

Distance Education, Blended Learning, and e-Learning: Predictions and Possibilities

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Abstract

Distance education is a form of education in which students don't need physically attend the place of study. students receives the study material (personally, by mail, email or other possibilities offered by the Internet), allowing the educational act to employ new techniques and learning strategies focused on the student, thus promoting self- teaching and self-management, it is a flexible and self-directed education, whose main tools are communication technologies. This paper aims to discuss how learning occurs, especially in distance education, what it means to learn from this educational modality. In order to delimit the conceptual framework, we initially start with what education is and how learning is generated in this mediated process. The conclusions allow us to infer that distance learning requires the conditions and capacities of the teacher to promote independent study, of the student's self-regulation and self-regulation, in order that this can control their learning process.

Keywords: distance education, distance learning, information and communication, e-learning

1. Distance Education

Distance education is characterized by the flexibility of schedules, for the same student organizes study time, which requires a degree of self - discipline. This flexibility of schedules is sometimes limited in certain courses that require online participation in specific hours or spaces. Another characteristic of distance education is the use of Information and Communication Technologies (ICT) to form communities or study networks where individuals can interact, fostering the educational use of social networks, discussion forums and platforms virtual, to discuss on various issues and at the same time acquire knowledge and modern work tools. It is also essential to have a new vision of the roles played by teachers and students in this type of study, the teacher ceases to be the protagonist, becoming a facilitator of the educational process and gives way to the student, which must have a firm commitment to its own training process (Akkoyunlu & Yilmaz-Soylu, 2008).

There are several factors that determine the growth of distance education, (Tait, 2003) among which are: Reduction of the cost of computers and telecommunications, Greater facilities for the population to access technology, Use of more friendly interfaces such as multimedia, and Increase in educational demand. The creation of new educational entities, as well as the increase of greater physical facilities (classrooms), is not proportional to the demographic growth. High cost of face-to-face education.

A great benefit of distance education is that it meets the needs of students who would not otherwise be able to attend face-to-face classes, due to distance or time constraints. One of the greatest benefits of distance education is flexibility. Distance education programs allow greater access to learning and promote lifelong learning. Distance learning allows students to choose from a broader set of academic institutions for their lifelong learning. Distance learning schools enjoy better marketing, which means that more students ultimately at any place and at any time, can attend them. Distance education also allows for greater compensation and promotion potential. Another benefit of distance education for students is the ability to do teamwork in interactive groups. Students have the opportunity to communicate with other people from different backgrounds and to listen to a wide variety of experts from around the world. Student access to online experts and the huge volume of online data are also benefits of distance learning. Instead of searching for hours through card catalogs or library holdings, students can quickly use online search engines to find countless experts' papers and research databases that can help in the work done (Altbach, et al, 2009).

Regarding students' perception of their learning context (face-to-face students versus virtual students), Conolo, Chiecher and Rinaudo (2004), in their paper titled *Students in traditional and distance environments; motivational profiles and perceptions of the context* indicate that the perceptions of the students were very similar in both groups, and in general positive; They reported that their experience was good and enriching. With the evolution of e-mail and internet chats, the instructor-student contact can be maintained and reinforced. This fosters a better educational experience for the student in distance learning. (Biesta, 2009) The use of electronic mail allows sending the assigned task to a teacher at any time of the day in a safe and comfortable way.

1.1 Advantages and Disadvantages of Distance Education

Advantage: Eliminates geographical barriers, the population can access this type of education regardless of where it resides. It is accessible for adults with postponed studies. Provides flexibility in the schedule since there is no exact time to access information, which facilitates the organization of the student's personal time, respecting family, social and work life. Reduce costs by avoiding relocation expenses or residence in a different place. It incorporates technological tools for the management of information, which are necessary to perform professionally in society in constant change, such as virtual platforms. (Blaschke, 2012) The student develops a high capacity to self-regulate their own learning, thus favoring their attitudes and values of responsibility, discipline and commitment to achieve autonomy. The role of the student is active because he develops important intellectual strategies to perform collaborative tasks, communicate effectively, and be creative and innovative. The advisor carries out a rigorous follow-up of the student using different instruments to evaluate it respecting the rhythm of the student's work. It facilitates people with different abilities access to pursue a career. (Bliuc, et al., 2007)

Many people, especially women, decide to devote themselves to housework until their children start school. Because of this, they momentarily leave their career. However, during this period of rest they can continue training so that when they resume their work, they are updated. In addition this can be valued by your superior. This modality gives the students the possibility of taking a second career, either after completing a first one or making both simultaneously, strengthening a professional and academic formation to enter the competitive world of work. In the first case, the student will only prove his / her academic situation, for which he / she must present the certificate of approval of the corresponding degree option, or copy of the professional title; while in the second case, the requirements demanded by each career in time and form according to the university statutes must be met. Due to its convenience, the student has the ability to manage the time dedicated to each activity according to their other activities or the speed with which they advance allowing the time of completion of the course to be flexible, giving them more independence when building their knowledge. Access to online information such as e-books or E-books, which due to its accelerated growth, along with the most current technology, offer benefits such as: lower cost or free of charge, unlike books conventional text, accessibility from any geographical location, storage convenience and portability, enrichment of the text through multimedia links, as well as the possibility of annotations and comments in the margin. (Brown, et al., 1989)

Disadvantages: Difficult to transmit and preserve certain attitudinal content to improve socialization. Generally the change to a system of distance education requires students to adapt specifically: they must learn to use specific didactic materials and virtual classrooms, communicate with their teachers and with other students through the media and be able to organize your study time to combine personal, work and academic life. They also lose other objectives of the affective and attitudinal field, training and change of attitudes of students as well as those of the psychomotor area that do not attend to capacities that are expressed in writing, are usually achieved more effectively through personal contacts. By eliminating social interaction in the presence of communication is reduced to a single channel and is less profound, so it is possible that the student is isolated and discouraged, before this, it is necessary an active intervention of the tutor. It offers limited direct exchange of experiences that provides the teacher-student and student-student relationship. Possible delays in feedback (feedback) and rectification of possible errors. (Christopher & O'Dell, 2011)

There are other specific disadvantages inherent to the nature of the different fields of knowledge. This is the case of language teaching, where in spite of having registered a remarkable technological revolution that has made it a more effective and attractive teaching for the student, it is still far from transmitting all the non-verbal information that surrounds the act. Of speech and that forms an indispensable part of it. The distrust that is generated in the students in the absence of communication between the teacher and his students, especially in the learning process and academic evaluation in the event that he has not had an appropriate propaedeutic course. The possibility of a person other than the student doing their activities. Carrying out the non-contact activity requires spaces within the personal, family or work sphere, which sometimes makes isolation and concentration difficult.

