

Digital Technologies Permeating the Pedagogical Practice of Foreign Language Courses at a Distance

Márcia Gorett Ribeiro Grossi, Shirley Doveslei Bernardes Borja &
Alex Rosa Almeida

Centro Federal de Educação Tecnológica de Minas Gerais (CEFET-MG)
Belo Horizonte - Minas Gerais
Brazil

Abstract

This article focused on Distance Education (EaD) and aimed to verify which digital technologies permeate the pedagogical practices present in the Virtual Learning Environments of the foreign language courses offered on internet. The research carried out followed the principles of qualitative research. Regarding to the type of research, it was exploratory and descriptive. In relation to the technical procedures, it was used the bibliographic research. The results show that with the development of digital technologies, foreign language teaching through EaD has been changing, allowing methodologies which turn out the possibility of interactive and flexible learning, mainly due to the current applications used in computers, but which may also be accessed by mobile devices, such as Smartphone.

Keywords: Distance education, Digital Technologies, Foreign Language Teaching, Virtual learning environments.

1. Introduction

The great technological changes which have occurred in the last decades have influenced all spheres of society and among them: education. In this context, the development of digital technologies offers different tools which can contribute to the improvement of teaching and learning process of all educational modalities. According to 2014 data from a survey conducted by the Center for Studies on Information and Communication Technologies, has increased the ease of acquisition of personal computers, as well as expanded the use of internet, including the growth, each year, of number of people using the Internet for educational purposes, involving school research activities, searching for information about undergraduate / graduate / extension courses, searching for books in online libraries, and developing online courses, which represents the technological advance in education. One of the consequences of this technological advance has been the expansion of Distance Education (EaD), which is, currently, the fastest growing modality of education in Brazil. According to data from the Brazilian Association of Distance Education (ABED), enrollments in 2014 add up to 519,839 in fully regulated distance courses, 476,484 in semi -reserved regulated courses or EaD courses in face-to-face courses and 2,872,383 in free courses, with records of 3,868,706. Among the free courses, we highlight the online foreign language courses, which has been following the expansion of EaD due to, mainly, two factors: the mastery of a foreign language is no longer a differential but mandatory in social and professional lives of people, and for the advantages that this modality of teaching offers like the flexibility of time and place, as well as the saving of time and money. A key question must be posed here: with the development of the interaction and communication tools grouped in the so-called Virtual Learning Environments, which were leveraged with WEB 2.0, what have been the digital technologies used in the pedagogical practices of foreign language courses offered at a distance? Thus, this article focuses on the study of EaD and aimed to verify which digital technologies permeate the pedagogical practices present in the virtual learning environments of foreign language courses at a distance through the internet.

2. Theoretical Background

2.1 Distance Education: Historical Context and Main Concepts

EaD is a kind of teaching modality which has been growing all over the world, and also in Brazil, e it appeared around 1994. However, the chronological framework of its regulation in Brazil was in 1996 with the political regulation in the Law of Guidelines and Bases for the National Education, Law No. 9,394 of December 20, 1996, which for the first time regulates EaD as a valid and equivalent modality for all levels of education, regulated by Decree No. 5,622 of December 20, 2005 and defined in Ministerial Order No. 4,361 of December 29, 2004. Nowadays, talking about EaD, it is thought of computers and the internet. However, this mode of teaching uses several technological resources that have been around for a long time. According to Moore & Kearsley (2007), in this same line of thought, EaD did not start with the advent of the internet and has been evolving over five generations, coexisting to the present day, and this evolution is identifiable by main communication technologies, which can be observed as follows:

- 1st generation: started in the 1880s, due to the creation of more accessible postal services that provided a more individualized education supported by correspondence study.
- 2nd generation: started in the 20th century, due to the emergence of radio and television, adding the oral and visual dimensions.
- 3rd generation: started in the late 1960s, characterized by the emergence of open universities, integrating audio / video and correspondence with face-to-face orientations.
- 4th generation: started in the 1980s, with the help of computer, teleconferences were used for real-time student interaction with students and instructors.
- 5th generation: with the development of computers in 1975 and the internet in 1993 a generation of online virtual classes has emerged. EaD is already applied worldwide with collaborative learning on a single communication platform.

