICT, said investigation could provide relevant information on those technologies that meet international requirements and based on this, create adequate and accurate policies that attend Colombia's reality

Sixthly, it is suggested to the educational community at the moment of talking about EFL in studies, said documents must be written in English, in this way the articles will take on more relevance and may be accessible not only at the national level.

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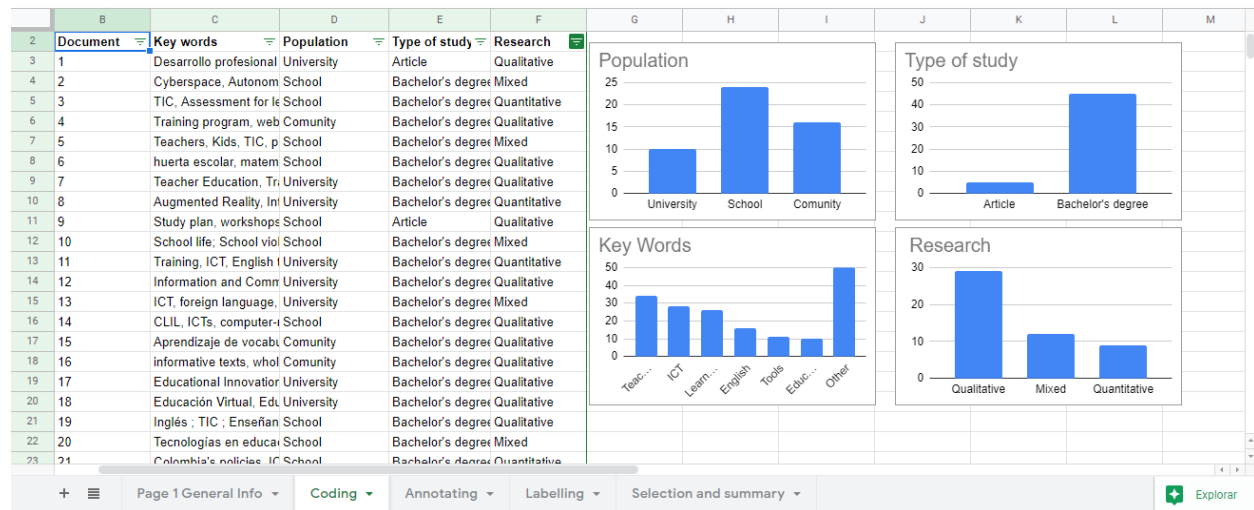
6. Appendix

Appendix AA

Codification of data

In this screenshot, the coding process that was explained in the phases of the study is displayed. It shows keywords, type of information, population and the type of study. Additionally, with the information obtained, a graph was made to synthesize the data obtained.
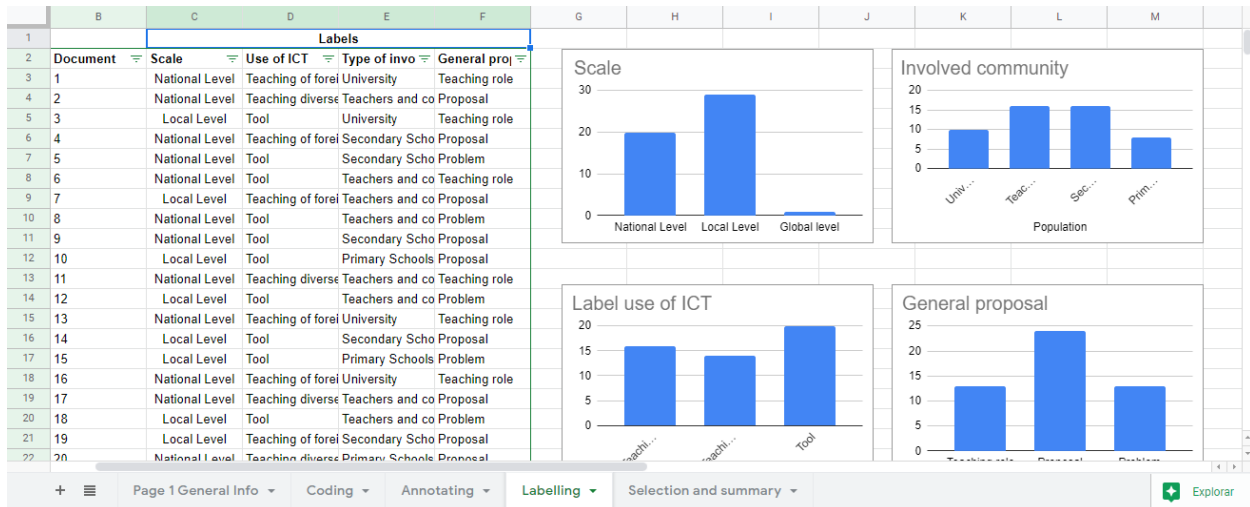