1.2 Generations of Distance Education

Communication is the basis of the interaction between human beings. The need to break the barriers of time and distance to communicate led to the development and mass media. Nowadays, the media are instruments that allow us to communicate, inform and entertain ourselves. They greatly facilitate social interactions and have made it possible for us to live in the most informed and connected society in history. Communication is closely linked to every educational process. It is not strange then that the milestones in the evolution of the media have produced innovations in the field of education, even more so in a modality where the spatial separation between teacher and student is the main characteristic: distance education. According to Nipper (Cuban, 1986) and Taylor (Cuban, 1986) it is possible to identify five generations in the chronological classification of this educational modality:

The correspondence model: Correspondence courses focused on printed material that was delivered via regular mail to students. The multimedia model: Incorporation of electronic media such as cassettes, videocassettes and the computer for the delivery of multimedia material and with a certain degree of interactivity. The tele-learning model: Education supported by ICT (telematics). The flexible learning model: Access to online multimedia resources through the internet, teleconference for the transmission of audio and video, as well as technological tools for collaborative work (web 2.0). The intelligent flexible learning model: Access to virtual campuses with all online educational processes and intelligent learning and automatic response systems. The telematic relationship there are several applications that currently make it possible for netizens to maintain the quality and frequency of their communications on the Internet, such as: Email. The electronic mail is a tool that allows us a good communication between the actors of a learning group by allowing: enter graphic and text information, maintain dialogues, among other functions that open a new horizon of didactic possibilities. Discussion forums. The discussion forum is a dynamic web area that allows different people to communicate. In which different threads of discussion are shared (also called subjects or themes). Digital Bitácora (Blog). It is the chronological publication of texts or papers from one to several authors. It is a journal, where the authors express their opinions and allow other authors to express their opinion about it; they even allow ordinary readers to express their opinions in the form of comments. The order in which the publications are presented is from the most recent to the oldest. You can find very diverse Blog by fields of study, specialties, and topics or about a specific idea. In the case of distance education, this tool is very useful, since student readers can write their personal comments about a specific topic and the main author or teacher can answer and feedback the information, thus becoming a precise dialogue between several people.

Written conversation (Chat). Chat is one of the methods of digital communication emerged with new technologies. It consists in the simultaneous conversation between two or more people connected to the network that can be public or private. Audio conferences the audio conferences are another form of live communication, but richer and more information, is the one that is carried out through the own voice of the interlocutors. This type of communication, in addition to being based and articulated from the formal information of the message, is surrounded by another type of non-verbal information of great importance that qualitatively shapes and enriches the information received by the recipient. (De Waard et al., 2011)

Videoconferences. The video is a tool to facilitate live communication through which partners live. They provide a high degree of presence which, although it is simulated since the participants can be thousands of kilometers away, makes it possible for the message not only to contain relevant verbal and paraverbal information, but also to complete non-verbal communicative contents of great importance.

Contextualizing and situational meaning. We would be facing a face-to-face interaction from a distance. Educational cloud the cloud in educational environments gives flexibility to both students and teachers to create, share, consult or download educational materials at the appropriate time supported by a computer with Internet access in real time. This type of technological innovations promote a more competitive and avant-garde education, preparing its users for the management of technology. They also facilitate communication between students and teachers, using a self-taught and dynamic educational system. (Dron, 2014)

Digital libraries. They consist of Libraries that offer consultation of their collections remotely through Internet access. These libraries have transformed their materials into digital documents that they publish on their digital portals. Many media such as newspapers and magazines are changing to this digital method of offering their information and libraries are no exception. The convenience offered by this consultation mechanism is incomparably simpler than the traditional method of going to these premises and making the consultations manually.

1.3 Roles in Distance Education

Among the various roles that can be presented in a distance education team can be mentioned the following:

General Coordinator: Responsible for articulating the processes of the entire team. It establishes the schedule of activities proposes the tasks to be carried out, plans and controls the normal operation of the project.

Content expert: Teacher in charge of the course and expert in contents of the subject to be taught at a distance. According to the way in which it is understood in each region, country or culture, the content expert changes its role, for example, in Bolivia (in distance education) it is the person who writes, produces the modules and the thematic units - known as the tutor - that is, he is a true scientist dedicated to intellectual production.(Dron, 2014)

Tutor: Support the administration, guiding and guiding the student. He is dedicated to making texts, that is, he builds the modules that are part of the course. This same person can become the one who guides the participants; but in case of not having their support, it is the tutor (a person understood in the subject, but who does not necessarily produce the contents of the modules) who can act as the person who guides the educational process at a distance. The distance tutor teacher must have different skills of the teacher who dedicates himself to face-to-face training; some of them may be the domain of information and communication technologies, knowledge to organize and manage online courses and what it represents (discussion groups, forums, debates, etc.). Must have a written communication ability fairly purified, because the student is not in person and, therefore, cannot interact equally with him. (Bunker, 2003)

Design consultant: Pedagogue specialist that helps the teacher to select the necessary means and design activities is also known as the instructional designer.

Technology Advisor: Supports the teaching team selecting the appropriate technological tools for the student's achievement of the proposed learning objectives, is also known as technopedagogo. **Producer of new technologies:** It supports the production of audiovisual material that enriches the classes. It is responsible for mediating the contents.

Graphic designer: Select the appropriate graphic resources for virtual courses. **Evaluator of the system:** Is in charge of the evaluation of the whole system (materials, tutors, students and general administration), can also propose corrective measures to solve problems that have occurred during the remote course.