It is understood, then, that the evolution of EaD is related to the use of technologies, which increasingly provide a greater possibility of transformation of the environment and the subject and has been configured throughout history as the subject uses of them. However, it is noticed that its concept is not yet unique among the students of this modality of education. A selection of the main concepts about EaD was made (Table 1).

Table 1: Distance Education Concepts

Authors	Definition of EaD	Year
Moore	It is a type of method of instruction in which the teaching behaviors happen to apart of the students, in such a way the communication between teacher and student may be made through printed texts, electronic means, mechanics or other techniques.	1972
Peters	It is a rational method of sharing knowledge, skills and attitudes, through the application of division of labor and organizational principles, as well as through the extensive use of media, especially for the purpose of reproducing high quality technical materials, which make it possible to instruct a large number of students at the same time. It is an industrialized way of teaching and learning.	1973
Holmberg	It is a model of education that covers different forms of study at the various levels that are not under the continuous and immediate supervision of tutors present with their students in the reading rooms or in the same place.	1977
Nunes	It is a resource of incalculable importance to serve large contingents of students, more effectively than other modalities and without risk of reducing the quality of services offered as a result of the expansion of the audience served.	1994
Moore & Kearsley	It represents the planned learning that normally occurs in a place other than the teacher and as a consequence requires special course planning techniques, specific instructional techniques, special communication methods, electronic or other, and specific organizational and administrative structure.	1996
Niskier	It is the model of education in which students and teachers are separated by a certain distance, and sometimes by time, representing the breaking of the paradigm, in which to exist teaching, it would always be necessary to count on the figure of the teacher in the classroom and a group of Students.	2000
Maia & Mattar	It is a modality of education in which teachers and students are separated, planned by institutions and using several communication technologies.	2007
Barbosa & Nunes	It is a process under construction, and reveals a great pre-disposition for the discussion of problems and an open vision for learning the interlacing and confrontation of different conceptions.	2009

Source: Designed by Authors.

In addition to the conceptual differences, Formiga (2008) draws attention to the history of distance education terminology that has gained other terms, often used as synonyms, influenced mainly by the technology used in a given period, as shown in Table 2.

Table 2- Historical Evolution of EaD Terminology

Most Usual Terminology	Period of domain
Teaching by mail	Since 1830s until the first three decades of 20th century
Distance Teaching; Distance Education; Lifetime Education.	In 1930s e 1940s
Tele-education (radio and television broadcasting)	Beginning in the second part of 20 th century
Open and Distance Education.	In the end of 1960s (ICDE* and Open University, United Kingdom)
Distance Learning; Open and Distance Learning.	In 1970s e 1980s
Computer Learning	In 1980s
E-learning, Virtual Learning	In 1990s
Flexible Learning	Turn of 20th century and first decade of 21st century

*ICDE: International Council of Open and Distance Learning

Source: Formiga (2008: 44)

In this study, the terminology adopted for this modality of education was Distance Education, with the acronym EaD, which represents the area of study related to the use of several technological resources to help the teaching and learning process of distance and online courses, through educational software called virtual learning environments.

2.2 Virtual Learning Environments

The virtual learning environments emerged from the second half of the twentieth century, after the implementation of computers and the internet, being defined as a system that brings together a number of resources and tools, enabling and enhancing their use in learning activities through the internet in distance courses, as explained by Vavassori & Raabe (2003). Some authors understand virtual learning environments as a long-standing technological resource, such as Santos (2003) who understands environments as everything involving people, nature or things and technical objects. Already the virtual comes from the Medieval Latin virtual is, derived in turn from virtus, strength, and power. Lévy (1996) claims that the virtual is not opposed to the real but to the current. The virtual is what exists in potency and not in act, explains that every seed is potentially a tree, that is, it does not exist in act, but exists in potency. In this sense, Santos (2003) states that a virtual environment is a fruitful space of meaning where human beings and technical objects interact, thus potentializing the construction of knowledge, then learning. If learning is understood as a socio-technical process, where subjects interact in and through culture, being a field of struggle, power, difference and meaning, space for the construction of knowledge and understanding, then it can be said that any virtual environment is a learning environment.

