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El uso de herramientas TIC para fomentar la escritura en la segunda lengua: Una revisión de la literatura

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TRABAJO FIN DE GRADO

Título

**The use of ICT tools to foster L2 writing:
A literatura review
El uso de herramientas TIC para fomentar la escritura en la
segunda lengua:
Una revisión de la literatura**

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Abstract

L1 writing is a complex task in which various processes are involved. Writing in a second language (L2) adds an extra level of difficulty to this task. However, nowadays, learning to write adequately in a second language is essential. On the other hand, the arrival of technology in the educational field has meant a big change for the teaching of L2 skills. In L2 writing, for example, the use of Information and Communication Technology (ICT) tools offers a world of possibilities. These tools facilitate the learning process by granting the learners access to different digital resources that, can help them in their second language writing process. In the same way, the technology allows immediate contact through online digital platforms and enables both formative and summative assessment of the students' tasks. Moreover, they might operate on some psychological variables related to L2 acquisition, such as motivation. Hence, the present study offers a review of studies which explore the use of Information and Communication Technology tools for second language writing, especially English as a Foreign Language (EFL). We examined trends and the main findings of 42 studies published in the last five years in nine different scientific journals. Overall, the results demonstrate that the integration of technological tools is beneficial for achievement in L2 writing and learners' motivation to write in a second language

Key words: writing, Information and Communication Technology (ICT) tools, second language (L2).

Resumen

La escritura en lengua materna es una tarea compleja en la que intervienen diversos procesos. Escribir en un segundo idioma agrega un nivel adicional de dificultad a esta tarea. Sin embargo, hoy en día, aprender a escribir adecuadamente en un segundo idioma es esencial. Por otro lado, la llegada de la tecnología al campo educativo ha significado un gran cambio para la enseñanza de habilidades en una segunda lengua. En la escritura en un segundo idioma, por ejemplo, el uso de herramientas de Tecnología de la Información y la Comunicación (TIC) ofrece un mundo de posibilidades. Estas herramientas facilitan el proceso de aprendizaje al otorgar a los alumnos acceso a diferentes recursos digitales que pueden ayudarlos en su proceso de escritura en un segundo idioma. Del mismo modo, la tecnología permite el contacto inmediato a través de plataformas digitales en línea y permite la evaluación formativa y sumativa de las tareas de los estudiantes. Además, podrían operar sobre algunas variables psicológicas relacionadas con la adquisición en una segunda lengua, como la motivación. Por lo

tanto, el presente estudio ofrece una revisión de estudios que exploran el uso de herramientas TIC para la escritura en un segundo idioma, especialmente el inglés como idioma extranjero. Examinamos las tendencias y los principales hallazgos de 42 estudios publicados en los últimos cinco años en nueve revistas científicas diferentes. En general, los resultados demuestran que la integración de herramientas tecnológicas es beneficiosa para el logro en la escritura en un segundo idioma y la motivación de los alumnos para escribir en un segundo idioma.

Palabras clave: escritura, herramientas de Tecnologías de la Información y la Comunicación (TIC), segundo idioma.

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1.Introduction

During the last few decades, the acquisition of a second language (L2) has become necessary worldwide. For years, students have been taught an L2 from an early age. Learning a foreign language enriches people in many aspects and contributes to the development of human capacities through the interaction and learning of other cultures. In addition, recently, a considerable number of studies has revealed that the interest in L2 learning has increased because new applications and technological devices have fostered its learning, especially in the L2 writing skill. Writing in a second language can be complex, but it is effective, since writing is a means of communicating, expressing opinions, and emotions clearly and concisely, to people who do not speak the same mother tongue.

On the other hand, nowadays, technology has become both a fundamental part in people's daily lives and a key element in the educational field. The role of technology in education has received increasing attention across a number of disciplines in recent years.

In today's society, students have easy access to the Internet and the different range of technological devices, which enable them free access to different applications and digital platforms. In many cases, the use of these resources requires an adequate competence in the L2 skills.

The use of Information and Communication Technology (ICT) tools is widespread in today's classrooms. Little by little, technological tools have been replacing traditional teaching methods. Moreover, these new tools might boost and stimulate the personal skills of students, such as self-confidence, responsibility, reasoning, and analytical skills. In addition, through technological advances, teachers provide their learners with online meaningful resources in order to facilitate their learning process, the same as they motivate them through technology, showing them the benefits of interaction collaborating with other peers. Information and Communication Technology allows evaluating through different approaches, providing teachers with important information about the writing processes that each student has carried out.