Student: One of the most important roles in the open education system is the student, since it is he who must have a willingness to work in a team, manage his time and carry out activities in a timely manner, but above all in having a motivation for growth in terms of academic life. (Garrison, & Kanuka, 2004).

2. Blended Education

In this modality, students can access an education without the need to physically present themselves at the educational institution every day. Therefore, it is an excellent option for that that works, or for those work at home does not allow them to spend much time in school. This with the advantage of having an education without the limitations of a schedule or place, since anywhere the person can study with the only condition that he has to attend periodically to tutor to clarify doubts, perform evaluation activities or take some class or matter. The advantage of this model is that the student develops his learning in a slightly more autonomous way, since research is essential. In other words, the student is able to govern and project the process of their own learning. In blended learning, the student periodically attends sessions at the university or institute, in order to keep abreast of the students' activities, address their doubts and concerns, increase formality, put certain knowledge into practice, among others. These hours, because they are few, are limited to guidance from teachers and to answer questions. The effectiveness of the program is due to the student's efficiency, that is, it is determined according to the student's ability to organize their own time and study rhythm. (Graham, 2006)

Learning is monitored through tutorials, which can be of two types: physical and virtual. The evaluation is implemented according to each course. There are virtual classes that can be one to more times per week; and face-to-face, which are regularly allocated to perform partial and final exams.

The open schools could be an example of this model since it only attends once a week with the teacher, if there is any doubt. The student studies the content that is granted and presents the corresponding exams until finishing with the curriculum without needing to carry out more activities than these. (Graham, et al., 2013)

2.1 Advantage

Greater interactivity between students and technologies. Better and greater access to large amounts of information. Individualization of learning at the pace of each student. Provides continuous feedback. The speed of access and exchange of information, breaking the temporary space barriers. It stimulates students to develop various skills, such as communicating (interpreting and producing messages) using different languages and means, developing personal autonomy and critical spirit, which helps them to live together in a multicultural and just society.

Technological innovations of the time.

It guides and regulates the learning process and facilitates student control. They contribute to the student's formative development, their mental activity, attitudes and values. They promote the development of creativity. Saving money, the student does not have to travel to the educational institution (the reduction of expenses that transport transports entail).

2.2 Disadvantages

The educational field is one of those that pose the greatest uncertainty. It is still early to assess the impact of new technologies in this area, but if the trend towards a distance, virtual and self-learning education system is confirmed, problems such as the difficulty of preserving and transmitting certain social values or the trend are foreseen. Of the students to social isolation.

It could generate a distrust of the lack of communication between the teacher and the student, especially in the process of evaluation of student learning (this in case you feel offended to think that he made a great effort for himself). Another great disadvantage lies in the isolation that can be achieved between human beings, eliminating physical social interaction. It can influence for good or for bad (depending on the case of each person in their way of being and thinking) when wanting to interact and develop in the labor and social field depending on their career, all this because they have not obtained enough social contact. The passivity of the student against this medium, because he can perceive it as an easy means. Lack of an adequate pedagogical structure, which will make it difficult for students to process or learn them if they do not understand them or do not do them properly.

3. Learning Methodologies

There is little consensus on the definition of blended learning. Some scientific studies have suggested that the term is used redundantly to cover a plethora of training styles. However, some researchers and educational think-tanks suggest that this methodology includes different elements. Here is a non-exhaustive list of these elements: Face-to-face training - This type of training involves the presence of the trainer who can or cannot rely on a digital platform Rotational training (also called semi-presential) - learners evolve at the heart of a training cycle alternating e-learning and face-to-face training. "Flex" training - Most of the training takes place via an online platform and provides trainers for face-to-face support or via the platform. The so-called "Laboratory" training - The entire training is accessible online but requires the learner to go to a specific training center to access it. Self-blend - Allows learners to complete their training using an online platform. Online Training - All training and courses are delivered online and are subject to online evaluation. If necessary, face-to-face interviews can be organized. Many blended learning courses are based on the following model: trainer, digital support, and formative supplements.

3.1 E-Learning

The expression E-Learning is a neologism designating the CSCL (Computer-supported collaborative learning) systems born from the emergence of Web 2.0. Trends: Before Web 2.0, computer science was primarily a "storage place" of data, and a means of mediatizing them (Graham, et al., 2013), (Holmberg, 2005); Of 'knowledge packages' were thus issued class (mainly in universities at first, in the 1990s 18), by discipline and by "training levels", with tutorials improved 19. Computer science was also a way to evaluate and note the level of knowledge of the student, by his teacher or to allow, via e-mails (Lee, 2008), (Moore & Greg, 2005), (Moore & Morton, 2017) more rapid and interactive exchanges (Olcott, 2012), including continuing education 24 and training of trainers (training of school teachers for example 25). These tools, and in particular e-mails, have rapidly shown educational limits (Owen, et al., 2017), particularly with regard to wastage, time spent and information overload 27 requiring a pedagogy of e-mail management (Roblyer & Edwards, 2000), while at the same time search engine power exponentially increased access to the infosphere. Web 2.0 then led to a paradigm shift, (Roblyer & Edwards, 2000) with the emergence, self - organization and self - management of increasingly complex forms and forms of networks of learning communities. Some have built their own collaborative tools, possibly multilingual (such as Wikipedia and its projects-brothers), sometimes faster and better than existing businesses and educational systems. Teachers using these tools rely on the effectiveness of a co-constructed and socially constructed knowledge and understanding; Learners (with or without trainers) participate in the continuous improvement of knowledge and know - how. They explore them, but they can also reclassify them, reorganize them and translate them into foreign languages.

The learning then gives more space to talk about the content, meaning and form, the interaction grounded on issues and actions, and seeks to produce "open data", which may in turn freely be exploited and improved by others. The promoters of what the English call "social learning" (social learning) believe that one of the best ways to learn

something, and well understand, is to teach it to others (Graham, 2006). They first used blogs, then wikis, podcasts and a wide range of computer tools to enable interactions between learners, a better valuation of archived data and another time management of learning and production of know. In addition to virtual classroom environments, social networks take in the 2000's increasing importance in the E-learning 2.0.