Therefore, what characterizes and differs the virtual learning environments that was built over the years of what is currently defined, is that before the interaction in the process of teaching and learning mediated by the tools of virtual learning environments, it was one to one or one for all, through videos, radio, printed newspaper, television, among others, and the current tools of the virtual learning environment, which provided communication and the process of teaching and learning for all, and can be easily found in the networks and cyberspace. Virtual learning environments provide a variety of tools that contribute to this knowledge building process. According to Martins Junior (2006), the most common tools that turn out the possibility of interactivity among students in the teaching and learning process are basically divided into two types: synchronous and asynchronous. Synchronous tools should provide simultaneous communication between participants. The tools most frequently found in virtual learning environments (Peters apud Martins Júnior, 2006) are:

- Chat: it is a moment of conversation, from the point of view of education, online between students and teachers or between students and students, to provide clarification of topics or subjects that were not partially or totally assimilated;

- Whiteboard: is a workspace that allows two or more people to communicate using graphic images, basic text and drawing tools. It has, basically, the same characteristics of the chat, but the chat does not provide graphics in its communication;
- Videoconference: it is a form of bidirectional communication by sending audio and video in real time via WEB, through cameras attached to the computer;
- Audio conference: is an audio broadcast system received by one or more users simultaneously.

Asynchronous tools provide communication at different times. Peters apud Martins Júnior (2006) lists the ones which are the most used:

- E-mail: it is a form of asynchronous communication based on one-to-one and one-to-many messages. It may have digital files attached to the messages, having low cost and availability 24 hours. It allows the formation of discussion groups with shifts of messages (bulletin boards);
- Forum: it is a space for collective discussion organized in topics and contributions. It allows discussions to occur at different times between participants. Maintains the history of the discussions for later consultation and filing, may be mediated or free;
- FTP - File Transfer Protocol and Download - provision of files containing audio, text, images or videos.

Thus, it should be said that a virtual learning environment is not necessarily a network environment, but rather a space with several possibilities in the construction of knowledge, in the interaction of individuals, in which individuals are constantly constructing, reframing and reconstructing the meanings constantly.

2.4 Evolution of the foreign language teaching approaches

According to Germain (1993) the appearance of the first manuals of learning a foreign language dates from the third century of our era. These were bilingual manuals, emphasizing the practice of vocabulary and conversation, and were mainly used by Latin speakers who learned Greek.

According to Chagas (1967), in 1837 began the official teaching of foreign language in Brazil with the creation of the Pedro II College. At that time, teaching was more linked to the study of grammar and the memorization of rules, in a decontextualized way, without a concern for the reality of the student. It should be noted that there are different approaches used over time, with the intention of ease the teaching and learning process in foreign language classes, as established by Leffa (1988):

- Approach to grammar and translation: it emerged with interest in Greek and Latin cultures at the time of the renaissance and continues to be used until today, although very rarely, with several adaptations.
- Direct approach: its use dates from the early XVI century, being almost as old as the method of grammar and translation and came about as a reaction to it.
- Reading approach: expanded by the United States secondary schools in the 1930s, and remained until the end of World War II.
- Audiolingual approach: it was a reaction of the Americans themselves against the method of reading; Appeared during World War II when the American army needed fluent people of several foreign languages and did not find them, the solution was to prepare those people as quickly as possible.
- Natural approach: it aims to develop language acquisition (unconscious use of grammatical rules) rather than learning (conscious use).
- A communicative approach: it emerged in the 1970s and gained full strength in the 1980s. The greatest concern with the use of language as a communication emerged from more recent research in the areas of psycholinguistics, sociolinguistics, philosophy of language and information theory

In short, the evolution of foreign language teaching offered at a distance has been presented in an attractive way, due to the appearance of digital technologies, which have brought advantages in the teaching and learning process of these courses, either in the aid of vocabulary memorization, in the study of learning structures and analyzing the syntax of a language. This is due to the technological resources present in WEB 2.0. There was also greater interaction of the teacher with the student and with the content, besides establishing a more individualized teaching process, respecting the learning style of each student.