The purpose of this study is to offer a review of recent studies which explore the use of Information and Communication Technology tools for second language writing. We explored trends and main findings of 42 studies published in the last five years from 2016 to 2019 in nine different scientific journals. We have taken into consideration different variables such as location, subject level, or technological tools used, among

others. The remaining structure of this paper is as follows: Chapter 2 addresses the theoretical framework of the main topics of this work: L2 writing and ICT; Chapter 3 presents the main objectives of this study; Chapter 4 deals with the methodology used in the present study; Chapter 5 analyzes the obtained results; Chapter 6 discusses the findings that have emerged from our review, and finally, Chapter 7 addresses the conclusions of our study.

2.Theoretical framework

2.1 The L2 writing skill

2.1.1 Definition

According to Harmer (2004), some of the earliest writings date back over 5,500 years.

Writing, together with speaking, listening, and reading, form the main skills of a language. However, writing is considered one of the most difficult skills to learn and teach. Several definitions have been used to describe writing. In accordance with Hyland (2003, p.3), “writing is regarded as an extension of grammar- a means of reinforcing language patterns through habit formation and testing learners’ ability to produce well-formed sentences’’. Indeed, Hyland (2003, p.3) pointed out “writing is seen as a product constructed from the writer's command of grammatical and lexical knowledge’’. He further argued that writing is a purposeful and communicative activity between people. Other researchers, however, who have looked at writing, have found that it is a complex activity (Cheung, 2016). Reid (2001) identifies the writing skill as a process of self-discovery, since it is the ability to convert thoughts into words.

Based on the definitions above, a definition of the writing skill can be obtained. Writing is a way of representing thoughts and ideas into textual forms in order to convey a message to a person or a group of people. This leads to understand writing also as a means of communication. Besides, writing makes use of lexico-grammatical patterns so that the message has cohesion and coherence to be correctly understood.

Harmer’s (2001) study of writing found a number of conventions, which have to be taken into consideration during the learning and teaching writing process. He distinguished four broad areas: handwriting, spelling, layout, and punctuation, which include issues with letter, word, and text information.

Regarding handwriting, Harmer (2001) argued that it can be a problem for many students both writing in the native language and in the non-native language. Even though nowadays, written communication is widely conveyed through keyboards, handwriting continues to be an important factor to letter writing, writing assignments, and exams. The same happens with spelling, although incorrect spelling does not prevent from understanding a written message, it can negatively affect the reader's judgment. Spelling can be a difficult process for language learners because the sound of a word and the way it is spelled does not often coincide, which leads to a misspelling. The last areas that Harmer (2001) distinguished are layout and punctuation, emphasizing the fact that depending on the writing modality, there are different

conventions. For instance, the learners should differentiate between business and personal letters because both have different formats, each one has specific resources.

By drawing on these concepts related to writing, Harmer (2001) has been able to show the importance of the role of the teacher in the writing process, because apart from helping students with their handwriting, spelling, layout, and punctuation, the teacher is responsible for informing learners about how important the writing skill is.

2.1.2 L2 writing approaches

Over the last decades, different theories have been developed in order to choose the best approach to teach L2 writing learning. The controlled composition approach, the rhetorical function approach, the process approach, and the genre approach are the traditional approaches implemented to teaching L2 writing by the vast majority of instructors (Harmer, 2001; Hyland, 2003; Renandya & Widodo, 2016).

The controlled approach arose from the mid-1940s to the 1960s. This approach was based on the development of a grammatical structure as to foster the capability of learners to formulate correct phrases, with the objective of improving precision in their written works (Cheung, 2016, p.180). Regarding this approach, learners could be able to elaborate efficient compositions following a writing pattern. However, in the late 1960s, a new approach appeared the rhetorical function approach, which highlighted the goals of writing at a discourse level, although it was replaced in the 1970s by a popular approach called the process approach (Cheung, 2016). The process approach is one of the most common procedures for determining writing as a recursive process rather than a linear process as it has been suggested by some scholars (Harmer, 2004, p.5). In his review of writing, Harmer (2004) identifies four main elements that compose the writing process approach: planning, drafting, editing, and final version (revise). Hyland (2003) shares Harmer's view about the recursively in the writing process, arguing that the components of the process approach can emerge randomly and can be modified, reviewed, and edited before the production of a text. According to Harmer (2004), the first stage of the process approach is planning, and it deals with the main objective of the text, the kind of audience who is targeted, and the type of content which is going to be embedded. He further argued that the first version of the writing is not the definitive one; it is the draft, since a good piece of writing cannot be produced in the first attempt, it has to be revised and modified, until its final version is reached. Nevertheless, Harmer (2001) pointed out that, this process approach could arise some problematic, because concentration in the process can lead to carelessness of the product, that is, the text

