Use of Information and Communication Technologies (ICT) in the teaching-learning of English, a literature review

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— Abstract—

This article aimed to analyze the results of various research studies regarding the use of ICT in English teaching and learning in formal educational contexts to contribute to the state-of-the-art. The studies reviewed showed recent progress in the teaching of English mediated by technology and they offered a new perspective for those teachers willing to incorporate those strategies. It was a systematic qualitative assessment of thirty published research between 2017-2022, both in English and Spanish, gathered from various databases containing the categories: *use of ICT*, and *teaching-learning languages*. The selected studies were categorized as follows: country, ICT implemented, results, findings, and recommendations. Results highlighted positive reports about the implementation of ICT in the language classroom; as well as the impact these tools have on motivation, oral and written linguistic skills, and students' autonomy. Countries with the highest production on the topic were Colombia and Indonesia, followed by various developing countries. The most mentioned tools were Kahoot! and Duolingo, which not only have gamification features that encourage necessary abilities for the XXI-century society, but also foster collaboration, and friendly competition and increase motivation through ludic activities. Findings emphasized the benefits of implementing technology in the language classroom; however, they also showed some restraints institutions still suffer in developing countries.

Keywords:

Technology-assisted English learning, ICT, teaching-learning process.

The goal of incorporating technology into English courses is to improve and optimize the learning process. In addition, including educational technology in English classes creates a much more diverse and interesting environment. Technology opened up a whole new world of possibilities when it came to studying a language. Combining technology with English classes not only helps students improve their skills with these tools but also allows them to incorporate English more effectively; thanks to this, students can establish their own pace of learning and have a more meaningful and personalized experience. On the other hand, when teachers incorporate technology into the English teaching routine, they transfer the power and willingness to learn into the hands of the student. This not only improves engagement but also boosts motivation.

Learning a foreign language involves multiple factors that converge and interrelate in such a way that the student can achieve mastery of a language and, with it, signify a reality and give value to the elements that make up the social and cultural aspects of it. Technology has made it possible, even at a distance, to achieve immersion in all aspects of the language as never before, facilitating the acquisition of language more integrally and naturally. The process of learning English is updated, today, through the use of ICT in the classroom. This allows to change the look of the old guided learning scheme for the student and teacher's active participation.

Learning a language with the help of technology has attracted and fascinated language professionals, engineers, and teachers for decades who have resorted to the development, adaptation, and implementation of ICT to facilitate the teaching-learning process of foreign languages, such as English. The possibility of interacting with a machine and learning aspects of language that years ago were only possible through direct experiences with culture and language has now become the greatest challenge for teachers and researchers alike.

New technologies not only constitute a set of tools at the service of teaching and learning activities but also form an environment, a space, cyberspace, in which human interactions occur (Callister & Burbules, 2006). This is how the process of teaching and learning a foreign language has undergone extraordinary development in recent times, especially due to the great advantage of interactivity offered by technological means.

ICTs allow language teaching and learning to have access to: 1) a variety of informational and instructional media: written, illustrated, oral, design, animation; 2) ease of access for consultation through interactive media or communication contexts; 3) a variety of techniques and methods; 4) accompaniment to conventional teaching in class; 5) flexibility of schedule; 6) own choice of type of information, means of interacting, language level, etc. 7) opportunity to address diversity within the classroom.

ICT

The acronym ICT stands for Information and Communication Technologies. Alkamel and Chouthaiwale (2018) define the term as those technologies used to transmit, process, store, create, expose, share, or exchange information through electronic means. This definition includes tools such as radio, television, video, telephone, satellite systems, computer, hardware, software, and all the services associated with these tools, such as videoconferencing, email, and blogs, among others.

Rodriguez *et al*. (2017) define ICT as tools that allow the creation of new ways of communicating, through microelectronics, computing, and telecommunication through technological and communication tools to grant access, issue, and process information. In the age of information and knowledge, the world has seen the need to incorporate them even in the educational area to respond to the needs of today's society.

