THE DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES ON THE TEACHING OF FOREIGN LANGUAGES: STATE OF THE ART [1]

AS TECNOLOGIAS DA INFORMAÇÃO E COMUNICAÇÃO NO ENSINO DE LÍNGUAS ESTRANGEIRAS: ESTADO DA ARTE

LAS TECNOLOGÍAS DIGITALES DE LA INFORMACIÓN Y LA COMUNICACIÓN EN LA ENSEÑANZA DE LENGUAS EXTRANJERAS: ESTADO DEL ARTE

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[1] This work results from the expansion of a Scientific Initiation research, whose preliminary version of the data collection and analysis was published, in August 2020, as an article in the International Congress of Technological Studies (Carvalho and Sataka, 2020). That article's time frame was ten years (2009 to October 2019). However, for the development of this study, this period was expanded, and a complementary analysis was conducted, given the relevance of understanding the impact of social isolation and the pandemic context for language teaching and learning. Available at https://cietenped.ufscar.br/submissao/index.php/2020/article/view/1235. Accessed on: 10 Dec. 2022.

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ABSTRACT: As a result of the pandemic, emergency remote teaching and the growing presence of Digital Information and Communication Technologies (hereinafter ICDTs) in life in society and in the teaching of Foreign Languages (hereinafter FL), there is an increase in the number of studies investigating benefits and challenges of digital resources in Education. In this context, this work aims to outline the state of the art on the use of ICDTs in FL teaching, in addition to addressing topics such as digital literacy and mediatic competency, which are deeply intertwined with the theme. After analyzing the collected data, we observed that the number of studies on ICDTs with the insertion of such resources in the field of Education is increasing, that works in the area of English as a FL predominate, that the number of publications is greater in journals and annals of events and, finally, that studies, in general, tend to focus on technology as a learning tool.

KEYWORDS: ICDTs. Teaching of FL. Multiliteracies. Digital literacy. Midatic competency.

RESUMO: Em decorrência da pandemia, do ensino remoto emergencial e da crescente presença das Tecnologias Digitais da Informação e da Comunicação (doravante TDICs) na vida em sociedade e no ensino de Línguas Estrangeiras (doravante LE), nota-se um aumento do número de estudos investigando benefícios e desafios dos recursos digitais na Educação. Nesse contexto, este trabalho visa traçar o estado da arte sobre o uso de TDICs no ensino de LE, além de abordar tópicos como letramento digital e competência midiática, profundamente entrelaçados à temática. Após a análise dos dados coletados, observamos que é crescente o número de estudos sobre TDICs com a inserção de tais recursos no campo da Educação, que trabalhos na área de inglês como LE predominam, que o número de publicações é maior em periódicos e anais de eventos e, por fim, que os estudos, em geral, tendem a focar na tecnologia como ferramenta de aprendizagem.

PALAVRAS-CHAVE: TDICs. Ensino de LE. Multiletramentos. Letramento digital. Competência midiática.

RESUMEN: Extranjeras (en adelante LE), se está incrementando el número de estudios que investigan beneficios y desafíos de los recursos digitales en la Educación. En ese contexto, este trabajo tiene como objetivo delinear el estado del arte sobre el uso de las TDIC en la enseñanza de LE, además de abordar temas como la alfabetización digital y la competencia mediática, que están profundamente entrelazados con el tema. Luego de analizar los datos recolectados, observamos que el número de estudios sobre las TDIC con la inserción de tales recursos en el campo de la Educación es cada vez mayor, que predominan los trabajos en el área de Inglés como LE, que el número de publicaciones es mayor en revistas y anales de eventos y, por último, que los estudios, en general, tienden a centrarse en la tecnología como herramienta de aprendizaje.

PALABRAS CLAVE: TDIC. Enseñanza de LE. Multialfabetizaciones. Alfabetización digital. Competencia mediática.

Introduction and justification

According to data from the survey "TIC Domiciles 2020" (COVID-19 Edition - Adapted Methodology), promoted by the Brazilian Internet Management Committee, the percentage of households with Internet access is 83%, increasing by 12 percentage points compared to 2019[5]. From this 83%, we can infer that a large percentage of access to the network is done through mobile devices since, according to a survey conducted by the Getúlio Vargas Foundation in the first half of 2020, there were 234 million digital devices, not counting tablets and notebooks.

Access to mobile technologies is, remarkably, a reality that has transformed how technologies are treated. According to Rojo (2013), notebooks and cell phones are increasingly perceived as collaborative production machines rather than mere reproduction machines. However, it is important to consider this number of internet users as well, given the context of the COVID-19 pandemic, in which students, teachers, and professionals from the most diverse areas were forced to insert themselves emergently into the digital environment.