itself. Despite this fact, Flower and Hayes (1981, as cited in Hyland, 2003, p.11) asserted that one of the most accepted approaches by L2 writing instructors was the process approach already mentioned.

After the process approach, the genre approach emerges. This approach was introduced by some L2 teachers in order to help learners to acquire the social processes which they need to master the second language and succeed in the writing. Indeed, instructors implemented this approach up to the point that students would be able to distinguish any kind of text, independently of being a narrative text, an essay, a report, an email, and even a letter (Hyland, 2003, pp.18-22). With regard to the genre approach, teachers drawn on student's attention, showing them how texts are real means of communication. Hyland's interpretation contrasts with that of Ling Cheung (2016) who argued that these traditional approaches to teaching L2 writing were useful but might not be enough to L2 writing. That is why he used the last approach that emerged, the socio-cognitive approach, which explores writing from its social impact among readers. Through this approach, teachers should regard the importance of using lexicogrammatical and conceptual devices in order to endow connection to the text and be consistent. To reinforce this idea, Chapelle (2017) postulated the idea of implementing technology in the classroom; the author discussed how technology environment may empower the procedure of learning L2 writing.

2.2 Information and Communication Technology (ICT)

2.2.1 ICT and its contribution to foreign language teaching

Over the last decades, the widespread use of technology and internet has been growing and evolving, especially in the education field, creating great opportunities for learners to enhance their communicative abilities. In the last decade, technology has shown amazing effects on the teaching-learning process (Hanson-Smith, 2001, p.107). Along the same lines, Warschauer (2001) subsequently argued that thanks to Technology-Mediated Communication (TMC), which refers to all array of technological devices that enable communication through technology, TMC can be rated as a good complement to teach new languages.

The acronym ICT, which stands for Information and Communication Technology, refers to all networking components, devices, and applications that provide access to information and communication. Hyland's (2003) informative study holds the view the use of ICT in education field helps learners in their second language writing process.

Indeed, he argued that the development of ICT, has affected how students learn, and how they interact with teachers and other students.

To date, teachers have a wide variety of options when it comes to decide on ICT tools in order to help students learning a foreign language. According to Hanson-Smith (2001), until the last decade, the predominant instrument in classrooms was the computer, but in recent years new technological gadgets such as tablets, I pads, and interactive blackboards have emerged, and their use implies an improvement in teaching and learning processes. Renandya and Widodo (2016) distinguished between different ICT tools, techniques, and activities that foster the teaching process and the learning process of a foreign language. Renandya and Widodo (2016) made a classification on skill-specific applications and observed significant differences between applications. By way of illustration, blogs and social learning platforms are considered Web 2.0 tools. However, *blogs* are by default public and do not preserve privacy over digital output. Conversely, *Edmodo* is a technological, social, and educational platform that allows communication between students and teachers in a private environment. Besides, *Edmodo* is a secure and easy-to-use platform where teachers and students create an account for free, and then the teacher creates a group and invites his/her students through a code (Renandya & Widodo, 2016).

To some extent, learners benefit from the use of ICT tools. In the same way, teachers have at their disposal a wide range of tools to promote and expand the knowledge of their learners, collaboratively. Accordingly, it is evident that internet-based facilities can be considered as a new knowledge base for learners' second language learning.

2.2.2 ICT and L2 writing

Over the past decade, an important number of studies on L2 writing has emphasized the use of technology. Nonetheless, many teachers already make use of technologies to teach L2 writing because they have realized the influence and impact that technologies have on learners. In addition, with the use of ICT tools, students improve their ability to edit, refine, plan, and organize text in the writing process.