3.2 Benefits of Online Training

The advantages often cited are: access to a large panel (free or paid), formative approach and learning strategies; adapted to the types of cognitive personalities (type of learning); E-learning uses active pedagogies, participatory training, metacognition, problem-based learning, play, conflict resolution, and more. Some tools integrate the evaluation pathway (evaluation of pre-requisites, self-evaluation, formative, summative or certitative evaluation, etc.), and produce automatic feedbacks (immediate or delayed, synthetic or complete). New free tools such as Wikiversity even allow - under certain conditions - to collaboratively produce training content while training; easy and inexpensive access to training content (you can train from anywhere, if you have access to the Internet (Moore & Morton, 2017). flexibility in the management of training time, especially in telecommuting situations; with the possibility of going back or "just-in-time" when it is necessary and at the required level (Moore & Morton, 2017), which makes it possible to learn at one's own pace (Moore & Morton, 2017).

Informal or formal access to resources and training from experts (Moore & Morton, 2017), formerly or otherwise often inaccessible; innovative content and strategies for learning, with facilitated metacognition; opportunity to exploit and develop quality interactions; content and training support is hosted and secured elsewhere (no maintenance on the part of the learner); lower cost of training. Time savings (Moore & Morton, 2017); transport economies (lower carbon footprint); possible response to lack of in-house training skills (in a company) (Moore & Morton, 2017); in companies: The sharing of acquired information is facilitated with the network of the company (Moore & Morton, 2017).

3.3 Limits and Conditions of the Online Training Successful

E-learning is not intended to replace the functions of the school (socialization, reading, math, learning to learn.), e-learning, could perhaps be sometimes source of too much confidence in itself, in certain risky trades. Ignoring certain courses, thinking that information or a tutorial is available online poses a problem in a crisis management or emergency situation when the crisis is accompanied by a general power cut or access to the Internet. Even with the improvement of the simulatorsremote, learning sculpture, surgery, massage or music where driving a car without the presence of a learner remains difficult or dangerous; however, online training can prepare and support these practices.

3.4 Socio-Ecological Issues

IT tools and networks are evolving rapidly, due to advances in computing (Moore's Law), but also from planned obsolescence business strategies. Important issues are emerging, in terms of sustainability of e-learning, concerning: the consumption increasing and waste products polluting and non-material renewable (rare metals, expensive components); a power consumption overall rising steadily despite advances in hardware. More efficient and effective software and hardware could optimize the energy consumption of processors and servers, networks (internet, but also internal networks) and the air conditioning of computer servers. To date this progress does not offset the increasing use of servers, bandwidth and search engines; still insufficient performance in terms of recycling, reuse, ecodesign of hardware and IT systems; the digital divide.

One hope is that "E-Learning 2.0", for example via an approach of social and environmental responsibility and an increased mutualisation of services and databases, and innovations by the user community, can perhaps itself generate part of the answers to the problems it generates in terms of sustainability.

3.5 Learning Management System

In information and communications technology, a management learning system (LMS) or learning support system (LSS) is software that accompanies and manages a learning process or a learning path. In French, we speak of "learning platform", "learning management system", "virtual training center", "e-learning platform", "open and distance learning" (FOAD) or "Online training", and, particularly in Quebec, "digital learning environment" [10]. This kind of computer system offers a numerical workspace including assessment tests that are either subject to validation by the teacher or proposed as self-assessment regulation activities. An LMS is generally based on a training management software for the administrative and logistical part of the training, especially face-to-face training. Components of an online training device: a community of learners, a learning platform, tutors or animators, textual or multimedia didactic contents, an educational and tutorial strategy, knowledge validation activities,

3.6 Functions of a Learning Platform

A platform for open and distance learning is software that assists the conduct of open and distance learning. This type of software brings together the tools needed by the three main users - trainer, learner, and administrator - of a device whose primary purposes are remote consultation of educational content, individual station of learning and teletutoring. The LMS hosts multimedia learning content, control access to resources, offers educational activities, facilitates tutoring and training management activities (follow-up of learning courses), facilitates the management of the resources of the training organization (management of trainers, logistical and technical resources), manages the community of learners, allows the administrative management of the documents associated with the training (training certificate for example), Around these first purposes, can be added other features and other roles such as: the functionality related to training standards and skills management, the administrative management, the management of educational resources, the management of the quality of training, administration roles for instructional materials, tuition administration, or training (Lee, 2008)

SCORM is a model created in 1999 by the ADL (US) which aims to replace the models AICC, IMS, and LOM. IMS is interested in the interoperability of online applications and services, particularly through the use of metadata xml files. LOM XML Schema is the most complete standard that offers more than 80 metadata (on the course and not the course itself as SCORM). It is produced by IMS and Ariadne, and is best known in academia / government circles. It is close to the issues of document management. LOM files can be transferred over the internet using multiple xml protocols on http. CanCore provides a free guide to interpretation and implementation for each element of the LOM standard.

The SCORM standard allows the indexing of content but also to monitor, evaluate and note the progress of the learner (screen of course or exercises). The standard allows the learner to follow a sequence of screens with or without the possibility of going back and automatically presenting the order of questions randomly. SCORM-compatible content authoring software allows you to create educational content that knows at all times the time spent on each screen, the screens viewed and the answers selected by the learner. This evaluation information, managed locally beforehand in the educational content or application to be saved locally or printed, are sent and stored at the level of the LMS that hosts the content (the LMS and the content must be SCORM compliant). The LMS can by its function of CMS present the results or send them in the form of a report (html, pdf, csv, excel) by email to the people concerned.

Indeed the SCORM standard allows the LMS through an xml file to know the location, names and functions of all files contained in educational content through the standard Content Packaging specification (CPS). This defines for interoperability the organizational structure of all file packets. For a PIF (PIF.zip) package: the root contains an imsmanifest.xml file and a PIF name directory containing the textual and multimedia contents.