As a result of the greater availability of content, access to materials such as virtual textbooks and audio files has also changed. With regard to language teaching and learning, unlike a few decades ago, today, it is increasingly easier to get in touch with foreign language productions, allowing a "virtual linguistic immersion" (BRAGA, 2013).

Thus, Braga (2013) elucidates that, with the Internet, it was possible to immerse oneself in the target language culture without needing foreign physical materials (such as magazines) or expensive trips to countries that speak that language. So today, learners of a particular LE can access valuable online tools such as dictionaries, written and audio journals, and grammar, as well as find communities or websites of interest to them, created by speakers of that language or not. Studying the language in informal contexts, through teaching platforms such as Duolingo, or from series or movies, and podcasts in LE, among many other possibilities made possible in/by cyberspace. Consequently, the student's profile also changes, becoming more active and with other demands (ROZENFELD; MARQUES-SCHÄFER, 2017, p. 9, our translation).

Institutions such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) have positioned themselves favorably to the use of ICTs in

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[5] Available at: https://cetic.br/pt/noticia/cresce-o-uso-de-internet-durante-a-pandemia-e-numero-de-usuarios-no-brasil-chega-a-152-milhoes-e-o-que-aponta-pesquisa-do-cetic-br/. Access: 09 Apr. 2022.

educational processes, considering that in the document Policy Guidelines for Mobile Learning (UNESCO, 2014) are even proposed teaching practices that involve the use of ICTs in teaching. Another example is the ProInfo, created by the Ministry of Education, an educational program that aims to democratize digital resources to benefit education based on recognizing the potential of such resources (BRASIL, [21--]).

Emergency teaching greatly impacted learning contexts since teachers found themselves with no options to teach during social distance if not for using ICTs. Some authors state that, after students and teachers are compulsorily inserted in the sphere of media technologies, given the previous affinity of some students with such sphere, it will be difficult to completely return to traditional teaching, that is, with merely expository and unilateral classes. As Brito and Morais (2020, p. 412, our translation) state

> At the end [of the pandemic], we will have a new look at education, where technology will no longer be just a moment to become part of the educational process more fluidly. Instead, it will require the training of professionals, the acquisition of skills by the students, and a continuous and present insertion in the school's daily life.

Remote teaching during the pandemic required digital resources, and the relationship established between teachers and students with such tools may change. We reiterate, however, the continuous need for reflections on the use of technologies in pedagogical processes.

Thus, taking into account the considerations elucidated above about the changes in the student profile in the last decades, the development of different teaching practices, the creation of incentive policies, and the period of emergency remote teaching during the pandemic, we assume that the academic production in the area of Applied Linguistics about this subject has expanded. Because of this expansion, it is important to elaborate a State of the Art[6] study on this theme, allowing us to obtain a panorama of the academic productions on the subject.

We found two productions on the State of the Art about ICTs in LE teaching: Anjos Santos (2013) and Viegas and Goulart (2020). However, the first author is already seven years old, and the second is limited to theses and dissertations of post-graduation *stricto sensu* courses of Higher Education Institutions in the State of Minas Gerais.

Thus, in this work, our general objective is to perform the State of the Art of academic productions about Digital Information and Communication Technologies (DICTs) in the

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[6] A "State of the Art" consists, according to Almeida Ferreira (2002), of collecting bibliographic data referring to several texts and weaving a web of knowledge about a certain thematic issue.

teaching and learning of foreign languages from 2009 to 2021. As specific objectives, we intend to: (1) map, graphically, the recent scenario of academic works about ICTs in LE teaching/learning; (2) understand the use of ICTs in LE educational practices; (3) and contribute to the studies in the area.

This research methodology is qualitative and corresponds to bibliographic research (LIMA; MIOTO, 2007). The bibliographical research differs from a simple literature review, as it seeks to understand not only the relationship between concepts but their historical reason, formation, purposes, ideals, and social implications. In short, bibliographic research is characterized by much greater care for how knowledge is constructed (Ibidem).

In this sense, this State of the Art can contribute to the study area of Applied Linguistics and Language Education since we aim to draw an updated panorama of academic productions about the relationship between ICTs and the teaching and learning of LE.

Having explained our introductory considerations, we will discuss the theoretical framework underlying this work in the next section. Subsequently, we will address the research methodology, highlighting its nature and the collection and analysis procedures. Finally, we will present state of the art.

ICT in LE teaching/learning

The first issue we will address regarding using ICTs in LE teaching concerns the possibilities for the language student, from easy access to oral or written texts of the target language. The TELETANDEM project, for example, developed at the Faculdade de Ciências e Letras (UNESP) in Araraquara, promotes contact between students from Brazil and international students who are learning Portuguese using computers and communicative tools with audio and video. We highlight, from this program, the easy contact with Brazilian people who are proficient in or have the target language as their first language or mother tongue. Such contact was quite difficult before the access to ICTs since it involved the transportation of people over long and costly distances.