The use of information and communication tools in language teaching and learning

ICTs are tools to facilitate many processes in our lives. Their use has increased exponentially in recent decades at the same rate as the development of technology and many institutions have recognized the importance of implementing these tools in the teaching-learning process. Although ICTs are instruments created to communicate, establish and manipulate information, they have been extremely effective in facilitating the teaching-learning process; mainly for those people who find it difficult to mobilize.

In classrooms, ICTs acquire a very important role as support tools in didactic activities that include visual, auditory, and interactive elements, they promote the use of apps, platforms, and social networks; it facilitates the search and location of information quickly; it promotes a variety of ways of teaching; it allows to boost teaching practice in the classroom; among other benefits. They have also made it possible to know and learn any subject easily, and languages are no exception. Its use is inevitable in the daily work of teachers and students and contributes to increasing the quality of education, as well as responding to the needs of 21st-century society. Unlike in the past when it was necessary to have an immersion experience in the target culture to learn about a language, the Internet and technology have revolutionized this need, allowing us to respond to different ways of learning, saving us time and energy, and allowing us to establish contact with millions of people without the need to physically mobilize. With the Internet and ICT, teachers and students can teach and learn anywhere, at any time, and in many ways improving the learning experience. Various studies and reports (da Cunha, 2020; Artunduaga & Torres, 2021; Bedoya

et al. 2018; Lizasoain *et al*, 2018) ensure that the implementation of ICT in language teaching has produced positive results in various aspects, such as:

Motivation: ICT has been shown to increase student motivation in language learning, especially among young people. Using online games and interactive activities can be very appealing to them.

Language Skills: The implementation of ICT has also improved students' language skills, both oral and written. The possibility of practicing with other native speakers through online platforms or mobile applications has proven to be very effective in this regard.

Autonomy: ICT has also allowed students to have a greater degree of autonomy in their language learning. With access to a wide variety of online resources and the ability to work at their own pace, students can take control of their learning process.

Access to Online Resources: Technology allows students to access a wide variety of online resources, such as educational videos, tutorials, interactive games, and reading materials, which can enrich their learning experience and help them better understand concepts.

Online Collaboration: Technology also allows students to collaborate and work together on online projects, which can encourage teamwork and social learning.

Learning Personalization: Technology tools, such as online learning systems, can personalize the learning experience for each student by providing adaptive materials and performance-based assessments.

Improving information Retention: Technology can also help improve information retention by utilizing multimedia learning strategies, such as videos, images, and audio, that can supplement verbally presented information.

Assessments and Feedback: Technology tools can also provide students with automated assessments and real-time feedback on their progress, allowing them to identify their strengths and weaknesses and focus on areas that require more practice.

Online learning: There are many online resources, such as language teaching platforms, educational videos, and mobile apps, that can help students learn a new language from the comfort of their homes.

Practice with native speakers: ICT allows students to connect with native speakers of the language they are learning through video conferencing applications and online platforms.

Access to multimedia materials: ICT offers access to a wide variety of multimedia materials, such as audio, videos, and presentations, which can help students improve their listening and visual understanding of the language.

METHODOLOGY

This work was carried out within the qualitative paradigm, of a descriptive documentary type to identify and analyze the results of different investigations to pay attention to the state of the art of use of information and communication technologies (ICT) in the learning of English, in formal educational contexts between the years 2017-2022. To answer the research question, the following procedure was carried out: definition of the search criteria; search and selection of research that met the criteria; analysis and systematization of the information; and generalization of the results. The search criteria were: a) country of origin; b) type of technology applied; c) reported results; d) relevant findings and recommendations.

A search was carried out in various databases, such as Google Academic, Scielo, Eric, and Dialnet, of documents published between 2017 and 2022 in both Spanish and English that contained the variables: *use of ICT*, *teaching-learning of languages* and *digital apps*. 30 documents were found that met the scanning criteria.

RESULTS

The results show that the countries with the highest production on the subject are Colombia 20% and Indonesia 12%; followed by Spain, Nigeria, Ecuador, and Peru 8%. Mexico, the United States, Venezuela, Chile, Malaysia, the Czech Republic, Japan, Pakistan, and India with 4% each (See Table 1). It is interesting to note that the vast majority of these countries (80%) are included in the list of developing countries of the World Trade Organization (WTO, 2022) and that, among other economic characteristics, they suffer from a very acute educational lag and digital divide mainly because affordability remains the main barrier to connectivity (Bindé, 2005). On the other hand, the increase in the production of these studies could also mean that these countries have increased the use of digital media to facilitate the teaching-learning process in formal educational contexts.