The SCORM 1.2 defines three parts: Interchange Package Format (PIF): Defines the organization of a package that will interact with the LMS. This is a zip file that contains all the files needed for a course: the content or Asset (html, css, image, audio, and applet), the metadata (xml file), the course structure or Content aggregation (to manage the screen sequences by content and navigation). A collection of assets (interactive questionnaires, web page, and animation) can be contained in a Sharable Content Object or SCO or learning unit.

Content Aggregation Model (CAM): Specifies how to package xml (xml metadata package) files so that it can be imported into an LMS

Run-Time Environment (RTE): Specifies how the content should interact with the LMS.

The content (precisely the SCO) stored on the server and loaded on the web client can only discuss with the LMS through the Adapter SCORM API. It uses a programming language. The javascript client implementation of the SCORM is stored in an SCO at the asset level. The minimum list that one of the assets must implement in an SCO to locate the Adapter API is LMSInitialize ("") and LMSFinish (""). SCO is the smallest unit of educational content that an LMS can launch and track. The SCORM standard is a framework with a client-server relationship; the client being the PIF package and the LMS server that also implements the SCORM standard. Thus the SCO client and the server implement the same functions (Brown, et al., 1989).

LETSI is working on SCORM 2.0, which focuses on the interoperability of content but the future also seems to be towards the interoperability of systems.

3.7 Advantages and Disadvantages

Making SCORM-compatible content is too difficult and requires far too much to know that a teacher alone cannot master. SCORM favors form (multimedia) and technique (continuous monitoring system) in relation to content and dialogue. The evolution of the LMS could be the equivalent of what is being done at the Khan academy (in).

This platform allows continuous computer monitoring of what students are doing without going into the follow-up of the content's actions as SCORM does. The student progresses by following online videos most often done with a graphics tablet accompanied by the teacher's only voice. In a classroom class, the teacher thanks to the system focuses on support through exercises and dialogue and on students who have learning difficulties. Through this system, students progress on their own and are personally responsible for them. The client sites are web browsers and therefore very few operate in offline mode (Bunker, 2003) (gears, web socket). The solution is to use the virtual machines not only inside the browser (Applet) but also outside of it (application). An LMS focuses on distance learning and is most often a platform for the learner and the teacher. They must generally rely on back-office systems such as training management software for the logistical, administrative, and financial functionalities required for the administration of face-to-face training.

3.8 Information and Communication Technologies for Education

The aim is to fight against the digital divide, to offer support, to propose a different pace of teaching, to link knowledge to a wider context, in short to create new pedagogical dynamics. The development of ICT is also a strong desire to train young people to make responsible use of these technologies, particularly in the Internet domain, namely: avoid "zapper" behaviors on the web, that is to say, teach them to search and sort information according to their needs; take a critical look at the information provided by this communication network (importance of critical analysis of information sources); protect them from malicious intentions (pornography, fraud, commercial sites more or less disguised); explain the benefits of sharing knowledge and initiate networking, that is, working together. This list is not exhaustive. The goal is to guide the student in learning these technologies, knowing that in families, he is often left to himself. These notions, in addition to the technical aspects, are particularly emphasized in the computer and internet patent, compulsory in France at school, college and high school.

4. E-Learning

Etymologically learning by electronic means, can be characterized from several points of view: economic, organizational, educational, and technological. The definition of online learning (e-learning) given by the European Union is: "e-learning is the use of new multimedia technologies of the Internet to improve the quality of learning by facilitating on the one hand access to resources and services, on the other hand exchanges and remote collaboration".

E-learning is a pedagogical and technological modality that concerns continuous training, higher education but also in-company training, that is to say for an adult learner with certain autonomy in the organization of his process. Of learning, as in business for example: this modality can take place in the middle of the companies being given its flexibility and the wealth of its resources when putting them on line.

Thus, the E-learning is an assembly, so that teaching practices of educational technology that existed, and whose development would come from the explosion of the Web (2000 / 2001) with its potential ubiquity. It seems, however, as with recent organizational developments, that e-learning, as it is emerging, has characteristics that make it different from approaches to education technologies as we know them.

Several terms are used to translate the term e-learning. The most faithful translation is online learning. The "e" as in e-learning is an explicit reference to information and communication technologies. Blended learning combines the concepts of learning and learning offline: it refers to a method of acquiring a knowledge or building knowledge using interactions (actor-actor or actors-resources) relayed by a telemetric system (electronic, computer connected by network). E-learning can take place remotely (online), in class (offline and / or online) or both. Online learning is a specialization of distance learning (or distance learning), a more general concept that includes correspondence courses, and other means of asynchronous time and place teaching.

It is a method of training / education that theoretically allows to get rid of the physical presence of a teacher nearby. On the other hand, the role of the remote tutor appears with facilitator and mediator activities.

4.1 Online Learning Platform

Main paper: Online learning platform.

An online learning platform, sometimes called the LMS (Learning Management System), is a website that hosts educational content and facilitates the implementation of educational strategies.

There are also the names of virtual training center or e-learning platform (FOAD). An e-learning platform (or LMS) is a by-product of content management system (CMS) software but has different functions for pedagogy and learning. It is a component of an e-learning device but it is not the only one.

4.2 Digital Work Spaces (ENT) or Digital Learning Spaces (ENA)

The Digital Workspace is a secure online portal that allows all members of the school community (students, teaching staff, non-teaching staff, and parents) to access services related to education and support for students.

The ENTs are generally offered by the communities that offer it to the institutions with the help of the Rectorates that unlock the human resources for training and support necessary for the dissemination of uses. ENT responds to many issues of ICT. It aims to modernize the state by allowing each agent to better control his information system (to manage, manage, teach, etc.); modernize the public service by offering all users and their families digital services to learn or support the schooling of their children; to familiarize students with uses of technologies that not only enable them to learn better but also to better understand the knowledge society in which they will have to take their place; make it possible for all to use alternative forms of teaching and learning.