In addition, digital technologies are already part of the environment of many of the younger students in different contexts, as they have often grown up using them. For example, Prensky (2001) classifies these students as "digital natives" who live with a rapid exchange of information on a daily basis. However, this fact makes them frustrated in the classroom when they are required to behave passively for long periods of time.

As we mentioned, Prensky (2001) proposes the terms digital natives and immigrants about the young people who were born in this period of the DTICs and grew up with them, and the immigrants would be the other generations. However, we understand the limitations of this dichotomy today, given the technological and social transformations that have occurred since its creation in 2001. Nevertheless, we emphasize the relevance of Prensky's (2001) debate, which demonstrates the importance of reflecting on Education in a way aligned with the changes in its contemporaneity.

One cannot ignore, however, the discrepancies in the spectrum of access to the digital world, which is so indispensable today: access to ICTs "is closely related to the place of residence, receipt of government assistance, level of education, and work activities" (ANJOS; CARDOSO, 2022, p. 2, our translation). Thus, despite the growing presence of the new profile of students in educational institutions, it is relevant to consider the large portion of the population that still does not have access to home internet.

Mello (2018) highlights the impact of ICTs on teacher training and the need to reflect on teaching in the digital age. The author argues that "to build new [teaching] practices, one needs, among other factors, a knowledge that offers theoretical and methodological subsidies for ICTs to be used in an effective and meaningful way" (MELLO, 2018, p. 66, our translation). Thus, the pedagogical objectives must be critically analyzed, and the technological resources selected in a manner consistent with them and the context. Teaching practices mediated by digital technologies without any innovation, in the face of the demands of the growing new profile of students, do not contribute to their digital literacy, a term that will discuss further on.

In reflection on the appropriate use of ICTs in teaching, Negumo, and Teles (2016) state that "although young people make daily use of smartphones at school for various activities, most teachers have not yet been able to develop pedagogical practices with cell phones in the classroom" (NEGUMO; TELES, 2016, p. 368, our translation). The authors recognize the existence of activities involving ICTs in the classroom but reiterate that only putting the technologies in the classroom without considering adequate pedagogical practice is not the way to go.

Marques-Schäfer (2015, p. 4, our translation) corroborates the authors by arguing that it would be "wrong to imagine that the simple fact of making computers available in schools would provide the digital literacy of citizens, especially teachers." In her statement, the author accesses the concept of digital literacy, developed by Almeida (2005), which refers to the social practice of digital technology and not only it's learning. However, she also draws attention to

the teachers' side: recognizing that digital technologies (such as cell phones and tablets) are part of many students' lives is as necessary as recognizing that they are new to some teachers.

Thus, digital literacy is necessary for both the teacher and the student, and, in the case of the latter, this literacy should be focused on the use for learning and not only for entertainment. As digital literacy is an extension of Freire's literacy idea (ALMEIDA, 2005), learning to critically read written or multimodal texts in digital media rather than passively consuming content is also fundamental. Such considerations are pertinent to discussing the realization of emergency remote learning during the COVID-19 pandemic in 2020 and 2021. In a context of teaching not spontaneously mediated by digital technologies, it is possible that some wear and tear against the traditional method have been evidenced, at least in the institutions that were able to hold remote classes.

For Rabello (2021, p. 29, our translation), "the pandemic highlighted the importance of ICT for the maintenance of educational processes and the relevance of teacher training for integrating these technologies to teaching-learning practices". In line with the author, Denardi, Marcos, and Stankoski (2021, p. 14, our translation) state, in a survey conducted in the first half of 2020, that even though teaching should remain face-to-face, technologies will be even more present in the post-pandemic period, as they represent didactic and methodological possibilities.

From the reflections presented in this section, it is evident the importance of appropriate training by teachers to prepare pre-service or in-service teachers with the new student profile, adequately using the DTICs. Then, having presented the reflections that underlie the research in this section, we will present the methodology of this work.

Methodology

According to Silveira and Córdova (2001, p. 31), scientific research will understand reality, thus providing us with subsidies to transform it. We classify this work as qualitative in nature, as it aims to interpret the object of study and perceive it in a historical context (SILVEIRA; CÓRDOVA, 2001), which we also do in the development of this research in addition to the quantification and illustration of the data collected in the form of graphs.

Moreover, this research is characterized as bibliographical about its procedures: for Lima and Mioto (2007), all research begins with a brief review of the bibliography, but the bibliographical research, besides being very in-depth, "requires a high degree of

epistemological vigilance, observation and care in the choice and routing of methodological procedures" (p. 44, our translation).