3. Methodology

The option was for qualitative scientific research. As for the type of research, it was exploratory and descriptive. Regarding the technical procedures, the bibliographic research was adopted, which was divided into three stages, all carried out in the second half of 2016:

- Step 1: Data about the foreign language courses at distance.
- Step 2: Survey of technological resources used in foreign language courses, presenting them by means of a historical rescue.
- Step 3: Selection of the main digital technologies currently used in foreign language teaching, highlighting the technological resources necessary to work with the four skills to learn a foreign language: listening, speaking, reading and writing.

4 Results and Analysis

1st stage: For the survey of foreign language courses at distance a search was made in Google and the courses that appeared with more comments were selected, besides a search in *OpenCourseWare*¹. Among the options of courses raised, the sites that stood out in this search were chosen.

Table 3: Foreign Language Courses Available on Internet

Site	Description	URL
BBC Brasil	It is a free English course from basic to advanced based on series. They use various methodological strategies, such as the use of Quiz, Videos, Podcasts, news and other options.	educacao.uol.com.br/ingles-bbc/quizzes/quiz01.jhtm
Bab.la	It offers a variety of tools and resources to learn a foreign language, including 15 bilingual dictionaries in English, including Portuguese-English. There are hundreds of vocabulary lessons, forums, quizzes and other resources.	pt.bab.la/teste/
WeBBusca basic English course.	It is a basic course, and seems to be a review of secondary level English course.	www.webbusca.com.br/idiomas/ingles/
Curso do Mr. Kind	It is a blog with several English tips	www.mrkind.pro.br/blog/
English Experts	It is a blog for English self-learning via Internet with tips, exercises, chat, fórum, Podcast and advices from experts.	www.englishexperts.com.br/
Englishtown	It is an interactive course and native English teachers in conversation lessons and 24 hours live, from beginning to post-advanced levels.	www.englishtown.com.br/
Inglês Online	It is a blog with lessons, several tips and images showing how to speak English and podcasts.	www.inglesonline.com.br
Livemocha	It is a multi-language course. Its differential is to be a kind of Social Network, where the student can contribute with content, talk with people. With lessons, exercises with audio and video, chat, among other resources.	www.livemocha.com
Mango Languages	The site features courses for several languages. The courses are formed entirely by dialogues and even in Portuguese.	www.mangolanguages.com/
Duolingo	It's a free language teaching application that uses a crowd sourcing ² text translation platform in which students progress in lessons while translating real content from the internet.	https://pt.duolingo.com/
Memrise	It is a free application created for the teaching of languages through the crowdsourcing methodology. The courses are structured with flashcards ³ and with the use of mnemonic techniques to facilitate learning.	https://www.memrise.com/
Lingua.Ly	It is an application with the aim of teaching free languages, where the main idea is to teach a language that matches the interests and life of each student who can create their own course.	https://lingua.ly/pt-br/

Source: Designed by Authors

¹ OpenCourseWare (<http://www.ocwconsortium.org>) is a collaborative consortium of higher education institutions and member organizations from around the world that bring together open, free, and distance learning content through a shared model.