Table 1
Number of published papers by country

Country	Published works
Colombia	5
Indonesia	3
Spain, Peru, Ecuador, Nigeria	2
Japan, India, Czech Republic, Malaysia, Chile, Mexico, Venezuela, United States, Pakistan, Chile, Brazil, Costa Rica, Panama, and Guatemala	1

The most recurrent ICTs and apps in the studies were Kahoot! and Duolingo (Mészáros, 2020; López & Quispe, 2020; Guaqueta & Castro-Garcés, 2018; Salcedo, 2017), mentioned in four studies. These apps contain elements of gamification that stimulate student motivation and affect teacher-student, student-student interaction positively. Kahoot! and Duolingo are two apps that use gamification to enhance the learning experience and foster important skills in users.

Kahoot! is an online platform that allows you to create and play Q&A games in real-time. This app is widely used in the classroom and allows teachers to create interactive games for students to engage and practice different topics. In addition to improving knowledge, Kahoot! encourages collaboration and friendly competition between students, as they can play in groups and see their results in real-time. On the other hand, Duolingo is a mobile and desktop app that allows you to learn languages playfully and effectively. With a focus on gamification, Duolingo uses challenges, rewards, and a points system to keep users motivated and engaged in their learning. In addition, it allows users to practice both written and oral language skills and improve their confidence in using the language. Both Kahoot! and Duolingo use gamification to enhance the learning experience and foster important skills such as collaboration, friendly competition, and motivation. These apps have proven to be very effective in learning different topics and skills and are widely used in educational areas of all kinds.

The use of mobile devices within classrooms has been increasing, suggesting strategies for the implementation of these devices with academic intentions. Three studies mention their use and their academic implications in the teaching of English (Stockewell, 2021; Aziz *et al*., 2018; Belda-Medina, 2019); other applications such as Quizziz, Socrative, Video Games, Text Processors, Instagram, Google Forms, Genially, and Facebook, with two mentions, suggest the increase in the popularity of online apps that do not require registration or have versions for mobile phones (Ramírez, 2021; López & Quispe, 2020; Temayo *et al*., 2020; Al Arif, 2019; Akpabio & Ogiriki., 2017; Godwin-Jones, 2017); the rest of the technologies and apps implemented only have one mention (See Figure 1).
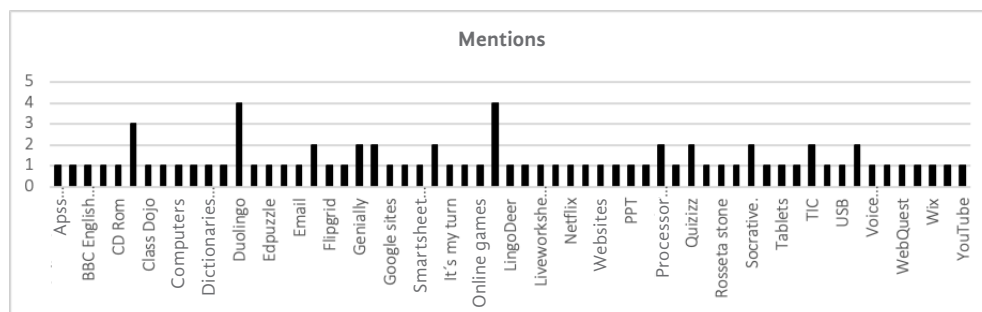
Graphic 1. ICTs mentioned in the studies

The results highlight that the participants' English language skills, mainly oral and written, improved significantly and achieved very satisfactory results (Syahrizal & Pamungkas, 2021; Ramírez, 2021; Martínez & Hunt, 2020; Palma *et al.*, 2020; Alobaid, 2020; Temayo *et al.*, 2020; Ratminingsih & Divayava, 2018; Guaqueta & Castro-Garcés, 2018). It was determined that strategies based on the use of ICT significantly impact the learning of English in students (Mendo, 2021; Al Arif, 2019). Positive effects are also reported in the interest and motivation to learn English, as well as the increase in autonomy (Ahumada & Dayson, 2021; Stockwell, 2021; Temayo *et al.* 2020; Belda-Medina, 2019; Lizasoain *et al.*, 2018; Roussou, 2018), the implementation of ICT apps and tools had a positive effect on collaborative activities allowing the development of team activities (Syahrizal & Pamungkas, 2021; López & Quispe, 2020; Belda-Medina, 2019; Al Arif, 2019).