Our bibliographical search focused on scientific articles available on the Google Scholar platform because it is widely used in academia by researchers, are free, and has scientific papers indexed in the network, such as, for example, in journals. The time frame was from 2009 to 2021.

Regarding data collection, it was based on using "search engines" to find items of interest and the articulation of multiple keywords, narrowing the search results. For example, in Google Scholar, it is possible to use features such as AND and OR, which indicate to the search engine that, in the search, there should be the presence of both or only one of two elements. For example, searching for "ICTs AND LE" will only show texts that present both keywords, and searching for "ICTs OR LE" will only show texts that present one or the other keyword, not both.

Using combinations of distinct terms (ICTs and LE) and close terms (ICTs and ICTs), and after examining the results count, we searched for the best combination of words to insert in the search engine, i.e., the one that would present us with the largest number of results relevant to the thematic cutout. The term was, thus, "the use of ICTs in LE teaching". We then inserted it as follows: ["teaching of LL. OR "foreign language teaching" OR "foreign language teaching" AND "digital information and communication technologies" OR "digital information and communication technologies"].

Finally, we analyzed 250 papers published between January 2009 and December 2021. This analysis was done through their titles, abstracts, keywords, and fact sheets, and provided us with the following main information: title, date of publication, authors, responsible institution (in the case of event journals, the responsible event), referent LE (or to which the text directs greater focus), type of text (dissertation, thesis, etc.) and purpose. Thus, we organized the papers found in a table, whose first line is illustrated in Table 1.

Table 1 - Form of organization of the papers found

Date	Type	Institution	LE referent	Purpose

Source: Prepared by the authors

In the category purpose, we inserted the main focus of the research, and we assigned it three main central axes: 1) expansion of the scope of language and learning, 2) teacher training, 3) language policies and 4) state of the art.

In the first axis (broadening the scope of language and learning), we included papers focusing on the relationship between students and ICTs. In the second axis (teacher training), we classified those papers that discuss teacher training to use technologies in the classroom and the appropriateness of methods. In the third axis (language policies), we included papers discussing the social impact of ICTs on LE teaching and students' digital literacy. Thus, the purpose refers to the focus of the analyzed text.

It is worth mentioning that although we have established three main categories for the classification of the themes of the papers and inserted each of them in only one of them, this does not prevent a subject from relating to more than one axis because the discussions are always woven from an interaction between them. However, for classification and analysis, we have taken the central theme of the research as its sole purpose.

Having categorized the papers collected by the search engines and extracted their information, we organized them in graphs and a table to better visually represent the predominance of certain institutions, foreign languages, practical purposes, etc. All in all, this contributes to drawing a panorama about the thematic clipping.

Finally, the data analysis corresponds to the interpretative reading of the data organization in graphs and tables (see Table 1). In this way, we discuss the concepts presented in the theoretical foundation (ALMEIDA, 2005; PRENSKY, 2001, among others) to discuss the potential that the use of ICTs can offer in LE teaching in education as a whole.

After discussing our methodological choices and the directions we seek to take in terms of analysis, we present in the next section the discussion of the data collected.

State of the art: Research on the use of ICTs in the process of teaching and learning LE

As we have already explained, the development of the DTICs has been gradual, and from that, there has been an expansion of works about using such devices in educational processes, especially in Applied Linguistics and Education. Thus, we carried out the data collection and analysis procedures described in the methodology section and discussed them in

this section. Of the 250 papers analyzed, we first verified in which institution they were developed. Table 1 illustrates the result in absolute quantity.

Table 1 - Count of papers found by institution (from January 2009 to December 2021)

UNESP — **21**	UNIPLAC — **2**	PUCRS — **1**
UFSCAr — **15**	UNINTER — **2**	PUCSP — **1**
N/A — **14**	UEM — **2**	IFECT RJ — **1**
USP — **10**	Unipampa — **2**	FASA — **1**
UFMG — **9**	UFSM — **2**	UNIFRAN — **1**
Unicamp — **9**	UFERSA — **2**	IFAM — **1**
UEG — **5**	UFPA — **2**	UFJF — **1**
UFU — **7**	UNISC — **2**	Unitins — **1**
UFSC — **7**	IFSC — **2**	UNIFAP — **1**
UEPB — **7**	UNA (Asunción) — **2**	UCS — **1**
IFPB — **7**	FIEP — **2**	UMESP — **1**
UFPel — **7**	UFAL — **2**	UNLP — **1**
UFS — **6**	Unicap — **2**	UNIMES — **1**
UERJ — **6**	UTFPR — **1**	UM — **1**
Unioeste — **5**	UFBA — **1**	UNESPAR — **1**
UFES — **5**	UERN — **1**	Unit — **1**
UFRGS — **4**	UFSJ — **1**	UNIFAL-MG — **1**
UFMA — **4**	URI — **1**	UFG — **1**
UFPB — **4**	Metodista — **1**	UFGD — **1**
UFCG — **4**	UCPel — **1**	UFF — **1**
IFRS — **4**	UNIVÁS — **1**	UNIFAN — **1**
PUC — **4**	UCDB — **1**	UECE — **1**
UEL — **3**	UNIJUI — **1**	UNESC — **1**
UFT — **3**	Unopar — **1**	UNIC — **1**
UFRN — **3**	IFPV — **1**	UFRJ — **1**
UFPR — **3**	UFAC — **1**	Unigranrio — **1**
UnB — **3**	FSA — **1**	UESC — **1**
UFC — **3**	UNISAGRADO — **1**	