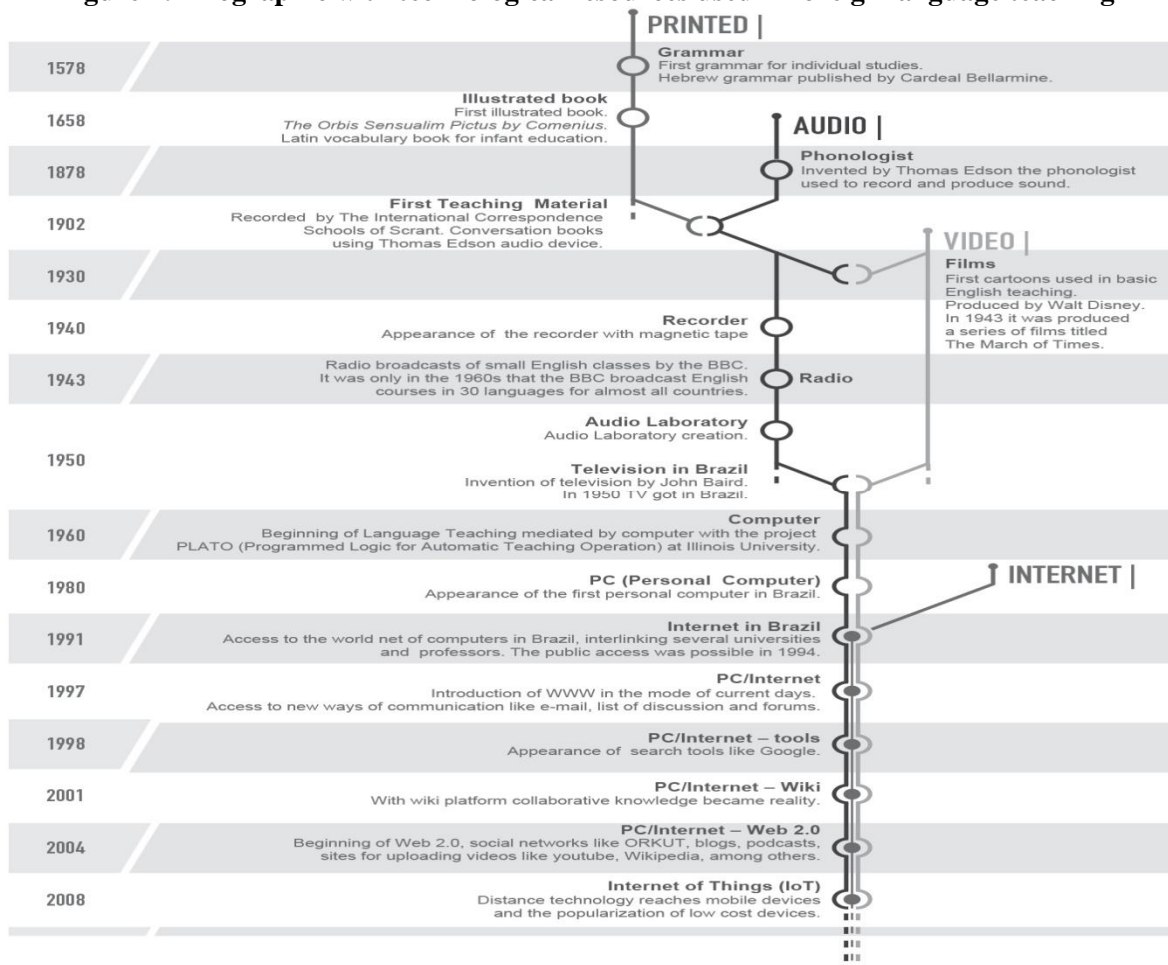
² It is the process of obtaining services, ideas or content by requesting contributions from an online community, instead opting for traditional suppliers or employees.

³ Set of cards that carry information, such as words, phrases or numbers, used throughout the lessons of the course.

It is noteworthy that the last three courses listed in Table 3 are also classified as technologies or applications for mobile devices and are usually known by their abbreviated app name. These are softwares specially designed to be installed in a mobile electronic device, such as smartphones or tablets. Therefore, one may understand the attraction that these courses, which in this study will be denominated from now on as applications, exert on people who are increasingly connected to the internet via a mobile device. Analyzing these sites, it may be verified that all courses presented have different contents and use several technological resources in their teaching methodologies, working the four skills necessary to learn a foreign language (listening, speaking, reading and writing), that is, technology has been an attractive differential to explain the contents, to develop play activities and to perform written and oral exercises, which makes online classes more interactive and dynamic.