Appendix AB

Annotating data

This screenshot shows some important annotations that the researcher did to each document, also, it has observations of the documents and a numeric value for the present study.
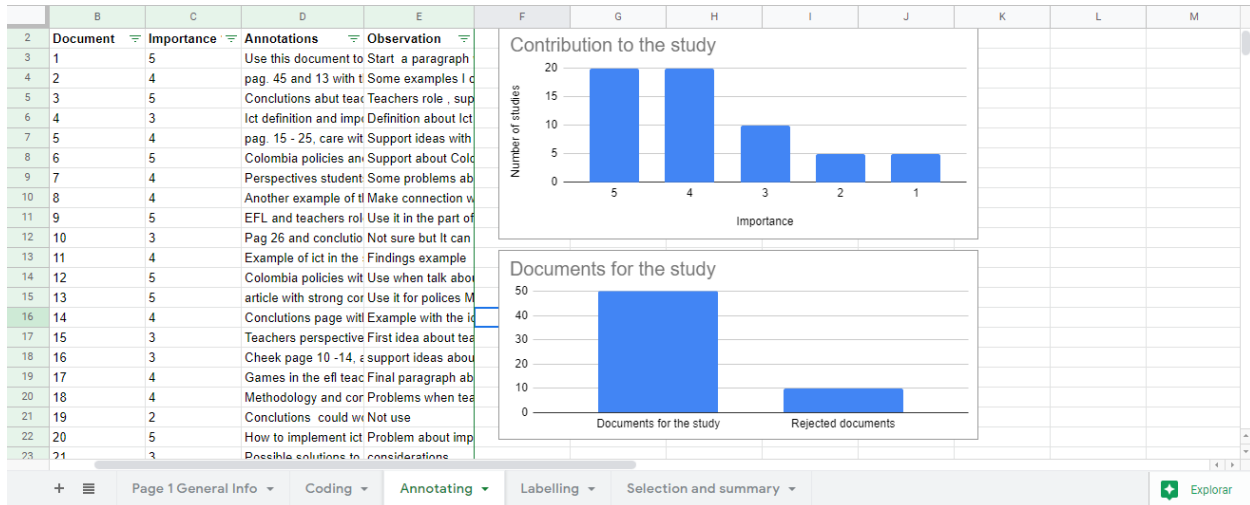
Appendix AC

Annotating data

This screenshot shows some labels attached to each document, used to group information

and create the search criteria.

Appendix AD

Selection and summary

The present image summarizes the two phases of *selection and summary.* In the selection phase, there were chosen the most important documents with the most relevant information and extra information of the documents (year and title).

The information obtained from the previous phases helps to create the summary or the literature review, and the subsequent use.
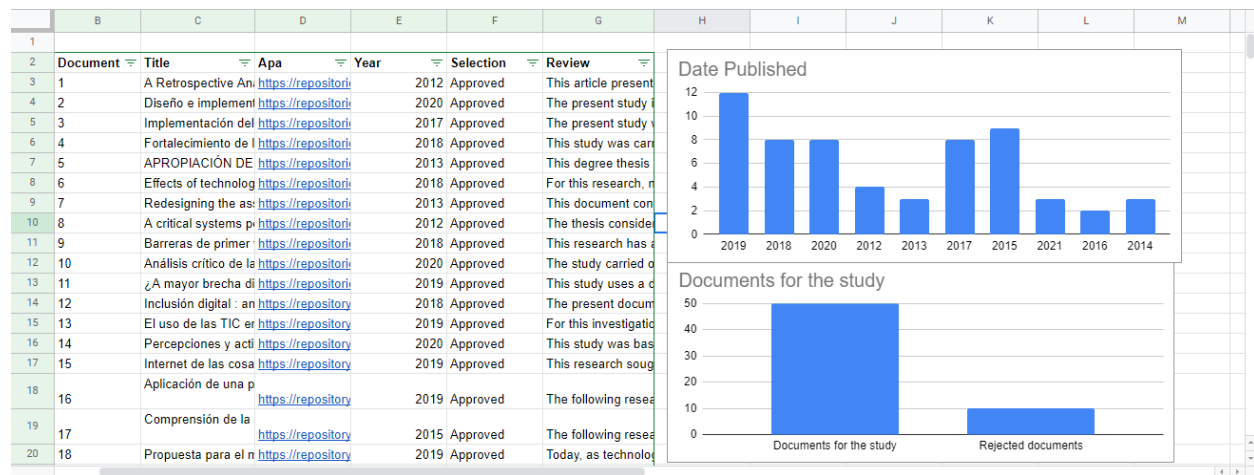
Appendix AE

Literature review

The following appendices show the *literature review* of the documents used for the findings and conclusions of the study, said cited studies are the result of the phases mentioned in the previous appendices.

McDougald. J (2018). Innovating with ICTs in content and language environments.

In this article, the author uses qualitative research with action research. McDougald in this article has defined ICT as a technological means that has allowed teachers and new generations to improve and integrate tools to any area of knowledge, in this case the author talks about the implementation and improvement of the language, also using the CLIL approach.