Authors such as Stockwell (2021) and Godwin-Jones (2017) state that the use of mobile devices in the teaching-learning process should encourage the development of values such as responsibility, collaboration, and lifelong learning. The evolution of these devices has gone from objects for communication and entertainment to pocket computers and their implementation in the classroom should have the objective of supporting the development of academic values and skills, not only the fun factor. However, not all reported results are positive. Some authors state that there are few works related to the training of teachers in the implementation and use of ICT in English classes (Ahumada & Dayson, 2021). In addition, the difficulties and strengths of these as a pedagogical resources are mainly due to ignorance and, therefore, to the inadequate manner of their implementation (Ramírez, 2021). Both private and public institutions in countries such as Nigeria do not have computer equipment, multimedia systems, Internet, or laboratories suitable for the practice of language, and a large number of teachers were incompetent in processes such as keyboard handling, image scanning, sound recording, and PowerPoint presentations (Akpabio & Ogiriki, 2017); many institutions do not have computer equipment, and those that do have some technological resources, the teachers who use them have a very basic level of digital skills, which are summarized in turning on and off the computer, saving documents, searching for information on the Internet, and using a projector (Mbagwu *et al.*, 2022); others, such as a case in Mexico, suggest that the technologies used by teachers are little varied and are used mainly for administrative tasks such as registering, writing reports, recording and delivering grades (Gómez *et al.*, 2019).

Klimova and Kacet (2017) present a case in which video games hurt the acquisition of English vocabulary because the chosen game required a very high level of concentration and therefore it was difficult for participants to concentrate on vocabulary. This suggests that it is crucial for the success

of the implementation of these types of activities to accurately choose the games that could collaborate in language learning and try to avoid those games that require many skills simultaneously since they could block the learning process rather than benefit it.

The most relevant findings refer to the use of ICT in teaching and learning foreign languages, emphasizing the benefits and also mentioning some difficulties that can still be observed in the implementation of these tools. Lizasoain *et al.* (2018) for example, affirm that ICT can contribute not only to reducing the gap between the rural and urban world but also as a strategy with a view to global development and better living conditions.

Two studies that stand out are those of Salcedo (2017) and Bonilla (2019), who implemented the use of ICT with students with Down Syndrome and visual impairment respectively to improve written and oral ability in English. Although their studies show positive results, the recommendations confirm that the number of investigations is low and that further research is necessary to strengthen the guidelines around working with students with disabilities. For the success of the implementation of these strategies with this type of student, to facilitate the appropriation of knowledge, it is extremely important to have the support of the family, the institution, and technological and economic resources, not only with ICT as the only didactic mediation. Much work is still needed in the pedagogical and didactic training of teachers who serve this segment of the population.

Mészáros *et al.* (2021) recommend the constant updating of studies related to the use of technology and ICT because such accelerated technological progress results in obsolete research after a few years. Some authors call on government and educational authorities to provide technology to schools and train their teachers for its use and application in the development of their students' academic skills (Mbagwu *et al.*, 2022; Mendo, 2021; Ramírez, 2021; Akpabio & Ogiriki, 2017); among other things, they suggest that education secretariats should collaborate in the development of programs that foster twenty-first-century skills through technological resources, educational administrations should train their teachers in the application of ICT within the classroom (Tutillo-Piña *et al.*, 2020), as well as make ICT-mediated learning mandatory for all elementary-level students; however, they also point out that although classrooms have technological resources and institutions invest in the incorporation of technology, it is no guarantee that teachers will take advantage of their potential (Gómez *et al.* 2019).