Source: Prepared by the authors

We chose not to represent the data in graphs since the number of individual institutions would make a percentage graph incomprehensible. The institution with the largest contribution, in terms of the number of publications attributed, is UNESP, which totals 21 publications, or 8.4%. The institutions with only one publication each have a percentage of 0.4% of the total.

In addition, 5.6% of the contributions are not linked to any institution and refer to the third place in the table, N/A (unaffiliated). Only UNESP and UFSCar have higher values, with 21 and 15 publications, respectively, and both added together correspond to 14.4% of the total publications.

We also observe that although there are only 16 affiliations with five or more publications, they correspond to only 10.4% of the total.

We also verified the type of work about the academic genre, as illustrated in Figure 1.

**Figure 1 -** Academic genres (from January 2009 to December 2021)

N° of Publications
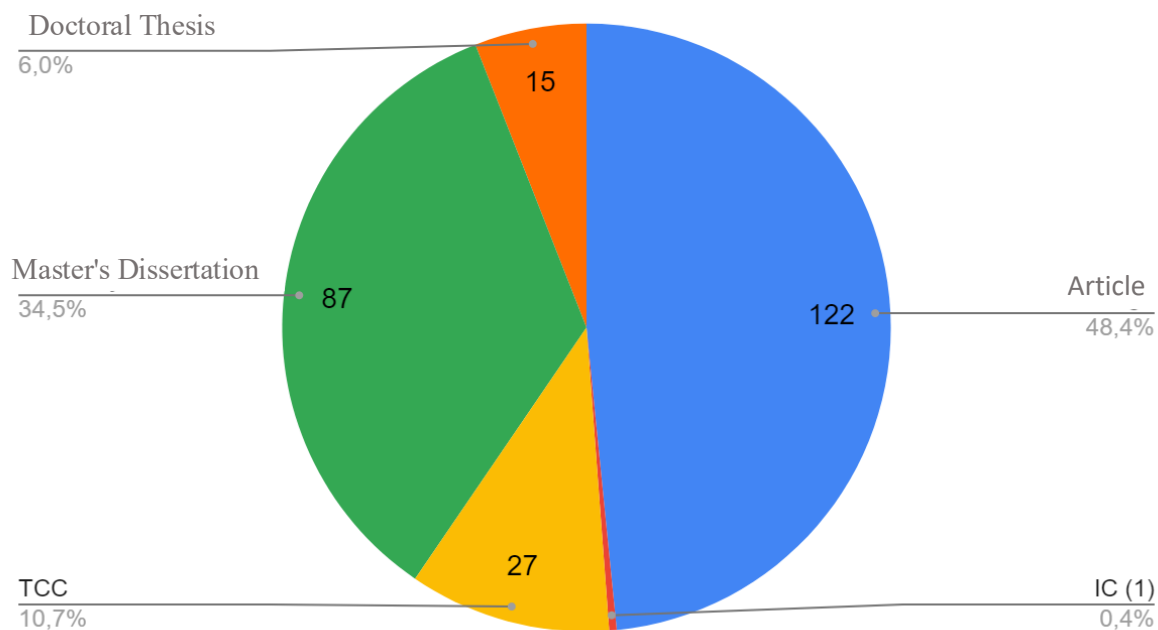
Source: Prepared by the authors

Regarding the number of works by academic genre, articles represent the greatest contribution in numerical terms, with practically half the total. The number of articles, which includes articles from periodicals, event proceedings, and books, is 122, 7 less than the sum of the numbers corresponding to Course Completion Papers (TCCs), Master's Dissertations, and Doctoral Theses.

The second highest percentage is that of Dissertations, with 34%, combined with 6% of Theses. In comparison with the undergraduate contribution, with the 10.7% of TCCs and the only Scientific Initiation found in this data collection, it is remarkable the interest of studies at the graduate level for the theme of ICTs in the process of teaching and learning LE.