Based on these two concepts, he mentions that technologies have strengthened and supported

teachers in schools, facilitating and providing more opportunities and resources for the teaching

of the foreign language and the CLIL approach, Also, allows students to get involved and master

those skills that young people of the 21st century require. For this work, the researcher has used

a research design, explaining the use of ICT and their potential in the education sector, then he

mentions how ICT supported with an approach can benefit teachers and teachers in multiple

ways. Currently these two concepts are useful for the present study, it supports and involves the

use of ICT and the skills that it can strengthen in teachers and students, additionally the

researched mention how the use of ICT is required for virtual learning and how a good support

and teaching on them can help both sides, supporting those ideas in the interaction that teachers

and the educational system should have now at days.

Appendix AF

Cristancho, Y. (2016) Fostering vocabulary learning through a cultural context and ICTS

resources in an EFL classroom.

The main objective of this work is to present and elaborate a work for the teaching of the

foreign language or EFL. The improvement of the vocabulary of the foreign language is

important in this study, the researcher used ICT during this process every time, elaborating all

material, videos, podcast, websites and creating virtual spaces with ICT help. The participants of

this study are 32 third grade students of a public school and the proposal was implemented

through a Topic-Based Approach and the methodology that was used for the research was Action

research. An action plan was designed, having as a principle the students' perspectives and

students' reality and finish with the application of this strategy, all those characteristics based on

ICT. This article is important since it deals with two main concepts in the research, on the one

hand the teaching of the foreign language and second the integration of technological tools that bring the student closer to being interested and learning more. Additionally, this proposal has the perspectives of students and teachers regarding the use of technologies in the educational field.

Appendix AG

Moreno, D. (2020). Informative texts with cultural content: a tool for situated vocabulary learning.

In this research paper Moreno uses a qualitative action research to carry out the study, which aims to relate the female high school students with the understanding of texts in English; for this the researcher uses some technological resources, with the proposed that students can understand and analyze the texts, thus attending the school curriculum. Additionally, demonstrated that reading informative texts with cultural content had a sensitization role that approached students to their own and to others' emotions through the exploration of other cultures developing an intercultural competence at the same time Informative texts with cultural content. During her research carried out with 5th grade students from a private school, Researcher mentions the experience of the students with the foreign language and the use that they gave to ICT to solve the challenges proposed by the readings or the school within the EFL. This article acquires additional importance because it uses the resource of ICT to improve reading within an English teaching program, mentioning not only the use of those tools, but also the significant use and the relationship with the realities of the students. The use of surveys, evaluations and works were included, which show the perspectives given by the students about the learning of the foreign language.

Appendix AH

Arias, L., Gómez, L. & Vera, E. (2015) Fostering Listening Skills and Initial Intercultural

Communicative Competence in EFL Pre-Service Teachers Through the Use of ICT.

This qualitative case study encompasses a wide range of strategic learning stances in the EFL classroom. For this work, the investigators took as a principle the teaching of a foreign language in a group of students from the Pedagogical University between 2004 and 2013, in these studies carried out sought to improve the results of foreign language students, based on the problems collected in previous studies, some problems are the lack of interest of the students, problems in understanding written texts and listening documents and the acquisition of cultural components. For this, the researchers used a strategy called A Journey Through the Us Culture, focused on solving these problems. Data collection was fundamental, since it evidenced the objectives of the study, firstly the perspective of the students compared to the model used by the researchers, second if those objectives of the improvement of the skills worked or not and third if the use of technological tools helps to improve and understand issues. This book contains valuable information from a well-documented case study, process, teacher and student perspectives, while providing pedagogical aids to other teachers to implement EFL classrooms.

Appendix AI

Cabarcas, R. (2019) Uso de las Tic para fomentar el aprendizaje significativo del Inglés a través de canciones.

This thesis is named the *Uso de las Tic para fomentar el aprendizaje significativo del Inglés a través de canciones*. It is an action research with two principal questions that were conducted to determine how the implementation of technology can be used to learn and share the experiences throughout the foreign language starting from the classroom. Likewise, this study searches how to improve linguistic skills through a pedagogical tool based on songs, to motivate and strengthen learning, reducing the tension generated when learning a foreign language. The

study was carried out in a public school institution in San José del Guaviare-Guaviare, with students of eighth grade. In the study carried out by Cabarcas was possible to identify that the use of specific songs helps students to develop their listening and pronunciation skills; they can also be useful for teaching vocabulary and sentence structures. In addition, having used ICT in the process, helped to create real virtual experiences, which multiplied the learning and increased the sensitivity for the language. The ICT opened a door to individual and personal learning, thanks to the fact that students continue using them outside the educational context, which becomes self-learning. In this research, some functions provided by virtual tools are implemented for the meaningful learning of students, also in favor of the teaching of a foreign language.

Appendix AJ

Chacon, G., Yañez, J. & Fernandez, J (2014) Factores que impiden la aplicación de las tecnologías en el aula.