Gamification in the classroom is a recurring theme that has been gaining importance in methodologies due to its playful nature, facilitating the internalization of knowledge in a fun way, and provoking positive experiences in students; it works because it motivates participants, encourages

collaboration, and the commitment to learn (Azar & Tan, 2020; López & Quispe, 2020; Ratminingsih & Divayava, 2018).

CONCLUSIONS

The main objective was to analyze various research related to the use of ICT in English learning to contribute to the state of the art. This objective could be achieved by synthesizing the trends, findings, and recommendations about the subject, but also by expanding the perspective towards the necessary actions to achieve significant progress in technology-mediated language teaching-learning.

The results indicate that the use and implementation of technology-mediated didactics have a positive impact not only on the development of language skills, but also increase the rates of collaboration, motivation, and autonomy in students.

The fact that developing countries are the largest producers of studies related to the implementation of ICT in the teaching-learning of English indicates a positive trend in reducing the rates of lag and the digital divide suffered by many of these countries. It is also very interesting to see that there are studies that include minorities that are usually the least served in the educational context. This means a real advance in educational trends since the inclusion of these minorities improves the education of all and makes real change possible in the social sphere.

Incorporating technology into English courses is a key tool to improve and optimize the learning process. Educational technology creates a more attractive and diverse environment, opens new possibilities, and enables more effective and personalized learning. Teachers can also transfer power and motivation to the student, improving engagement and motivation. Information and communication technology offers a wide variety of means and tools that facilitate learning, such as accessibility, flexibility, and attention to diversity. ICT has become a key element to improve the teaching and learning of foreign languages, especially for its ability to produce human interactions and offer an interactive learning environment.

To replicate the positive results of these studies, it is necessary to promote training and education in these topics, not only for teachers but also for the competent educational authorities and all the actors involved in the language teaching-learning process. Commitment and sacrifice are required if we want to reduce the digital divide, and the educational lag that has always been present in our countries and if we want to be efficient in responding to the needs of the knowledge and information age, preparing our students to be competent in the professional world that awaits them.

REFERENCES

Ahumada, E. y Dayson, D. (2021). El uso de TIC'S en el proceso de enseñanza-aprendizaje del alemán como lengua extranjera en la universidad. *Revista Boletín Redipe, 10*(5), 248–258. https://doi.org/10.36260/rbr.v10i5.1301

Akpabio, M. E. and Ogiriki, I. B. (2017). Teachers' use of Information and Communication Technology (ICT) in Teaching English language in Senior Secondary Schools in Akwa Ibom State. *Equatorial Journal of Education and Curriculum Studies, 2*(2): 28-33. Journal Homepage: www.erjournals.com ISSN Online: 0184-7937

Al Arif, T. (2019). The Use of Social Media for English Language Learning. Metathesis: *Journal of English Language Literature and Teaching. 3*(2), October 2019. pp. 224-233 https://www.research-gate.net/publication/337686616_The_Use_of_Social_Media_for_English_Language_Learning_An_Exploratory_Study_of_EFL_University_Students#:~:text=DOI%3A%2010.31002/metathesis.%20v3i2.1921

Alkamel, M.A.A. & Chouthaiwale,S.S. (2018). The Use of ICT Tools in English Language Teaching and Learning: A Literature Review. *Veda's Journal of English Language and Literature-JOELL, 5*(2), 29-33. https://joell.in/

Alobaid, A. (2020). Smart multimedia learning of ICT: role and impact on language learners' writing fluency— YouTube online English learning resources as an example. *An Exploratory Study of EFL University Students. Smart Learn. Environ.* 7, 24. https://doi.org/10.1186/s40561-020-00134-7

Artunduaga Salazar, N y Torres Buitrago, M. (2021). *Incidencia de tareas comunicativas basadas en el uso de tecnologías de la información y comunicación (TIC) en la motivación y el aprendizaje del inglés como lengua extranjera en estudiantes de básica secundaria de una institución educativa de la ciudad de Cali*. Universidad del Valle.