Many testimonials (ENT projects) show that these impacts are profound. To respond to the challenges of digital divide, territorial decision-makers also rely on digital public spaces to give not only access to people away from the Internet, but also support to learn how to use them. Currently, ten territorial patches generalize the ENTs to all of their establishments (one-third of secondary schools will eventually be affected). Twenty-three territorial projects are accompanied nationally.

4.3 The Interactive Whiteboard

The interactive whiteboard (TBI) is a device that combines the advantages of a touch screen and video projection. A white touch screen is connected to a computer via a cable (usually USB). The computer is able to transmit various information to the whiteboard, including the new position of the mouse cursor. A video projector is responsible for displaying the computer screen on the whiteboard. It is therefore possible to perform by hand or with a stylus (depending on the model), all that is possible to achieve with the help of a mouse, and this, on a screen format up to more than 2 meters diagonal. As a general rule, the board comes with dedicated software, which allows you to take advantage of the new possibilities of this technology.

The computer connected to the TBI does not need to be of the latest technology. In schools, the BIT offers many applications: in physical sciences, geometry or as a tool for differentiated pedagogy (video testimonials). However, its use must meet a real educational need to find its effectiveness 10. For more information on the use of the BIT, as well as practical recommendations. As part of the project 1000 videoconferences for the school, the former Minister of Education, Xavier Darcos, has promoted the emergence of educational applications of the BIT around the learning of English.

The applications of the BIT are found in the field of business (conferences and meetings) as well as in the field of education. The price of the complete device is about 3,000 euros (table and video projector included), which makes it not intended for the individual.

The use of the interactive whiteboard in schools leads to various questions in the field of education and in society as well. For example, one can question the quality of classroom use of information and communication technologies by teachers; as to the possibility offered by the use of BIT to the child to be cognitively active in the understanding of the subjects seen in class; as to the possible improvement of the child's skills with ICT when teaching with a BIT. All these questions are necessary in schools to be aware of the various issues with regard to the BIT, but also to make appropriate use of this new technology.

First, the use of BIT in the classroom is appropriate when teachers do not rely exclusively on this new tool. Indeed, it is necessary to plan B, because like any technology, the BIT may have technical problems. In addition, other more traditional means of learning such as manipulation, dyadic, subgroup or individual activities should not be abandoned. Teachers can also work with other ICTs such as interactive tablets, iPods, social networks, Scratch or robotics. The trap is to teach only with the TBI. In fact, it should be a support for the teacher in class, and not take up all the space. It would be important to add that there are also training in the use of BITs. As a result, teachers who have to adapt to this new subject may be better equipped by attending these information sessions. These trainings thus make it possible to familiarize the teachers to exploit the BIT to the maximum.

Pierre Lachance and Nathalie Frigon, RÉCIT resource persons, propose the 3-O (TablO-BurO-CervO) approach to talk about integrating ICT into learning. This concept interrelates three known classroom locations and exploited teachers: the board (or the front of the class), the office (the student's work environment) and the brain (where the learning takes place). The use of BITs by the teacher should allow students to work in these three areas (TablO-BurO-CervO). The teacher is ultimately required to vary the learning contexts (De Waard et al., 2011).

Useful educational games can be put in contact with the BIT from an iPhone or an iPad. Here are some interesting suggestions to work with this tool thanks to the applications of these devices: Toca Store, Toca Doctor, Colors and

shapes, Virtual Human Body etc. If the teacher wants to explain notions of French, several BIT activities allow linguistic, lexical and phonetic support. We can also work the other disciplines of the Quebec Education Program with iPad applications. For example, mathematical concepts, the social universe, sciences, etc. In the site of training and sharing of resources TBI for the FLE we find games for the class of different levels.

Then, the TBI can be profitable for some children. It goes without saying that students who are usually less attentive in class may feel more connected to the technology represented by this new work tool. Indeed, thanks to the BIT, teachers can manipulate and manipulate students directly on the board. A recent study (Dron, 2014) mentions that whiteboards have positive effects on students' academic motivation and, consequently, on their academic performance. Moreover, this study highlights the major impacts of success of the painting in boys. In addition, whiteboards allow students to better tame technologies. The two studies consulted (Dron, 2014), (Bunker, 2003), who note a correlation between the positive effects on school results and the BIT, mention that teachers must have good experience with this tool in order to have positive results in the short and medium term.

Teaching with technology allows for cognitive mediation with students. The teacher becomes a resource person for the students in all activities. The United Nations Educational, Scientific and Cultural positions in the same kind of vision of education in xxi th century. The organization mentions with regard to the profession of teacher that "this one will be more and more called to establish a new relation with the learner, to pass from the role of soloist to that of accompanist, becoming from now on no more so he who dispenses the knowledge that he who helps his pupils to find, organize and manage knowledge » (Garrison, & Kanuka, 2004). (Graham, 2006), (Graham, et al., 2013), (Holmberg, 2005).

LoTIMoersch (Kivunja, 2014) is a professional development grid adapted to the specific use of BIT in mathematics education. This model is based on seven levels of use ranked according to their contribution to the pedagogical plan. This model allows the teacher to evaluate his use of the BIT, but also to set goals to improve its use.

4.4 Interactive Tablets

A touch pad is a laptop with no keyboard or mouse. Tablets are very light and handy mobile computers that are equipped with a touch screen. These are the fingers that serve as a mouse to move in the interfaces. The tablet can be used for word processing, but its primary function is to browse the Internet and use the proposed applications. A mouse and keyboard can be installed using a USB cable. The use of interactive tablets in the classroom has several advantages. The tablet makes it possible to make a clear reduction of photocopies in class, purchase of textbooks and books. Students have on their personal tablet all the documents necessary for the progress of their learning. What's more, the tablet is thin and light, which allows a very easy manipulation and movement of the object. In addition, if the school has a Wi-Fi Internet connection, access to the Internet is very fast. Then, with the interactive tablet, there is an integration of ICT that can promote student motivation. Indeed, today's young people are born into an era of technology and the use of interactive tablets can motivate them in their academic success. The tablet can also be used for reading texts, novels and magazines, but can also be used for workshops advocating listening to text since speakers can be connected to most tablets.