The study done by Chacon and Fernandez had the purpose of identifying the factors that prevent teachers from applying technological resources in the classroom, in the process, the mixed-type research was used, in a qualitative and quantitative method that allowed the data's collection and analysis from different perspectives. With the implementation of the qualitative method, a detailed description and knowledge of the social context in which the research was developed facilitated the description of the context and the study; the use of the quantitative approach allowed the analysis of the data from different tools such as statistics, to know the variables that intervene in the solution to difficulties encountered. The research was carried out on teachers, parents, and students of the Alto Quebradón Educational Center of the municipality of San Vicente del Caguán Caquetá. The conclusion that the researchers found with this study in

relation with the applications of ICT in the classrooms was that it did not allow the teacher to have enough time to search, prepare or create material, using technological tools, in the community training processes. Also it mentions the interest for the majority of parents to see the position that could acquire the technologies and how they could educate their sons through the use of them. This research process was of great importance for the teaching work since it allowed us to know some administrative and functional shortcomings, which make it difficult in rural areas to apply training elements that facilitate the processes of socialization and communication of information. This research carried out by the teacher Chacon, allowed to reflect difficulties that teachers will face at the time of proposing a study plan where ICT is involved; many times, the teachers do not have the help or time enough for those resources or tools.

Appendix AK

Martinez, M., Vargas, J. & Ramirez, A. (2018) TED Talks as an ICT Tool to Promote Communicative Skills in EFL Students.

In this study carried out by Martinez, Vargas and Ramirez, the main objective is to see the impact of the inclusion of TED videos in students starting with the proposal generated by the Colombian government. This study is based on qualitative action research which is a methodology that includes action and research. A study in which the search for files related to the inclusion of TED videos for foreign language learning and content becomes very important. Although this study did not use participants, the systematic review of files and records at an international level, allowed them to generate proposals, questionnaires, teacher journalist, set of activities, and conclusions about the inclusion of videos and media "We selected a TED talk according to the information collected through the questionnaire about students' preferences; in

addition, the videos were selected considering the speaker's accent, the pace of speech and, video duration (no more than 8 minutes)". The data obtained were therefore analyzed from studies in the United States, Canada. , and Mexico. As a result, it could be observed that the use of different web platforms in which videos are used can generate several changes in the students, among the most important and mentioned by the authors is the change of critical thinking, content analysis and basic learning of the foreign language, semantic and syntactic analysis of the contents. In this study, a review was made of some studies where videos are involved in learning content and the foreign language, it is important since it mentions the aspect of ICT for learning and content.

Appendix AL

Parra, L. & Riaño, M. (2015) ¿Qué elementos se deben tener en cuenta para desarrollar material didáctico que permita la enseñanza de algunas técnicas de muestreo a partir de las TIC?

The purpose of this study is to design and evaluate a didactic material that allows the learning of sampling techniques, using the ICT as a methodology. The authors used a mixed research approach, on the one hand, the data collection was done by questions and a population was taken to the data computation. With survey-type questions the authors collect the information. The study was made over a population of 20 students of the Francisco José de Caldas District University, belonging to the curricular project bachelor's degree in basic education with an emphasis on social studies and a bachelor's degree in basic education with an emphasis on third-semester mathematics. The authors found that the use of ICT in the creation of gender teaching material in the students increased the motivation, the curiosity and facilitated the learning of sampling, additionally, sampling in a different way, generated in the classroom a new

method for them to learn and the time spend also decreased considerably when the students used

the ICT. Finally, they mention that the use of ICT in the classroom is a good tool to include in

the university curriculum and especially in that area. For the present research, it provides

information on the use of ICT in various areas of knowledge, additionally it reaffirms several

opinions on the use of ICT in education and some facilities in education.

Appendix AM

Sanchez, H. & Castro, A. (2019) The role of ICTs in the initial education of foreign

language teachers.

In this study, the proposal is to obtain the value that students give to a technological tool

available at the university a course by Pearson English Interactive from (My English Lab

platform) for learning English and promoting the development of autonomy, self-managed

learning and the use of ICT. To arrive at this proposal, they developed a descriptive study with a

qualitative approach. This study additionally maintains two strategies to reach the proposal, one

is the literature review that included the main constructs of Blended Learning, SAMR and

TPACK and the second survey the analysis to look for the effectiveness of PEI course. The study

was carried out on students from the Universidad de la Salle, Chapinero campus, with a total of

82 students bachelor's degree in Spanish and foreign languages. As conclusions of the elaborated

study, it was found that ICT has been a good tool for students, it has allowed the development of

some skills and individual work, the authors also mention according to the analyzed data, that

students see technological tools to promote learning and as a good tool to start learning a foreign

language. However, they also mentioned that the tool used is not adequate to students' reality, in

addition the lack of support and methodology is presented in the program. It is necessary to

integrate for future teachers. In this work it is observed how the use of ICT can affect the

students of a program for learning a foreign language, in this document there are additionally

several perspectives of the good and bad aspects of the tools and opinions of the inclusion of the

ICT in education.