Azar, A. y Tan, N. (2020). The Application of ICT Techs (Mobile-assisted Language Learning, Gamification, and Virtual Reality) in Teaching English for Secondary School Students in Malaysia during COVID-19 Pandemic. *Universal Journal of Educational Research, 8*(11C), 55 - 63. DOI: 10.13189/ujer.2020.082307

Aziz, A. Hassan, M. Dzakiria, H. Mahmood, Q. (2018). Growing trends of using mobile in ELL. *Mediterranean Journal of Social Sciences. 9*(4) Julio. http://archive.sciendo.com/MJSS/mjss.2018.9.issue-4/mjss-2018-0132/mjss-2018-0132.pdf

Bedoya González, Juan Rodrigo, Betancourt Cardona, Miguel Orlando, & Villa Montoya, Fabio León. (2018). Creación de una comunidad de práctica para la formación de docentes en la integración de las TIC a los procesos de

aprendizaje y enseñanza de lenguas extranjeras. *Íkala, Revista de Lenguaje y Cultura, 23*(1), 121-139. https://doi.org/10.17533/udea.ikala.v23n01a09

Belda-Medina, J. (2020). El aprendiz del inglés (L2) mediante herramientas digitales (TIC) por estudiantes mayores desde un modelo andragógico y heutagógico. *Tonos Digital.* 38. HTTP://WWW.TONOSDIGITAL.ES/OJS/INDEX.PHP/TONOS/ARTICLE/VIEW/2393/1113

Bindé, J. (2005). Hacia las sociedades del conocimiento. UNESCO. *Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura*. http://www.unesco.org/publications

Bonilla, S. (2019). *Ambiente de Aprendizaje mediado por TIC: Una estrategia didáctica para mejorar la competencia oral en inglés en un estudio de caso con Discapacidad Visual.* Repositorio de la Universidad de la Sabana, Colombia. https://core.ac.uk/download/pdf/323266481.pdf

Burbules, N. y Callister, T. (2006). Educación: riesgos y promesas de las nuevas tecnologías de la información. Granica. *English Teaching*, Vol. 76, Supplement 1, Autumn 2021, pp. 3-16. https://doi.org/10.15858/engtea.76.s1.202109.3 http://journal.kate.or.kr

da Cunha, I. (2020). Una herramienta TIC para la redacción del trabajo de Fin de Grado (TFG) ELUA. *Estudios de Lingüística. 34*: 39-72. doi:10.14198/ELUA2020.34.2

Godwin-Jones, R. (2017). Smartphones and language learning. *Language Learning & Technology, 21*(2), 3–17. http://llt.msu.edu/issues/june2017/emerging.pdf

Gómez. C, Ramírez, J. Martínez-González, O. y Chuc, I. (2019). El uso de las TIC en la Enseñanza del Inglés en las Primarias Públicas. *Revista de Estudios y Experiencias en Educación, 18* (36), pp. 75 – 94 https://doi.org/10.21703/rexe.20191836gomez4

Guaqueta, C. y Castro-Garcés, A. (2018). The use of language learning Apps as a didactic tool for EFL Vocabulary Building. *English Language Teaching, 11*(2). https://files.eric.ed.gov/fulltext/EJ1166513.pdf

Klimova, B. y Kacet, J. (2017). Efficacy of computer games on language learning. *The Turkish Online Journal of Educational Technology, 16*(4). https://files.eric.ed.gov/fulltext/EJ1160637.pdf

Lizasoain, A., Ortíz, A., Becchi, C. (2018). *Utilización de una herramienta TIC para la enseñanza del inglés en un contexto rural.* https://www.scielo.br/j/ep/a/FhV8JfqYRdS4LpzMbxJh7Yw/abstract/?lang=es

López, L. Quispe, J. (2020). *La gamificación por aplicaciones en el aprendizaje del idioma extranjero inglés en estudiantes de la institución educativa.* Repositorio de la Universidad Católica de Santa María. Perú https://repositorio.ucsm.edu.pe/handle/20.500.12920/10431

Martínez, S. y Hunt, C. (2020). Uso de aplicaciones online para plataformas en streaming: language learning with Netflix. *Linguagem e Tecnologia, 13* (3), pp. 62-78, 2020. Universidade Federal de Minas Gerais