The writing skill can be practiced through different applications and in different modalities. Even though, word processors have been necessary for writing and teaching, two different modalities have emerged which, unlike word processors, do fully exploit the technologies available for writing and communication. These two new methodologies are synchronous writing and asynchronous writing (Hyland, 2003).

Synchronous writing allows students to interact with other peers and with the teacher at the same time. In that way, learners can share ideas and gain knowledge from their classmate's responses. Conversely, asynchronous writing enables communication in a no real time, but covers the use of computer software. Both systems are used by instructors to offer learners the opportunities of online writing, such as collaborative writing tasks, instead of working alone with a text. These systems highly support the feedback elaborated from the teacher to their learners (Hyland, 2003).

Synchronous writing and asynchronous writing are two different important ways used by teachers to give written feedback to their learners. Hyland (2003) distinguished seven types of written feedback:

1. **Commentary:** it is based on making a comment on the work carried out by students, offering them different contributions which can help them to improve the work.
2. **Rubrics:** it is a sheet which details the criteria that is going to be used to evaluate a task. Rubrics are useful since they show the parts that teachers are going to take into account in order to set the final grade.
3. **Minimal marking:** it is based on indicating the location and type of error, so that the correction by the student is direct and effective, considering the type of error he/she has made.
4. **Taped commentary:** it is based on the recording of the teacher's comments for the student. The teacher indicates the numbers on the paper so that the student knows which comment he/she is referring to. This type of feedback saves time and contributes to student auditory learning.
5. **Electronic feedback:** the teacher provides comments through electronic submissions (via email, for instance) or through the comments function, which allows students to read the comments next to the corrected text.
6. **Teacher-student conferencing:** it provides the feedback from the teacher to the student face to face. This type of feedback has an advantage and that is that both the student and the teacher can stipulate the meaning of the text through dialogue.
7. **Peer feedback:** it is based on the contributions made by their peers. This type of alternative is efficiently verified by teachers. Conversely, students prefer the teacher's feedback, as they believe it is more beneficial.

Hyland (2003) observed that the assessment system benefits from the use of technologies, as well as helping to improve students' writing. To some extent, feedback provides learners to evolve in their writing skills, and boost their understanding of the writing process.

3. Research questions

Within this context, the principal objectives are to investigate the trends and account for the findings in the use of Information and Communication Technology (ICT) tools in teaching English Foreign Language (EFL) writing. In line with these research objectives, the following questions were formulated:

RQ1: What are the trends in the use of ICT tools in EFL teaching writing according to the following aspects?

1. Years of the study
2. Location of the study
3. L2 skills were ICT tools implemented in the study
4. Participants' educational level
5. ICT tools
6. Conclusiveness of the studies

RQ2: What are the main results from the available literature?

4. Method

4.1 Research design

This study was conducted using content analysis to analyze 42 studies on the use of Information and Communication Technology (ICT) in English Foreign Language (EFL) writing, published from 2016 to 2019. Content analysis is probably one of the most efficient techniques in quantitative research, a way of summarizing the quantitative data, taking into consideration reliability, validity, and objection of message characteristics (Neuendorf, 2002).

4.2 Data collection

In January 2020, a content analysis was accomplished in the database Educational Resources Information Center (ERIC). ERIC is one of the largest specialized education databases available online and contains a huge number of full-text documents provided by a wide array of source types. In order to collect all the information and to find the relevant articles, “writing EFL technology” were the key words searched. As to delimit the number of studies published, the search was restricted to the period from 2016 to 2019. The research data in this study are drawn from nine different journals: *English Language Teaching*, *Computer Assisted Language Learning*, *Educational Technology & Society*, *Teaching English with Technology*, *Advances in Language and Literacy studies*, *Journal of language and Linguistic Studies*, *Language Learning and Technology*, *Online Submission*, and *ELT Journal*. A total of 42 articles were considered in the present review.

4.3 Data analysis

The 42 studies examined in this paper were analyzed following a content analysis method. After having read all the studies and having extracted the information to fill in each category, the data were transferred to a Microsoft Excel spreadsheet. The spreadsheet contained different categories such as the year, place of the study, number of participants involved in each study, objective, results, teaching implications, and limitations of each study in the process of dealing with the different range of ICT tools in EFL classrooms. The results were meticulously examined in terms of frequency and percentage tables.