2nd Stage: In order to present the technological resources used in the foreign language courses at distance, an infographic was used to visualize the five generations for which the EaD has passed, as well as a sixth generation that in this study is called the "internet of things". Therefore, in light of the data present in this infographic, it might be concluded that the use of technologies to teach a foreign language is not new, since the beginning of the 20th century, audios were used to transmit the lessons and then the videos by Television. Since then, the technologies have presented an exponential evolution, due to the development of electronics, telecommunications and mainly due to the internet. The infographic shows in chronological form (1578 to 1902) the appearance of the printed, materialized in the Hebrew grammar by Cardinal Bellarmine, of vocabulary book, in Latin, for the infant education. Subsequently, elucidated the first printed didactic material composed by books of conversation under the use of audio resources elaborated by Thomas Edson, who in the year of 1878 also created the phonologist. It is then the beginning of an industrialized way of teaching and learning (Peters apud Martins Júnior, 2006) marking the first generation of distance education according to the foundations of Moore & Kearsley (2007).

Figure 1: Infographic with technological resources used in foreign language teaching



Source: Designed by Authors

Moore and Kearsley (2007) define the second generation of EaD, characterized in the second phase of the infographic by the History of the Walt Disney Company⁴, from the emergence of videos in 1930 with the first synchronized sound cartoons used in basic English teaching. , The use of tape recorders and BBC radio broadcasts of small English classes allowed English courses to be broadcast to 30 other languages in almost every country in the 1960s.

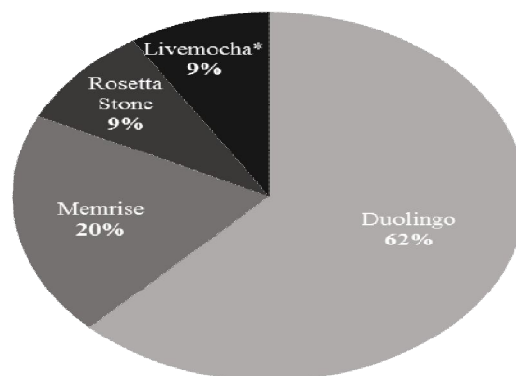
Before that, it is possible to perceive a dialogue between The theory of Nunes (1998), in which the use of a resource is capable of serving a large number of people at the same time, which effectively and without risk poses the quality of the services offered by expanding access to new resources, such as English classes. The last generations of EaD according to Moore & Kearsley (2007), show the emergence of the computer, as for example, the PLATO (Programmed Logic for Automatic Teaching Operations) project designed by the University of Illinois, used the computational implementation a way to cover foreign language courses which lasted for four decades. This project has made an important contribution to EaD, from the use of texts overlapping data, methods of essay evaluations with text responses, inclusion of keywords, and thus, a greater feedback to students' responses.

In addition to these contributions of new technologies in the academic field, the advent of the personal computer and the internet have brought new opportunities for communicability between university institutions and their teachers, making possible a new educational model in which teachers and students dialogue even if separated, from the use of new communication technologies, as pointed out by Maia & Matar (2007) in his studies on the forms of EaD. From the public access to the network in 1994, new EaD methodologies were implemented in order to bring new forms of interaction such as e-mails, discussion lists, forums, search tools, wiki platforms, internet 2.0, and finally, social networks. From all that evolution, the internet allowed to extend the communication of the EaD to different multimedia and hypermedia formats.

After the generations of distance education, as pointed out by Moore & Kearsley (2007), there is currently the "Internet of Things" (IoT), which is based on intense machine-to-machine communication, with the use of computing in clouds and sensors data collectors. It is characterized by being mobile, virtual and using instant connections in a fully connected world. The IoT is responsible for integrating everything that surrounds our daily life; performing everyday activities and making them seem indistinguishable or even in the exercise of complex activities like the control of "intelligent" ports (Burrus, 2014).

3rd stage: Here we discuss the main technologies, in this study also called applications, currently used in foreign language teaching. The selection of applications presented in this survey was based on five factors: 1) Statistical data such as the size of the user bases (Table 4), market time, and content media used by the technology, and user usage feedbacks. 2) Research by Rebelo et all (2015) on the development of digital educational games for learning a foreign language. Where the use of one of the technologies represented in figure 1 was identified.

Graphic 1: Used Applications for Foreign Language Learning



Source: Rebelo et all (2015) information .

⁴ History of Walt Disney Company. [Online] Available: < <http://www.fundinguniverse.com/company-histories/the-walt-disney-company-history/>>. (June, 14, 2016).