Among them, Figure 2 presents the proportion of works dedicated to different foreign languages.

Figure 2 - Languages focused in the works (from January 2009 to December 2021)

N° of Publications per Language
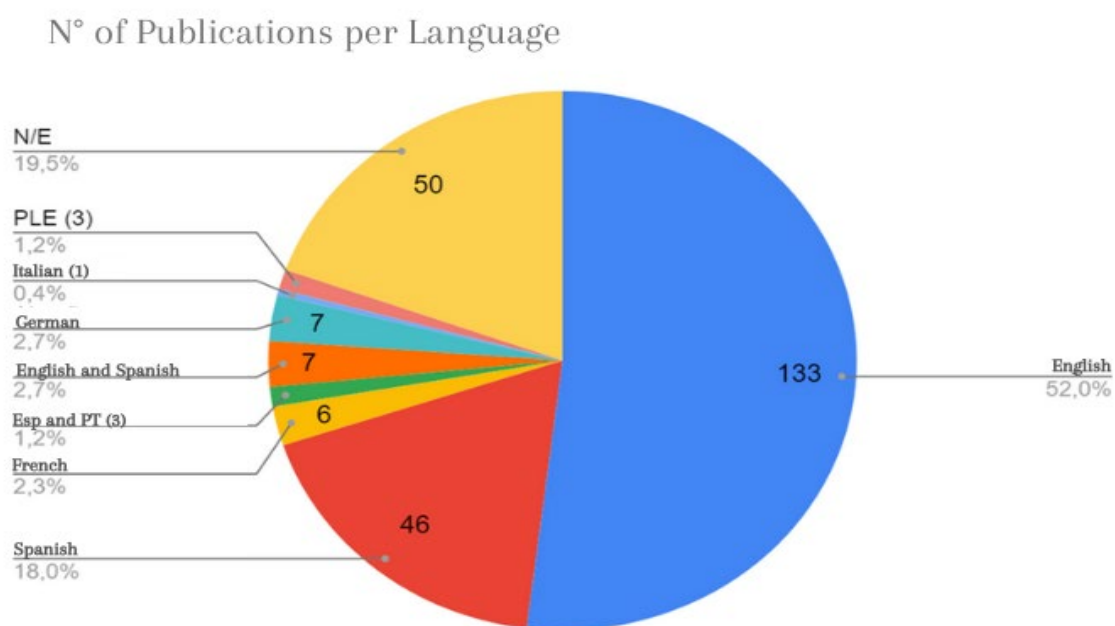
Source: Prepared by the authors

The focus on teaching and learning English is predominant in the papers on technologies in language teaching and learning, with 52%. In the second place, with 19.5%, there is N/E, which we use to identify research that does not assume a single language as its focus. In third place, with 18%, is Spanish. The other languages listed in the graph together occupy 10.5%. We note that Italian has only one corresponding publication. It is worth noting that this work was absent in the first data collection stage.

We believe that one of the factors for the greater prominence of works in the area of English as a second language, especially in Brazil, is the fact that it is the only foreign language offered compulsorily in the regular school curriculum, besides being the language with the greatest visibility, prestige, and use on the international scene. However, it is important to remember that Spanish is the language of the countries neighboring Brazil, but even so, it is the focus of less than half of the productions focused on the English language. This scenario points to the relevance of developing more research in Spanish and other foreign languages.

It is also remarkable how often languages are dealt with generally, without assuming one of them as a specific focus, higher than Spanish. This fact may indicate a greater concern

with more general concepts and processes, which may contribute to the teaching and learning of all LE.

It is also worth mentioning that studies focus on two languages simultaneously, such as "English and Spanish" and "Spanish and Portuguese". However, we observed the absence of works about the educational processes of languages such as Mandarin or Japanese. Thus, even though 19.5% of the productions aim to collaborate with the teaching of FL in general when we consider that each language has its specificities, the languages that are not the focus of research seem to us to be harmed and deserve reflection the fact that only one foreign language holds the interest of 52% of the publications.

In this State of the Art, we consider it relevant to identify the research goals. As described in the methodology, the objective (purpose in this work) is the specific focus of research within the theme "ICTs in the teaching/learning of LE". Thus, we organized a chart (Figure 3), which illustrates the objectives found in our corpus.

We remind you that the objectives were categorized into language policies [social impact], state of art, training and preparation [for the use of ICTs], and broadening the scope [relationship between the learner and ICTs].