5. Findings

According to the first objective, the categories examined include the distribution of the studies by years, the countries where the studies were carried out, the distribution of the studies, by language skills, subject level, the distribution of the studies according to the use of the different ICT tools, and the conclusiveness of the studies.

5.1 Distribution of the studies by years

As can be seen in Table 1, the year 2016 reported more studies than 2017, 2018 or 2019. Table 1 reveals that there has been a gradual decline in the number of studies conducted from 2016 to 2019, since it was in 2016 when most studies were conducted (31 %)

Table 1. Frequency distribution of the studies between 2016 and 2019.

YEARS	N° STUDIES	%
2016	13	31.00
2017	12	28.60
2018	8	19.00
2019	9	21.40

5.2 Distribution of the studies in terms of Location

It can be seen from the data in Table 2 that it was a large range of countries where the studies were carried out. However, Turkey (14.30 %) is the country where most studies on writing EFL technology were conducted. It is followed by Taiwan (11.90 %), China (9.50 %), and Saudi Arabia (9.50 %). On the other hand, Lebanon (2.40 %), Germany (2.40 %), and Sweden (2.40 %) are some of the countries where only one study has been carried out from 2016 to 2019 in writing EFL technology.

Table 2. Frequency distribution of the studies in terms of Location.

COUNTRY	N° STUDIES	%
Turkey	6	14.30
Taiwan	5	11.90
China	4	9.50
Saudi Arabia	4	9.50
Indonesia	2	4.80
Colombia	2	4.80
Japan	2	4.80
Norway	2	4.80
Jordan	2	4.80
Iran	2	4.80
Vietnam	1	2.40
Thailand	1	2.40
Oman	1	2.40
Egypt	1	2.40
Iraq	1	2.40
United Arab Emirates	1	2.40
South Korea (Seoul)	1	2.40
Malaysia (Kuala Lumpur)	1	2.40
Lebanon	1	2.40
Germany	1	2.40
Sweden	1	2.40

5.3 Distribution of the studies in terms of Language Skills

Of a total of 42 articles, the majority of the studies were focused on writing (88.10 %). It was followed by the four main skills (7.10 %). Nevertheless, we have narrowed our research to studies addressing the writing skill. The largest group of the revised studies deals with this skill. Surprisingly, in the last four years, there have been studies devoted to listening, reading, and speaking together with writing. So, that shows that technologies are being implemented in more skills, not just writing. Thus, technology could be seen as a medium to foster the potential of each language skill.

Table 3. Frequency distribution of studies in terms of Language Skills taught.

LANGUAGE SKILLS TAUGHT	N° STUDIES	%
Writing	37	88.10
Writing, reading, listening, speaking	3	7.10
Writing, reading	1	2.40
Writing, reading, listening	1	2.40

5.4 Distribution of the studies in terms of Participants' educational level

Table 4 reveals that the highest proportion of the studies were accomplished by University students (85.70 %), while a part of the total was carried out by Secondary School Students (9.50 %). Only the 4.80 % of the studies were conducted between both: University and Secondary School students (Cahyono et al, 2016), (Kawinkoonlasate, Pongpatchara, 2019). It results strange that no study has been done in Elementary school. It may be because at first, teachers try to develop skills in children (6-12 years old) in a traditional way. Thus, once the basic components of learning have been established, the technology is introduced to improve and strengthen these learning systems. In this way, technology allows the development of skills more extensively and effectively.

Table 4. Frequency of distribution of the studies in terms of Participants' educational level.

SUBJECT LEVEL GROUPS	N° STUDIES	%
Students at Higher Education (University)	36	85.70
Secondary School Students	4	9.50
University and Secondary School	2	4.80

5.5 Distribution in terms of ICT tools used in the studies

Table 5 is quite revealing in several ways. First, unlike the other tables, it shows the wide disparity between the different ICT tools used among the 42 revised articles. Secondly, it can be seen that a large quantity of studies was supported by online applications such as *Whatsapp*, *Edmodo*, *Facebook*, and *Google Docs* amongst. Thirdly, there was no significant difference between the most utilized tools Apps (33.30 %) and Internet based/techniques (26.20 %).

Table 5. Frequency of distribution in terms of ICT tools used.