3) According to eMarketer Report Data (2014), smartphone usage has exceeded the 1 billion mark in 2012 and reached 1.75 billion in 2014. It is estimated that by the end of 2017 there will be more than 2, 5 billion users, representing almost 33.8% of the world's population.

4) According to data from the Brazilian Institute of Geography and Statistics (IBGE) of 2014, obtained by the National Household Sample Survey from 2013 to 2014, the percentage of households that accessed the Internet by microcomputer declined from 88.4% to 76, 6%, while the proportion of those who accessed the internet by mobile phone jumped from 53.6% to 80.4%.

5) Finding that currently, most people possess smartphones equipped with several features that can be used to learn a foreign language.

Therefore, according to the five factors listed above, the main applications currently used in foreign language teaching are:

- Lingua.Ly: aims to increase reading comprehension;
- HelloTalk: is designed to help people find out people for language practice;
- Memrise: was developed to help the student in acquiring vocabulary;
- Duolingo: aims to teach vocabulary and grammar.

Table 4 shows the interaction resources of these applications, according to the skills needed to learn a foreign language (listening, speaking, reading and writing). All of these applications have a number of digital technologies that enable students to access audio, image and text resources as well as gamification technologies to promote student motivation and application engagement such as computer, internet, digital library, virtual reality, CD-ROM, DVD, satellite, specialized software, electronic notebook course, audio tapes, broadcast video, desktop video, mobile applications, audio conference, chat, forum, mailing list, telephone, electronic note board, MSN, skype, email, microphone, recorder and webcam.

Table 4: Current technologies used in foreign language teaching and interactive resources

Ranking	Technologies/Applications	Active users	Interactive Resources
1	Duolingo http://www.duolingo.com/	120.000.000	Listening via audios and users feedback. Speaking, Reading and Writing through presented contents in texts, images, audios and feedbacks.
2	Memrise http://www.memrise.com/	1.500.000	Listening and speaking supported by audios and videos. Reading and writing with texts, images, audios and videos.
3	HelloTalk http://www.hellotalk.com/	1.000.000	Skills of listening, speaking, Reading and writing supported by audios, texts and mainly with changing of images among users.
4	Lingua.Ly https://lingua.ly/	500.000	Listening supported by audios. Speaking, Reading and writing through texts, images and audios.

Source: Designed by Authors.

It may be seen that collaboration is present in these applications. The tools developed allow students to send documents in any language for translation and more advanced students may comment, translate and suggest improvements. Thus, cooperation happens "person by person". Feedback is crowd-sourced, the student interacts with another student correcting their lesson and receives their corrected lesson from another student. In such a way that users who want feedback should provide feedback to other members of the online community (Cedillo et al., 2015). All these technological potentialities of the digital technologies present in these applications allow them to be classified as virtual learning environments, since these digital technologies help in the assembly and management of courses accessible through the Internet, contributing to the teaching and learning process, allowing methodologies which are interactive and flexible learning through educational resources and activities, that is, digital technologies have permeated the pedagogical practice of foreign language courses at distance.

5 Final Considerations

Historically, the EaD has used different technologies, according to the resources available in each generation, such as correspondence - via mail, radio, television, teleconference and interactive environment.

With the development and expansion of the internet as well as the popularization of computer use, several tools have emerged to help create and offer courses mediated by these technologies, such as these currently used: virtual teaching and learning environments. The results found in this research show that with the development of digital technologies the teaching of foreign language offered over the internet has been changing, allowing methodologies that make interactive and flexible learning possible, mainly due to the current applications used in computers, but also may be accessed by mobile devices, such as smartphones. So, digital technologies are increasingly diversifying the way of bringing education to a greater number of people and places through EaD. With their high potential for motivation and concentration, they have the power to stimulate the development of creativity and intellectual abilities such as reasoning, problem solving, and autonomy (Paiva, 2008). In a context of a world in constant development, the use of technologies and the learning of a foreign language is a current necessity. Combining these two factors has become natural to students. In this way, digital technologies bring great advantages in the process of teaching and learning foreign languages at distance, especially the interaction between all the participants, students-teachers and students-students.

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