Appendix AN

Leon, E. (2020). Diseño e implementación de un ambiente de aprendizaje apoyado con TIC

para desarrollar el pensamiento espacial en el Colegio Entre Nubes Sur Oriental Distrital

de Bogotá en el grado 5.

The present study is a descriptive research with an action research approach, in which the

authors want to improve the results of areas such as mathematics and language from the use of

ICT, this research mentioned the pros and cons of a system where ICTs are implemented,

highlighting aspects such as the inclusion of systems and software, the use of extra time to learn

to operate a software and positive aspects such as the improvement of individual and group

results compared to the tests presented (diagnosis and final tests). In conclusion, the author was

able to find that although technologies bring tools for the improvement of academic aspects, they

can also bring great challenges to both teachers and students, until they almost dominate them,

for this reason it can fail in schools or institutions where it is not dedicated enough time to

implement these technologies. Some of the limiters of the experience that students had were

time, the reason is that public schools have limited hours. For this reason, some of the projects

must be extracurricular. Additionally, not all educational institutions have the space or resources

to carry out the project, affirm the author. In this case, the researcher comments, the planned

project could be carried out with some difficulties like the interruption of some sessions because

some students had difficulties with the tools provided. Thanks to this inconvenience, Author

argues that not all young students have facilities with technology and we as teachers should be

careful with those aspects. This study is important because it highlights the implementation of technological tools for the improvement of academic aspects and it mentions the shortcomings of the educational system in terms of the implementation of technologies, since many teachers and students do not have the necessary preparation before facing said softwares. However, not only students and teachers should be involved, the entire academic community is also necessary, including the spaces where classes are held, their environment in and out of school and their space with the family; Obviously, this idea must be accompanied by the correct policies and properly executed.

Appendix AO

Gutiérrez, C. & Muñoz, J. (2017) Implementación del modelo interactivo de Solé para fortalecer los procesos de comprensión lectora con el apoyo de las TIC.

The present study was accomplished from a qualitative approach of an action research and was developed to improve pedagogical practices with the support of ICT and to strengthen the processes of reading comprehension in ninth grade students of the IEM Valsalice in the area of Spanish and the IEM Guavio under in the area of physical education. For this, a pedagogical strategy based on the Isabel Solé's theory was implemented, where the different levels of reading comprehension were linked. Consequently, the results obtained in the intervention showed improvement in pedagogical practices, which strengthened the students' reading comprehension processes at the literal and inferential levels. From the intervention carried out, it can be concluded that ICT provide tools for student understanding, and with it new reading skills, however, setbacks were also encountered with the intervention of technologies.On the one hand, there was no necessary amount of technological objects with which will work and second the necessary implementation of technologies in academic spaces, since they showed to improve

aspects of this research (reading), however, inclusion in various spaces is suggested and the continuous work with technological tools already described.

Appendix AP

Buendía, F. (2018) Barreras de primer y segundo orden en la innovación con TIC en la práctica docente de una institución educativa distrital.

This research has a methodological design that was based on the hermeneutical paradigm; with a qualitative approach that allows to approach the phenomenon and interpret it. The methodology used was the case study. Additionally, several instruments were used for data collection, among the most important is the survey, the interview, two focus groups and direct class observations the research was developed in a public educational institution, with a group of teachers that have different age, students' groups and different areas. The objective of the project was to identify the first and second order barriers that do not allow teachers to integrate and innovate with Information and Communication Technologies (ICT) in their pedagogical practices. The researcher found that in the institution there are two types of "barriers" that limit teaching work in relation to technologies, first order in relation to technologies in the institution and second order that would be the teacher in relation to technologies. Although the institution has technological resources they do not attend to the realities of the institution, likewise some innovative software for some areas cannot be acquired, also showing an abandonment of the administration in front of the technological issue, paradoxically this first barrier makes teachers don't want to incorporate these technologies as they feel little support and instruction from the institution and the government.

Appendix AQ

Rojas,L. (2020) Análisis crítico de la política educativa TICc contemporánea : formación

docente y virtualización de programas en Colombia

The study carried out for this research was developed under the critical-hermeneutical

paradigm. The research is framed under a qualitative approach and uses the research method of

critical discourse analysis from the components of intertextuality and the premises of practical

reasoning. As instruments analysis, the document work based on a analysis documentary and

documentary analytical files. The data collection was from the government plans proposed for

Colombia from 2007 to the most recent years, as well as all the information published in relation

to information and communication technologies in the face of education. As results of the

analysis it is found that the use of ICT in education has generated discursive changes in the face

of the legitimacy of the educational actors in their contexts. It is concluded that the appropriation

of these tools has positioned at the same time as an instrument of inclusion and exclusion of the

actors institutions and teachers, which constitutes the critical task of thinking about new

educational challenges in the post-covid era 19. Aspects such as the new teaching, new

methodological instruments, new practices, as well as a critique of the new era of virtualization

of spaces, proposing a new teaching challenge and new student paradigms.