ICT TOOL	N° STUDIES	%
Feedback	8	19.00
Wikis and videos	4	9.50
Apps (Google Docs, Edmodo, Facebook...)	14	33.30
Internet based techniques	11	26.20
Virtual environment	5	11.90

5.6 Conclusiveness of the studies

The results of the correlational analysis of this study are displayed in Table 6. Besides, this table provides the relationship between conclusive and no conclusive, as well as, positive and negative studies. Conclusive studies admit that thanks to the use of ICT tools within classrooms, learners have a positive impact on the L2 writing process. Hence, the attitude of the learners is positive, and they are more motivated in the learning process of writing in English as a Foreign Language. In addition, several of these conclusive studies promote the use of apps, since they have verified that student's scores increase working both individually and collectively. On the other hand, no-conclusive studies do not know determinedly if the use of ICT tools is beneficial for students or not. It can be seen from the data in Table 6 that the conclusive studies reported significantly more than no-conclusive studies. The mean score for conclusive studies was 97.60 %, while for no-conclusive studies 2.40 %. As a result, more than half of the studies were conclusive. Furthermore, from a total of 41 conclusive studies, 38 studies resulted to be positive. These results provide important insights into the use of technology in EFL classrooms. On the contrary, only three of a total of 41 studies resulted negative. Therefore, what emerges from these results reported here is that technology have resulted a meaningful component in teaching EFL classrooms.

Table 6. Distribution in terms of conclusiveness.

RESULTS	N° POSITIVES	N° NEGATIVES	TOTAL	%
Conclusive	38	3	41	97.60
No conclusive			1	2.40

6. Discussion

Writing in a mother tongue is a difficult task for learners because they have to bear in mind many factors, which intercede in the writing process, so it can result quite difficult to write in a second language, since the level of difficulty increases. However, in our global world, it is indispensable to know how to write in a foreign language; in order to be able to communicate and express ideas in different contexts, e.g. formal or informal, as well as, with people who not share speaker's first language. On the other hand, the arrival of technology in the educational field has been crucial, since through the use of Information and Communication Technology tools in second language writing classes, the process of learning seems to be easier than without them. ICT tools allow both teachers and learners to use the wide range of digital resources, which help learners to acquire the L2 writing learning process efficiently. Therefore, use of ICT tools can be useful for improving the writing process in English as a Foreign Language, since students appeared to be more motivated towards L2 writing. Thus, the purpose of this study is to offer a review of studies which explore the use of Information and Communication Technology tools for second language, for English as a Foreign Language. In this respect, this paper examined trends and main findings of 42 studies published from 2016 to 2019 in nine different scientific journals.

For the purpose of the second objective of the present study, the following results emerged from the available literature. It has also been taken into consideration the sample size of participants in the studies, if these studies suggested teaching implications, and if they had to face any limitation at the time of carrying the studies out.

Firstly, according to the distribution of the studies in terms of years, a decrease in the studies after 2016 was seen. The highest number of studies was conducted in 2016. This decrease may be due to the fact that from 2016, many educational entities implemented technological devices in the education system throughout the world. Therefore, once technology has been implemented, it may not have been investigated much further, whether the measures taken have been effective or not. On the other hand, another reason for this decrease in studies after 2016 may be due to the fact that some scientific journals have not published their 2019 issues yet.

Secondly, in terms of location, it was found that 21 countries have conducted studies taking into account technology in EFL writing, which are: Turkey, Taiwan, China, Saudi Arabia, Indonesia, Colombia, Japan, Norway, Jordan, Iran, Vietnam,

Thailand, Oman, Egypt, Iraq, United Arab Emirates, South Korea (Seoul), Malaysia (Kuala Lumpur), Lebanon, Germany, and Sweden. Turkey was the country where most studies were conducted in the research of the present study. These results reveal that there is a small amount of literature from Europe. Only two countries have coped with technology in writing EFL which are Germany and Sweden. Future research may be useful to reinforce the idea of why only a small amount of research has been developed in Europe.

Thirdly, this study reported that Information and Communication Technology was implemented for teaching writing in English as a foreign language highly in the last four years. Most of the studies were focused exclusively on writing. Unexpectedly, ICT in EFL was used not only for teaching writing, but also for teaching the other main skills (reading, listening, and speaking) together with writing. Furthermore, technology has become useful because through it, students could expand their knowledge by accessing to material online. These results draw my attention to the importance of considering technology as a fundamental tool to facilitate learners their learning process and performance in second language classrooms.