Mbagwu, U. Njoku, N. Onuabuobi, O. (2022). *The Effective Use of ICT in The Teaching and Learning of Oral English in Nigerian Secondary Schools.* http://www.unn.edu.ng/publications/files/THE%20USE%20OF%20ICT%20IN%20TEACHING%20BY%20ABONYI%20ERNEST%20UWAKWE.pdf

Mendo, A. (2021). *Uso de las TIC para el aprendizaje del idioma inglés en estudiantes de educación básica.* Repositorio de la Universidad César Vallejo, Perú. https://repositorio.ucv.edu.pe/handle/20.500.12692/55748

Mészáros, E. (2021). *Enseñanza de ELE en entornos virtuales: análisis comparativo de aplicaciones para el aprendizaje autónomo.* http://hdl.handle.net/10459.1/72296.

Organización Mundial del Comercio (OMC) (2022). *¿Qué países se consideran países en desarrollo en la OMC?* https://www.wto.org/spanish/tratop_s/devel_s/d1who_s.htm

Palma Velásquez, E, & Gómez Barrios, F. (2020). El podcast en el desarrollo de las habilidades orales en estudiantes de inglés como lengua extranjera. *Revista Educere, 24*(78), pp. 237-251, https://www.redalyc.org/journal/356/35663284005/html/

Ramírez, M. (2021). *Incorporación de las TIC's y su influencia en la enseñanza-aprendizaje del idioma inglés de séptimo año de la unidad educativa "Velasco Ibarra" periodo 2020.* http://dspace.unach.edu.ec/bitstream/51000/8319/1/5.-TESIS%20MAGALY%20DEL%20ROCIO%20RAM%C3%8DREZ%20ALLAUCA-DP-EDI-TEI.pdf

Ratminingsih, N. Mahadewi, L. y Divayana, D. (2018). *ICT-Based Interactive Game in TEYL: Teachers' Perception, Students' Motivation, and Achievement.* https://www.researchgate.net/publication/328868551_ICT-Based_Interactive_Game_in_TEYL_Teachers'_Perception_Students'_Motivation_and_Achievement.

Rodríguez, J., Romero, J., & Vergara, G. (2017). *Importancia de las TIC en enseñanza de las matemáticas. Revista MATUA, 4*(2). http://investigaciones.uniatlantico.edu.co/revistas/index.php/MATUA/article/view/1861

Roussou, M. (2018). La Webquest: *Integración De Las Tic En El Aula De Inglés.* Repositorio de la universidad de Cantabria España https://repositorio.unican.es/xmlui/bitstream/handle/10902/15971/RasinesGorriaNora.pdf?sequence=1&isAllowed=y

Salcedo, S. (2017). *Mejoramiento de la escritura en inglés como lengua extranjera en niños con Síndrome de Down mediada por las TIC.* Repositorio de la Universidad Pedagógica y tecnológica de Colombia. https://repositorio.uptc.edu.co/bitstream/001/2331/1/TGT-972.pdf

Stockwell, G. (2021). Living and learning with technology: Language learning with mobile devices. *English Teaching, 76.* Supplement 1, Autumn 2021, pp. 3-16. https://doi.org/10.15858/engtea.76.s1.202109.3 http://journal.kate.or.kr

Syahrizal, T. y Pamungkas, M. (2021). Revealing Students' Responses on the Use of Flipgrid in Speaking Class: Survey on ICT. *Acuity: Journal of English Language Pedagogy, Literature and Culture*, v6 n2 p96-105 2021 https://files.eric.ed.gov/fulltext/EJ1305773.pdf

Temayo, E. Páez, J. y Palacios, J. (2020). Influencia de estrategias de aprendizaje con herramientas TIC en la competencia de la comprensión lectora en inglés. *Revista Espacios, 41*(26) 2020, Art. 18 http://w.revistaespacios.com/a20v41n26/a20v41n26p18.pdf

Tutillo-Piña, J.; García-Herrera, D.; Ana Zulema Castro-Salazar, A.; Erazo-Álvarez, J. (2020). *Genially* como herramienta interactiva para el aprendizaje de verbos en inglés. *Revista Arbitrada Interdisciplinaria*, V(5).