Appendix AR

Serrano,N. (2019) ¿A mayor brecha digital mayores brechas socioeconómicas? : impacto de

acceder a internet de alta velocidad sobre el ingreso de los hogares en Colombia

This study uses a data pool with information between 2012 and 2016 to calculate the

impact of high-speed Internet access on household income in Colombia. An instrumental

variables approach is used checking the probability of accessing to high-speed Internet, in

addition to other factors such as the introduction of technologies and the use of them by people. All the data collected will be taken into account for the analysis and conclusions. It was found that a household that accesses high-speed Internet increases the probability have income between $ 515 and $ 991 higher. This result is comparable with other recent studies on the matter (Rohman & Bohlin, 2013). However, the inclusion of the internet does not guarantee access to other contemporary technologies, such as mobile telephony and the computer. Taking into account the before mentioned, this study shows a positive impact of having better connectivity on income; it will be necessary to start exploring how to improve the access and quality of Internet service in the country. Also, it has been found that to achieve this objectives, it requires developing a set of strategies that facilitate the massification of the Internet of quality from both supply and demand.

Appendix AS

Duque, D. (2017) Inclusión digital : análisis de las TIC en Colombia, ¿Cerrando brechas regionales? Plan Vive Digital (I) 2010-2014.

The present document, carries out an exploratory investigation, the data collection is developed by second hand resources from the national Government of Colombia. For this, socioeconomic status, education, geography, age and skills development concept of Digital Inclusion were taken in to account, which proposes some tools to reduce the digital gaps (to navigate the internet, language, etc.) and increase digital literacy with a socio-political approach. The population is not generalized, however, it works with some groups (families, projects and plans) in order to obtain various data related to the Colombian government plan of 2010-2014.

This study aims to answer whether the digital divide in Colombia was closed thanks to the development plan (Plan Vive Digital (I)) and although the authors affirm that in a limited

way, this first component was developed, (infrastructure and provision of ICT technologies)

Only those areas near cities or large cities were benefited, however remote and vulnerable

populations did not receive this support, increasing the recorded historical gap. Indicators such as

3,4,5 and 6 show the lack of connections, internet's speed, penetration of new technologies in

families and in society. This thesis mentions several important aspects for future plans in

Colombia, the perception of technologies from an objective point of view and some positive but

insufficient aspects in the digital plans that Colombia has.

Appendix AT

Salamanca, N.(2019) Aplicación de una propuesta de capacitación en las tic a los tutores

virtuales de inglés en el instituto "Whatelse?"

The following research is a descriptive design with an action research. The participants

for this research varied, there are at least 9 tutors and several students who participated in

different ways, however the same number of student participants was not kept it for data

collection. For the analysis and collection, interviews were carried out with the coordination of

online tutoring and the analysis of the data of the planning of the tutors' classes with which a web

page was created with electronic resources as base material to develop the training. The general

objective is to propose, apply and evaluate a training for virtual English tutors with a focus on

ICT to improve the users' experience when learning the language. The results obtained by the

researcher were insufficient, on the one hand author mentions that the spaces created for the

tutors and the technological tools help to speak and find possible solutions to different

technological problems that were suffered in front of the class or class topics, However, some

secondary objectives such as the students' persecution in front of the technologies and the

complete training of the teachers was interrupted by the lack of time and by different factors unrelated to the researcher.

Appendix AU

Díaz, M. (2015) Comprensión de la innovación social en procesos de apropiación de las TIC a partir de los conocimientos de diferentes actores sociales: aportes desde la comunicación para el desarrollo.

The following research develops a qualitative research methodology. Through this method, it is possible to analyze current issues that reflect problems of different social phenomena, which allowed the structuring of interviews semi-structured. The data collection technique comprises the encounter between the researcher and those who provide the information being investigated. The different participants for the investigation were agents related to the creation of governmental policies, selected through of a non-probabilistic, intentional or convenience sampling. As a conclusion of the study, the author mentions that the importance of Social Innovation in processes of appropriation of ICT in the first measure can be evidenced in the consideration of ICT as a social innovation. There are initiatives that are innovative through the use of ICT. However, the dual relationship that must exist between technologies and social innovation must attend to the realities of the subjects and also provide a close benefit. For the correct appropriation of the technologies, then, it is considered to generate a short-term work plan where the demand and supply in relation to ICTs support not only large cities but also those remote and vulnerable populations.

Appendix AV

Jáuregui, C. Chavez, W. Roselis, R. & Fuentes, M. (2019) Propuesta para el mejoramiento de la convivencia escolar mediante un canal de YouTube que fomenta la educación para la paz.