Fourthly, in terms of participants' educational level, the vast majority of the studies were carried out at universities. A large amount of the studies followed the methodology of establishing two groups, the control group vs. the experimental group. The control group was formed by students who were taught in a traditional method, while the experimental group was made up with students who used a new method, which was implementing the use of an ICT tool. Overall, the control group's scores did differ significantly from those of the experimental group. A possible explanation for this might be that the use of technology maximizes learning capacities. Amira (2016) asserts that the experimental group outperformed the control group, which means that the experimental group improved their writing skills thanks to the ICT tool they used, which was *Screencast Feedback*; the experimental group outperformed the control group because they had a higher order concern of writing thank to the *Screencast Feedback* received from their teachers. In addition, Amira (2016) admits that the scores of the experimental group were higher than the ones of the control group, due to the ICT tool used (*Screencast Feedback*). Amira (2016) also argues that the technological tool used improved some abilities on students such as their capacity of construction and comprehension. In the same way, according to Sarhandi (2017), a high difference was found in his study between experimental group and control group. The experimental

group, using the new technological method revealed an increase in the level of task engagement.

The majority of the studies have made use of applications such as *Google Docs*, *Edmodo*, *Facebook*, *Whatsapp*, *Corpora*, and *Blogs* amongst. This finding is consistent with that in *The Handbook of Technology and Second language teaching and learning*, where Chapelle asserts that predominance of mobile technologies contributes learners with a wide variable of opportunities to record, reflect on, and share second language learning among their peers. As Chapelle (2017, p. 92) pointed out “Web 2.0 tools include the variety of social media sites, such as *Facebook* and *Twitter*, as well as *blogs*. For L2 learners, these sites provide unprecedented opportunities to experiment with their language in settings where their language appears before and communicates with real audiences [...]”. He further argues that this kind of applications such as *Google Docs* is an indispensable tool for collaborative writing improvement (Chapelle, 2017). An example of this is the study carried out by Alsubaie et al. (2017) in which it is analyzed if incorporating *Google Docs* as an online learning tool would improve the writing skill among students in class. The result was positive, since the scores of the students increased, as well as *Google Docs* was estimated to be a beneficial tool not only for individual writing, but also for collaborate writing.

Another important finding is that there was no meaningful difference between the use of applications and the use of internet based/techniques. Among the 42 revised studies, 11 studies deal with new technological techniques and four of those 11 studies have investigated the efficacy of flipped classrooms. Flipped classroom is defined by Zeynep Turan & Birgul Akdag-Cimen (2019, p. 3) as “an educational method in which homework and instruction are swapped and learning takes place beyond the classroom”. The effectiveness of the flipped classroom technique has been found in Kawinkoonlasate, (2019); Qader et al. (2019); Soltanpour et al. (2018), and Iyitoglu et al. (2017). These studies confirm the importance of integrating technology in flipped classrooms, with more electronic devices and resources available for instructors; they can implement new teaching methodologies to improve both EFL and English as a second language (ESL). Recent cases reported by Kawinkoonlasate, (2019) also support the essential need of including technology for both educators and students as to achieve better learning outcomes. The studies conducted by Qader et al. (2019); Soltanpour et al. (2018), and Iyitoglu et al. (2017) are prominent examples to demonstrate the benefit

of using Information and Communication Technology in class in order to improve the linguistics capacities of learners.

On the other hand, 41 of the revised studies were conclusive. Besides, 38 of 41 conclusive studies, were positive. This suggests that the vast majority of articles published from 2016 to 2019 under the keywords of “writing EFL technology”, have accomplished decisive studies because they have reached the end, establishing a determinative result. The examination of the studies comparing the new method (introducing TMC using an ICT tool) vs. traditional method revealed the advantage of the implementation of technology in L2 writing classrooms. In support of this approach, ICT tools have been shown to induce teaching in several cases (Rostami et al., 2019). In a similar case in Lebanon, DerKhachadourian (2017) identified that the integration of an ICT tool, in this case *PowerQuest* made learners be more self-motivated at the time of realizing the linguistic activities, both individually and collectively, in a technology-rich environment that benefits them positively. Previous studies have explored the causes of technology in EFL teaching (Nabhan et al., 2018). They further argued that most of the students participate in class with electronic devices instead of printed paper, despite the fact that some teachers continue using print-based literacy. From this perspective, the fact that instructors should incorporate technology into their teaching writing process to achieve better learning outcomes is one of the main repeated teaching implications that were suggested among the revised studies.