Tablets very often have a camera and video, which allows students to take pictures and record short videos and subsequently work on video montages. What is also interesting with tablets compared to cameras is that the use of tape to record is not necessary. Indeed, the recording of photos and videos is done directly on the memory of the tablet.

Finally, many applications can be downloaded for free or at a minimal cost like, Dropbox, SkyMap, Zoho, SonicPicsLite and iAnnotate PDF, IBooks, Google Earth, iMovie. Also, tablets allow you to subscribe to newspapers, such as La Presse to be up to date in the news. Interactive tablets also have some disadvantages. Indeed, without Wi-Fi, the tablet is almost useless, if not for word processing. What's more, if the primary purpose is classroom use, tablet charging can be complicated (Kivunja, 2014), (Lee, 2008), (Moore & Greg, 2005), (Moore & Morton, 2017), and (Olcott, 2012).

4.5 Scratch

Scratch is a software free development and accessible to children, which can be useful for teachers and primary teachers who want to integrate the new computer in their time with their students. It is recommended for children aged 8 and over, but tests reveal that it may be accessible to younger students.

In its early days, Scratch software was used in out-of-school centers in underprivileged areas. Children in this community have shown that it is very accessible and even beneficial for them, despite their academic difficulties. It is software that helps develop creativity and intellectual curiosity in children. It allows them to develop a taste for learning, since the learning they learn is useful and meaningful. This software makes sure to place the student

in learning / teaching context. He must first define what he wants to create, then find and imagine strategies to make the software understand what he wants to do. He can then share his creation. The child builds his knowledge by interacting with the software. A child, even young, (Osguthorpe & Graham, 2003).

Scratch's slogan is "Imagine • Program • Sharing" (Owen, et al., 2017). Thus, the child chooses the desired actions, implements the actions and then shares his result. Sharing motivates the child in his work. In addition, shared jobs can be reused and reworked. This software developed by the Massachusetts Institute of Technology allows you to do animation (Owen, et al., 2017) but it also has several other functions. Children can create geometric shapes by choosing angles, interactive stories, cartoons, games, musical compositions, and more. Using this free software, students rub shoulders with mathematical and computer concepts related to their academic progress. It is easier to learn these concepts with such software, because students learn more easily by playing. This playful approach to using algorithmic reasoning and cooperation (Osguthorpe & Graham, 2003).

4.6 Social Networks

The social networks became popular in the 2000s increasingly, they were used in different ways in the field of information technology. Many newspapers or antenna chains use social networks to disseminate information quickly and efficiently. Several other organizations use social networks for the purpose of conveying information. In the field of education, social networks are increasingly used because they are interesting for the youth of today who belongs to this generation of direct information. The main social networks existing and the most known of the population are Facebook and Twitter.

Facebook was born on February 4, 2004 thanks to its founder Mark Zuckerberg. Basically, this site was a social network that called itself "non-public" for Harvard University in the United States. Nevertheless, it has become popular in other universities in the United States and then expand all over the world. Today, the site has about 500 million members and is translated into more than 78 languages. It is the site Internetthe most visited in the world right now. This social network is used today as a working tool. For example, in some schools this is an approach that is used to disseminate information to both students and parents. The teacher creates a personalized page where access is limited to parents only and where important messages and questions are made public in a timely manner. Many teachers use this tool to share their weekly planning with the goal of always keeping parents informed of what their children are doing during the year.

The question that arises is the possible uses of this tool in a foreign language class.

In a foreign language class where two universes are juxtaposed: that of the teacher and that of the students, Facebook with its techno pedagogical characters plays an important role. Facebook this free software and registered in the computer culture of more than billions of users, opens the possibility in front of the teachers and the learners to use it freely, spontaneously and in an educational way with the aim to arrive at an improvement of the process teaching / learning. Several typologies of the use of Facebook are possible, in order to discover the one that will be the most suitable to increase the number of students participating in the virtual community:

- 1) Playful: The teacher can make collective presentations on a theme of the course (the weather, directions, health) by sharing papers on the same topic, jokes or even hyperlinks to humorous videos.
- 2) Interpersonal / social: students with the participation of the teacher can make spontaneous exchanges, social interventions including thoughts and personal reflections, encouragement to perseverance and marks of appreciation towards their colleagues or the teacher.
- 3) Sharing resources: Facebook makes it easy for students to share information or audiovisual resources with their colleagues.
- 4) Access to educational information and revision of lessons: the teacher can publish hyperlinks, exercises of systematization of language points or YouTube videos seen in class, roadmaps including the numbers of the school textbook pages to be studied or reminders of the printed exercises to be revised, or it can also add additional sociocultural information in the form of text or video.
- 5) Survey: the educational institution can know the satisfaction of its students about a course or a teacher through a survey published on Facebook. Facebook is a tool that meets educational needs:
 - a) Bridging the gap between the teacher and the learners: The use of Facebook allows the teacher to better know the reality of his students and to get closer to them by assuming various roles normally assigned to tutoring in online training. The social media is then needed as a tool to help harmonize the cultures of the teacher,
 - b) Alteration of the educational space-time: On the one hand, the group uses the Facebook page in

preparation for classroom activities and the transfer of learning into their daily lives. The tool facilitates linkage between out-of-class and classroom activities. On the other hand, the students want to maintain links between them after the end of the course, both for interpersonal purposes and in the pursuit of their language learning.

- c) Continuity of learning: The use of social media ensures continuity in learning the language, which can contribute to the fight against dropping out. In case of absence in class, the student has not only online resources related to the concepts discussed during the course, but also the support of the group, allowing him to catch up and be at the same level as the others when he returns.
- d) Sharing between teachers: If a group of teachers decides to pool their material, in addition to all that the students have been able to contribute to the content of the teacher, this could lead to a rather rich content that it would be very difficult to match by working alone.

Facebook can foster the establishment of a hybrid learning formula, optimizing the pleasure of learning outside the classroom in a context of self-study. The technical aspects of this software and its simplicity facilitate the exchange between the members of the group thus promoting the sharing of information and resources to arrive at an improvement in the learning process (Owen, et al., 2017).