Today, as technology gains importance, there are many tools that can be used to strengthen education focused on peace, harmony and coexistence. This work intends to explore how to use a technological tool through a YouTube channel to contribute to peace awareness, focused on interaction aids. Through the channel " PazTube " A number of ten young people between the ages of 15 and 19 from different institutions in Bogotá and Santander participated in surveys that helped to conclude that peaceful environments derive from communicative environments in which the family plays. an important role in peace-oriented education, as well as the role played by educational institutions. This research used an ethnographic method, which aims to cover aspects that are usually left out in other types of methods, it is framed under the qualitative approach, which seeks to understand the phenomena, exploring them from the perspective of the participants in a natural environment and in relation to their context. As a conclusion, it is found that the use of technology can contribute significantly to achieving peace, since the different technological tools used connect ideas, knowledge and experiences, which in the end show a bit the possibilities that these tools have in achieving common goals.

Appendix AW

Gutierrez, M. (2019) El uso de las TICs por parte de la primera infancia en el entorno familiar

For this research a mixed methodology is used between quantitative, to analyze objective reality, and qualitative, to analyze subjective reality. Initially, in phase one, an information

gathering process is carried out theoretical. From there, in phase two, the quantitative method is implemented through the survey tool. Following this, the methodology qualitative, using the interview tool and finally, the analysis of previously collected data. For this research, the help of families with children in the home was requested. Around 121 people responded to the survey, which are in an age range between 18 and 52 years. 76 of them are women and 45 men. According to what was collected in the research, it is concluded that today there is a trend that children in early childhood are growing up hand in hand with ICTs. There is no doubt that this generational change has modified the way in which society lives, communicates and interacts. Therefore, Children are being born in a digital age, this does not mean that they are digital. They are born with the ease of making use of these technologies. Additionally, the author suggests that the first instance in charge of the proper use of technologies is the family. Likewise, of prioritizing time and activities. However, the author calls for the participation of government actors to train parents on the responsible use of technologies.

Appendix AX

Gómez, V. (2020) Estado actual de las tecnologías de la información y la comunicación (TICs) como estrategia metodológica de enseñanza y aprendizaje en el nivel de educación básica secundaria, área de ciencias naturales, Colombia.

The present investigation develops a documentary investigation under a mixed approach, collecting different information and analyzing it in parallel. The main objective of this study is to collect all the information related to the use of ICT in programs for the teaching and learning of the natural sciences, to mention the positive and negative aspects, projects and opinions of the different related entities. The author found that only a small number of students have had a positive contact and directed towards technologies, the advantages are slightly higher than the

disadvantages in terms of the use of tools, however these are in parallel a consequence of a good education, excellence the teacher's methodology plays 50% in effective learning for students, for which teachers must be better prepared, the student must also generate a leading role in the effective education of technologies, in government studies the conditions are not taken into account social, economic, cultural and health of many students and teachers and finally for the learning of natural sciences with technological help to be effective, the appropriate technological tools must be taken into account based on the needs of the institution and students. This research summarizes a great aspect of the use of technologies in Colombia, in this case focused on the natural sciences, although most of the characteristics mentioned here can be applied to any other area.

Appendix AY

Reyes, M. & Núñez, Z.(2020) La realidad aumentada como herramienta para potenciar el interés, la adaptabilidad, la reflexión y la semántica en clases de lengua inglesa

The research carried out is of a descriptive exploratory type, which investigates the impact of augmented reality on foreign language learning, relying on currently existing resources in the field of technology and innovation in the country. The investigation researches, collects and reorganizes data on events and pedagogical works that use augmented reality in teaching, as well as the influence of ICT in modifying the relationships between students and teachers. This research included the participation of 19 students from the last semester of the Bachelor of Modern Languages at the Pontificia Universidad Javeriana between the ages of 10 and 26. In the research it was evidenced that all the participants of the observed group positively valued the development of the experience they had with augmented reality. There were no students who felt that augmented reality was not a good educational resource. The participants were interested and

discovered new ways to continue learning and to deepen their knowledge thanks to the advantages offered by this type of technology. This research provides perspectives of students with OVA and how to improve both their teaching work and the material available to learn and teach.

Appendix AZ

Torres, S. & Colorado, Y. (2017) Computadores para educar, TIC y educación rural: El estudio de una experiencia.

The following work analyzes the teacher training strategy of "Computadores para Educar" program, and the impact on the educational practices of elementary school teachers in the context of Rural Education based on the experience of rural I.E.D Cartagena. The research is developed under a structure with a qualitative approach, from which It is intended to analyze the teacher training strategies additionally this proposal is based on a type of action research. The selection of the study group for this project was made up of 10 teachers belonging to I.E.D Cartagena who work as classroom teachers of Basic Primary. The authors mention that although a training and infrastructure plan is being implemented, the two means are not always available. The teacher training, for example, had to be developed in such a way that the supply of computer equipment, connectivity strategies were ready before the teacher training. This research mentions a very important aspects regarding the "Computadores para educar" plan, mentioning aspects such as the execution, the benefited parts, the little work in the preparation of the teacher, the lack of resources, the multiple problems, the lack of commitment and the little relationship between the educational context of the area and the plan. This study is a clear example of how public resources end up wasted on programs and tools that do not help the population.