Regarding the number of participants in the studies, the findings show that more than half of the studies were conducted with less than 50 participants. These results suggest that the lowering of participants may reduce limitations of the studies for verifying its efficiency. Nevertheless, a possible explanation for this might be that the instructors, firstly, want to check if the method they are using works effectively, testing with a small group of people. In the event that the method is viable, then, it will be tested with more participants. Although, these results differ from some published studies (Alsmari, 2019; Bataineh et al., 2018), they are consistent with those that used more than 50 participants and both studies resulted to be positive exceeding the number of 50 participants.

The 42 studies taken into consideration in the present study, suggest some teaching implications to implement rules as to cover the role of teaching completely. By way of illustration, Alsmari (2019) identified using *Edmodo* as a vital tool to enrich student’s knowledge as well as arise motivation from them to learn. Alsmari’s

interpretation differs from that of Lund (2016) who argues that it should be paid more attention to handwriting as a tool for teaching English rather than to new technologies.

Lastly, one of the most noticeable similarities among the revised studies is that these studies have coped with some limitations, which means that when the experts have conducted their investigations, they have encountered some restrictions along the way. As a consequence, many studies, as a result of the analysis method they have used, have suffered some limitations. For example, Yang (2019) shows how the number of participants (32) in his study was a restriction. He further argues that his findings are not representative enough to take into consideration the use of the ICT tool he tested among their students, due to the scarcity of participants. Yang (2019) suggests that with a higher number of students, the result would have been more conclusive. In accordance with Yang, Shintani (2016) maintains that the results of the study are not accurately decisive due to the reduce number of students employed in the research. It is possible that these results were influenced by the lack of participants. Further studies, which take these variables into account, will need to be undertaken.

Overall, the second research question has been accomplished with these main findings obtained from the available literature review. Despite the fact that the literature review has had some limitations, these findings already analyzed draw our attention to the positively importance of implementing technology in second language writing process, since technology benefits learners to reinforce and widen the writing skill. Besides, the use of ICT tools is meaningful and collaborative for learners in their second language writing process. Students have always been afraid to write in a second language, because each language differs from others in many aspects. Nevertheless, the results of the present study verify that students are not afraid to write in a second language due to the use of ICT tools in classroom. What is more, learners are motivated to learn L2 writing skill process due to the emerging of technology in the educational field.

7. Conclusion

This study set out to assess the effects of the use of ICT tools in second language writing. Content analysis is the technique used for collecting the data of this study. 42 articles have been reviewed from nine different journals found in the ERIC, database. In general, the results highlight the potential usefulness of ICT tools for teaching English as a foreign language. The present review study shows that, in most cases, the use of technology in classrooms has positively helped students to develop, expand, and strengthen their writing skills. In addition, thanks to the implementation of technological tools in the classrooms, students find their teachers available, either synchronously or asynchronously. Making use of Technology-Mediated Communication in classrooms, it is not only a success for students at an educational level, but also at a cultural level, being able to socialize and share knowledge with peers.

Although this study has successfully demonstrated that technology is beneficial in the education field, it has certain limitations. This study is limited by its small scope of years. It has only reviewed the studies conducted between 2016 and 2019, which may be insufficient to perceive the effectiveness of using ICT tools in teaching the L2 writing skill. In addition to that, this study has been limited to investigating exclusively whether the technological tools help L2 writing or not. Besides, this study only has used one database, which is another limitation. Therefore, it is truth that the present study could have used other databases in order to complement the search.

Further research is required to establish the effectiveness of treatment with ICT tools in the different skills of the L2 educational field, such as speaking, reading, and listening. On the other hand, future studies on the current topic are therefore recommended. In future investigations, it might be useful to see how the use of certain ICT tools affects written socio cultural competence. Also future research should be undertaken to investigate if ICT tools encourage written language communication competence.

This combination of findings provides some support for the conceptual premise that review studies are essential to have updated knowledge on a topic, in this case the use of technology in learning skills in L2. Overall, this study has served to identify that the use of ICT tools has great potential pedagogical benefits for L2 writing.

8. References

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