Figure 3 - Purposes (from January 2009 to December 2021)
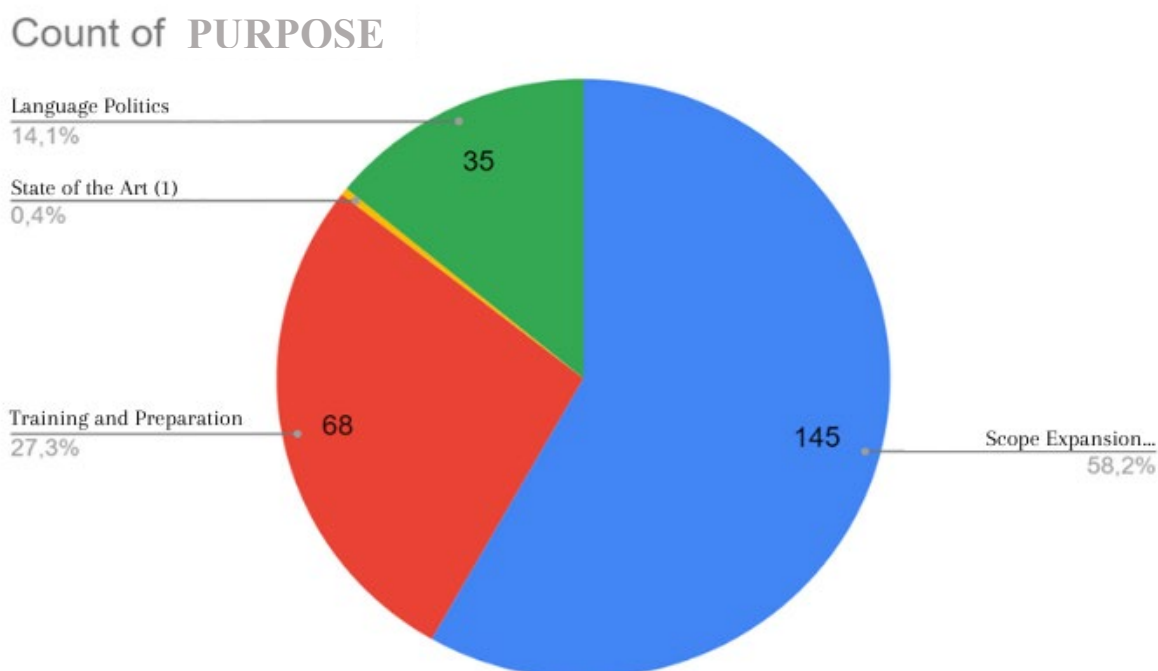
Source: Prepared by the authors

We notice that, among the objectives, there is a predominance of scope broadening. In other words, most of the studies focus on the relationship of the LE student with ICTs as a learning tool. An example of this classification in our collection is the article "Higher education English learners' experiences with Kahoot: collaboration and multimodality at play" (TIRABOSCHI *et al.,* 2019), which reports on the use of the Kahoot resource in a higher education classroom, seeking to combine multiliteracies pedagogy with collaborative learning. Another example is "Learning assessment in distance education: analysis of the activities of a foreign language course" (COSTA, 2016), which aims to highlight the benefits of constantly assessing student learning in a distance education context.

This fact highlights a greater concern in discussing using ICTs in language teaching, especially student learning. However, this does not mean that these studies do not discuss issues related to teacher training or the social impact of ICTs on LE teaching, for example. As we pointed out in the Methodology, these different scopes of discussion are necessary, but they are not the focus of these investigations.

After the expansion of scope, teacher training is the predominant category; an example of this classification is the article entitled "Curation of meaning in digital multiliteracies in the English language course at the Federal University of Acre", which investigates how English teachers at the mentioned institution are prepared for ethical and critical curation of meaning in digital multiliteracies (KIELING; SILVA-ANTUNES; OLIVEIRA-CODINHOTO, 2021). Finally, there are the politics of language; in this classification, an example is the article "English language teaching and digital culture in pandemic times: the challenge of overcoming the short time between what is said and what is lived" (SOUSA; OLIVEIRA; MARTINS, 2020), which aims to understand the conditions of teachers, students, and English teaching itself in the pandemic period. The predominance of teacher training points to a great concern with the qualification of education professionals for using ICTs.

Finally, we found a State of the Art with preliminary data from research published in 2020 by the authors of this present work (CARVALHO; SATAKA, 2020). Although this is the only one of this nature captured by the Google Scholar search engine, we established this fourth classification in the Methodology because we anticipated finding, in this final version of the collection, at least two specific works: those of Anjos Santos (2013) and Viegas and Goulart (2020). However, contrary to our expectations, they did not appear in our Google Scholar search.

In continuity, we present in Figure 4 the number of productions per year.