Appendix BA

Duran, M. (2021) ¿Cómo definir la experiencia de aula que han tenido docentes y niños con ayuda de la TIC durante los últimos 10 años?

This research was a "State of the Art" in which four categories of analysis were considered: 1. Level of training and perception of the teacher. 2. Acquisition of skills in children. 3. Classroom experience and pedagogical practice. 4. ICT in languages or specific learning. The objective of this research was to investigate the teaching-learning experience that teachers and children under 9 years of age have had with the help of information and communication technologies (ICT) in the classroom during the last 10 years. The researchers found that despite advances in science and technology, many of the pedagogical tools they offer are still not available to all teachers and therefore not to all children, due in large part to monetary limitations, low budget in schools, lack of interest, training in teachers, prejudices and doubts about the effectiveness of the use of these resources in teaching. However, the usefulness of these programs encourages and motivate learning in children and also facilitate the work of teachers. This research shows the limitations, perceptions and concerns of teachers regarding the use of new technologies, it is a good input for the elaboration of the findings and shows some limitations that teachers find in schools.

Appendix BB

Colorado, A. & Garavito, J. (2021) Las tic, recurso pedagógico docente en el diseño de evaluaciones para el aprendizaje, en el fomento de la comprensión lectora en estudiantes de grado 10° de la institución Liceo Santa Bárbara.

The purpose of this research is to determine the correlation relation between the pedagogical use of ICT in the development of evaluations for learning and the promotion of reading comprehension skills in students of 10 Grade of the Liceo Santa Bárbara Educational Institution. For this research a mixed approach was developed, which is framed in the socio-critical paradigm due to its emancipatory and reflective nature, as mentioned by the authors. For this purpose, an orientation guide was developed as a proposal that will allow teachers of the Spanish language area of the Liceo Santa Bárbara , apply and design evaluations for learning measured by ICT. From the data collection it was possible to generate an evaluation system which answered the general objective of this study. The results obtained gives a positive relationship between the design of evaluations for learning mediated by ICT with the development and strengthening of reading comprehension levels, tending to increase in the coming years, however the authors assure that the way of teaching, evaluating and reading must change in virtuality, it was found that students obtain different results depending on the medium. This research provides an interesting concept of the evaluation and development of reading in students, showing not only new means to evaluate through virtuality, but also a new means to teach to our students.

Appendix BC

Forero, J. (2017) Aplicación de herramientas virtuales el uso de Economic CPSC (Blog) para la enseñanza de las ciencias sociales. Estudio de caso grado 11 colegio Parroquial San Carlos.

The methodological approach that was used for this project is a qualitative approach, it searches to evaluate from a socio-critical model, how the use of ICTs, additionally contains an ethno-methodological approach, to meet and develop with its own characteristics that allow the

identification not only of the tool that is developed but also the characteristics of the population. In this process the author worked with 40 students from the 11th grade of the Colegio Parroquial San Carlos. The objective of this research is to evaluate the use of the CPSC Economic Blog as a tool for improving students' autonomous and collaborative learning. The author relates that he had many problems in the elaboration of the blog, therefore he considers that the general objective was not met. It is mentioned that the Blog requires a constant process, a lot of material had to be uploaded only by one person and this obstructed the objective to strengthen autonomous learning processes, due to not being able to share all the information in a timely manner and due to the lack of commitment of the students for its development. This research provides a negative point of view regarding the implementation of ICT in an educational space, it can be summarized in the way in which current education is encouraging the student, only motivating him to perform (tasks) for a grade.

Appendix BD

Arias, L. (2012) Impact of a Web 2.0 Mediated Course in the Professional Development of a Group of Future English Teachers

This article presents the results of a research study developed with 18 students between the ages of 18 and 25, coursing the sixth semester of Licenciatura en Educación Básica con énfasis en Humanidades: Español e inglés of Universidad Pedagógica Nacional. The objective of this article is to show the effectiveness of tools such as podcasts, blogs, microblogs, and wikis in the professional development of a group of future English teachers in three main aspects: Technological, pedagogical, and linguistic. Through the collection instruments, the researcher was able to find several important aspects related to technological education with the learning and teaching of English in students and future teachers. From the research it was possible to

conclude that English course complemented by Web 2.0 tools helped participants to improve their knowledge of these tools, helped students to learn the foreign language, enhancing motivation, allowing innovation in learning. Also, it allows building meaningful knowledge and, also, they learned to use some tools, such as microblogs, podcasts, blogs, and wikis, for pedagogical purposes. However, there were small difficulties such as the appropriation of some technological tools or access to technological devices. For some students, learning to handle the diverse tools took long enough because they didn't have any knowledge about it. Therefore, they suggest give much more information and more practice with each one of the tools before fully utilizing them, and working only one tool per course and not several.

This research developed at the university opens the panorama of the use of ICTs in foreign language learning in students and future teachers, showing not only an example of the use of technologies, but also the perception generated by them and the pedagogical implementation that they can generate.