Twitter is a social network that was launched in March 2006 by its creator Jack Dorsey. It is a network of people who subscribe to it and subscribe to other people's pages to send or receive short messages called "tweets." This social network has about 500 million members to date. This social network is an important information provider. It is used as a tool in the school environment. Many teachers open Twitter pages to allow their students to subscribe to their page to "tweet" information or to allow students to ask questions. This tool can also be used to exchange comments between parents of students and teachers (Robert, 2007). In addition, Twitter can be used for learning to read and write. This tool motivates children. They must match letters and sounds to identify these letters on the computer keyboard and build their message. It is a very accessible tool for children because their tweets can only hold a maximum of 140 characters. They must therefore be content to identify the essence of the message. It is neither too short nor too long 28.

5. Glogster

Glogster is an interesting Web 2.0 tool as it offers a simple and easy-to-use English-language educational service. Glogster does not require any software installation and the work done with this tool is kept online safely. It is therefore possible to finalize the work later by clicking on "edit" to make changes. This tool allows both teachers and students to create personalized posters, or Glogs, in which they can add text, images, photos, videos, sound, drawings, attachments, special effects and more. Thus, it is very relevant to use Glogster, during a presentation of a given subject, since it turns out to be an excellent multimedia support. In addition, this tool allows the presenter to better interact with his audience. A basic version with which it is possible to do some tests is offered for free, however there is a paying option that invites teachers and students to interact with the help of social networks.

Why Glogster is good for students

Teachers can integrate Glogster into their classes since this tool aims to develop the language aspect of the students, the written expression as well as the oral expression. Working with Glogster, teachers empower their students with skills such as communicating, creating, producing, developing self-reliance, expressing their personalities and discovering the world of computing by treating and exploiting data. Glogster promotes student collaboration and social networking, which greatly enhances their social skills. In addition, this tool focuses on the graphical aspect, which joins the visual learners. Finally, as this tool is offered in English only, this allows students to become familiar with this language.

6. Pearltrees

6.1 LEGO Education WeDo

LEGO Education WeDo is a robotics platform that children ages 7 to 11 can easily use to build simple lego models and program them to perform certain tasks. Using WeDo software, elementary students learn the basics of programming and become familiar with robotics and automated systems and their components. While discovering robotics simple and intuitive way, students build simple models, engines and activate programmed using sensors base 29.

LEGO Education WeDo software is a drag- and -drop environment and icon based on National Instruments LabVIEW graphical design software. This software works on any PC supporting Windows XP or Windows Vista (32 bit) and any Mac running Apple Macintosh 10.5 29.

6.2 The WeDoMaterial

Available in January 2009, the LEGO Education WeDo building kit includes everything needed to build twelve different models of robots that connect to the computer via the USB port for programming. The twelve construction activities are divided into four themes: amazing mechanisms, wild animals, football and adventures. The educational activities provide up to 24 hours of practical work 30. The LEGO Education WeDo set contains 158 pieces, including a USB hub, motor, positioning sensor and motion sensor. The electric motor is used to animate the constructions, and the inclination and motion sensors make the construction interactive. The set also includes an instruction booklet for editing, a glossary and notes for teachers. LEGO Education WeDo software is sold separately. In addition, it is possible to get a poster on the WeDo technological vocabulary. This poster shows the names of the parts included in the WeDo set. LEGO Education also offers a set of 325 complementary pieces to build four new models, the Ferris wheel, the crane, the house and the car. For schools, it is possible to get the Lego WeDo Class kit for 20 students including 10 WeDo construction sets, WeDo software, a French resource guide and a technology vocabulary poster. There is also the whole station Lego WeDo for 2 students and all workshop Lego WeDo to 8 students (Traxler, 2010). In Quebec, the LEGO Education range is available at the Brault & Bouthiller (Songkako & Yeong, 2016) distributor.

6.3 Development of Skills and Knowledge in the Pupil

Teachers can introduce the WeDo concept to several disciplines such as science, technology, and mathematics and language acquisition. In addition, WeDo activities enable teachers to integrate information and communication technologies (Roblyer & Edwards, 2000). The purpose of the WeDo robotics platform is to stimulate: Creation and realization; Reflection to find alternative creative solutions; Learning communication, sharing ideas and collective work (Traxler, 2017).

Through these robotics activities, students learn programming using software, designing and creating a work model, using software to obtain information, measuring time and distance, and working with others. With single machines, gears, levers and pulleys (Songkako & Yeong, 2016). The WeDo concept offers an experience that actively involves students in their own learning process and encourages creative thinking, teamwork and problem-solving skills. Indeed, "working as a team, children develop their own solutions by building LEGO models and programming them to perform certain tasks. Cause-and-effect learning is possible because LEGO models are connected to a computer; thus, children can test and modify their program in real time. After thinking about what works and what does not work, they can talk to each other, adapt the programming, modify the templates or start again. » (Roblyer & Edwards, 2000).

The LEGO Education WeDo material is based on the "4C" learning process, which is the four phases of Connect, Build, Contemplate and Continue (Vaughan, 2010).

Log on Students connect to their knowledge when they add new knowledge to what they already have or when they are introduced to new knowledge. Teachers can start with a mobilizing question to stimulate discussion around a proposed model.

To build Students learn by doing, manipulating and engaging in the construction and programming of the twelve WeDo models.

Contemplate Students will deepen their learning by contemplating what they have built. By observing, they make connections between their previous knowledge and the news. The built models will allow children to be aware of the effects of pulleys and gears, to count, to take certain measurements and to check the speed and performance of certain models. In addition, WeDo constructions allow students to invent stories, play them and use their models for visual and sound effects.

Carry on LEGO Education WeDo encourages teachers to challenge students. This allows us to go further, to experiment with more advanced programs to achieve more complex challenges. For each of the twelve models to be built, different challenges can be given to the students. These challenges are related to the different actions that can be made to robots, the time and speed of execution of actions, the repetition of actions, the sounds produced by the robot, etc. At the robot programming stage, the teacher can challenge the students to copy to the computer using WeDo software. Each team then shares its discoveries with others (Vaughan, 2010).

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