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Figure 4 - Graph of productions per year
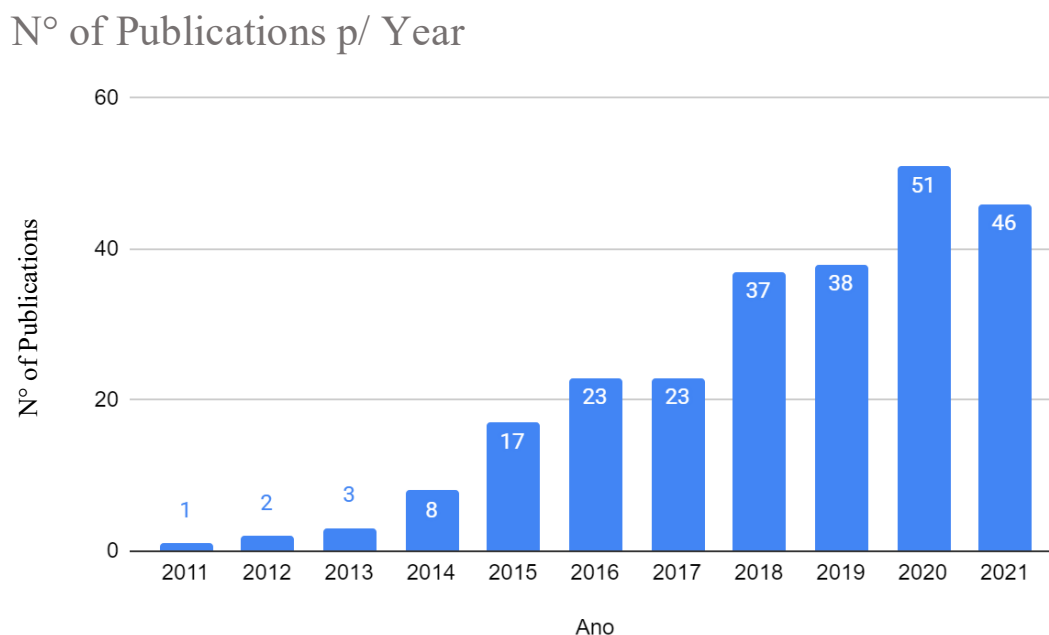
Source: Prepared by the authors

From Figure 4, it is possible to notice a growth in the number of productions focused on ICTs for language teaching and learning. The data shows the tendency to increase studies in the area with a focus on this theme, reaffirming the growing interest in ICTs in studies of the teaching and learning of LE.

We also observed that, although the time frame was from January 2009 to December 2021, we did not find any productions before 2011, which leads us to think that there was an increase in academic interest in the theme in recent years.

Having exposed the data analysis, we present our final considerations.

Final considerations

This work arose as an extension of a Scientific Initiation project with the same objective, whose time frame was 2009-2019. A preliminary version of the data collected from this initiation was published as an article in 2020 and was also the only one found in the last version of the data collection, which makes up the body of analysis of this work. The fact that the only State of the Art found in this last data collection was an earlier version of the same data collection reaffirms the importance of this work.

This research aimed to perform the State of the Art of academic productions about Digital Information and Communication Technologies (ICTs) in the teaching and learning of foreign languages from 2009 to 2021. As specific objectives, we sought to (1) map, graphically, the recent scenario of academic works about ICTs in the teaching/learning of LE; (2) understand the use of ICTs in educational practices of LE; (3) contribute to the studies in the area.

We focused on the last 12 years of production in the Google Scholar search platform. We found 250 papers that analyzed the year of production, institution, foreign language, referent, academic genre, and purpose. After analyzing the data collected, we made some reflections that we consider important.

First, regarding the institutions, we noticed a predominance of UNESP in relation to the others, but even so, the periodicals and events together represent the largest percentage of the contribution.

Regarding the academic discourse genre of academic studies, the post-graduation papers (dissertations and theses) represent a higher percentage than the articles in journals or event proceedings, contrary to the expectation that the papers in journals and events would have a more significant presence for being less extensive.

Concerning the scope of the foreign language studied in work on LE teaching and learning and DTICS, we observed a predominance of the English language, possibly due to its role in the current context. There is also a notable amount of texts with no indication of a specific LE, which may point to a greater concern with the general issues of the topic rather than with a specific language.

As for the purposes, i.e., the objectives of the work, we noticed that the productions focused on the Broadening of the Scope of Teaching and Language, that is, on the use of certain technologies in teaching and learning, representing the majority of the works found. The works on Teacher Training and Preparation and Language Policy are considered less present. Although we found some, we emphasize the relevance of expanding this number.

Regarding the year of publication, the interest in the theme has grown concomitantly with the development and growth of access to the technologies themselves. There was also a jump of approximately 45% between 2019 and 2020, which marked the pandemic's beginning.

Therefore, we hope to contribute to a general understanding of the topic and future researchers to set their priorities and goals in the face of the breadth of studying "ICTs in LE teaching." Our study shows there is still a long way to go in this line of study.

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