# THE ROLE OF THE TEACHER AND THE USE OF EDUCATIONAL TECHNOLOGY IN PANDEMIC TIMES

O PAPEL DO PROFESSOR E O USO DAS TECNOLOGIAS EDUCACIONAIS EM TEMPOS DE PANDEMIA

EL PAPEL DEL PROFESOR Y EL USO DE LAS TECNOLOGÍAS EDUCACIONALES EM PERIODOS DE PANDEMIA

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**Abstract**
This text aimed to analyze the relationship between teaching and the new information and communication technologies, noting the importance of the teacher / mediator in the use of technological tools as an ally in the search for quality education even in times of pandemic. Such tools need qualified professionals, able to assist students in the production of their own knowledge, since they currently make daily use of the various technological equipment existing in the environment that surrounds them. However, it is clear that students, in the search for meaningful knowledge, need guidance, especially at this time when teaching is being carried out remotely, that is, outside the classroom. This text is anchored in a bibliographic study on the role of the teacher and the use of information and communication technologies in the teaching-learning process, based on the following authors: Costa et al (2020); Elias et al (2020); France (2020); Habowski e Conte (2019); Neira (2016); Oliveira (2001); Souza (2013); and Teruya (2005).

**Keywords**: Teaching-learning; Pandemic; Teacher; Technology.

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*Cenas Educacionais*, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

1

**Resumo**

Esse texto visou analisar as relações entre o ensino e as novas tecnologias da informação e comunicação, observando a importância do professor/mediador no uso das ferramentas tecnológicas como aliada na busca de um ensino de qualidade mesmo em tempos de pandemia. Ferramentas estas que necessitam de profissionais qualificados, capazes de auxiliar os alunos na produção do seu próprio conhecimento, uma vez que estes atualmente fazem uso diário dos vários equipamentos tecnológicos existentes no ambiente que os cercam. Todavia, é notório que os discentes, na busca de conhecimentos significativos, necessitam de orientações, principalmente neste momento em que o ensino está sendo realizado de forma remota, ou seja, não presencial. Este texto está ancorado em um estudo bibliográfico sobre o papel do professor e o uso das tecnologias da informação e comunicação no processo de ensino-aprendizagem, tendo como base os seguintes autores: Costa et al (2020); Elias et al (2020); França (2020); Habowski e Conte (2019); Neira (2016); Oliveira (2001); Souza (2013); e Teruya (2005).

**Palavras–chave:** Ensino-aprendizagem; Pandemia; Professor; Tecnologia.

**Resumen**

El objetivo de este texto fue analizar las relaciones entre la docencia y sus nuevas tecnologías de la información y comunicación mirando la importancia del profesor/mediador en el uso de las herramientas tecnológicas como un incremento buscando una docencia de cualidad aún que en periodos de pandemia. Herramientas que lo necesitan profesionales cualificados, que se atrevan a auxiliar los alumnos en la producción de sus propios conocimientos, ya que estos utilizan diariamente una gran mezcla de equipos tecnológicos existentes em su entorno. Sin embargo, es notorio que los estudiantes, en su busca por conocimiento, necesitan de orientación, además, en este período con docencia remota, no presencial. Este manuscrito tiene como base un el estudio bibliográfico sobre el papel del profesor y el uso de tecnologías de la información y comunicación en el proceso de docencia/aprendizaje, teniendo como suporte los autores: Costa et al (2020); Elias et al (2020); França (2020); Habowski e Conte (2019); Neira (2016); Oliveira (2001); Souza (2013); e Teruya (2005).

**Palabras clave:** Docencia/aprendizaje; Pandemia; Profesor; Tecnología.

## Introduction

Currently, society is marked by the advancement of technology, which brings with it several changes, including in the educational field, making it necessary to adopt new pedagogical practices, changing the ways of teaching and learning. This model challenged the teacher to seek new methodologies, inserting technological tools in their planning.

This text is the result of a bibliographic research that aims to analyze the relationship between teaching and new information and communication technologies, especially the computer and the internet, as a possibility for the production of knowledge,

**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

2

important in the formation of citizens who question, stimulate, organize, systematize and select, in a context in which the teacher is the mediator of the process.

There are several ways for society to acquire knowledge, one of which is through information, and it happens through radio, television, newspapers, magazines, films, computers with various programs, software, social networks and the internet and is present in people's daily lives, wherever they are, and arrive in real time interfering in the habits of social subjects.

At the end of 2019, the world was surprised by the news of the spread of a virus called SARS-CoV-2 that causes COVID-19 and, due to its proliferation on all continents, it was declared as a pandemic disease in early March, 2020. In view of this, the World Health Organization (WHO) recommended isolation and social distancing as one of the basic measures to face the virus.

In order to comply with this WHO's recommendation, Brazilian states and municipalities have decreed the suspension of face-to-face classes. After a week, the National Education Council (CNE, in the acronym in Portuguese) clarified the need for educational systems and networks to reorganize academic activities at all levels and modes of teaching as a result of the suspension of classes. At the end of March 2020, CNE issued an statement on the organization of the school calendar and the possibility of computing non-face-to-face activities for the purpose of complying with the mandatory 800 (eight hundred) hours demanded in the Directives and Bases Law (LDB) - Law No. 9394/96, for the year 2020 due to the pandemic.

One of the possibilities found by the education systems and by teachers in general to offer teaching in this period was to make use of technological tools, especially those that students have greater access to, the computer and the cell phone. The moment required managers and educators to take a quick and creative position in the face of the new reality. The large number of information available, the speed of access to that information and the possibilities for interaction between individuals from different intellectual and cultural universes have brought countless changes to the teaching and learning process.

*Cenas Educacionais*, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

3

The pandemic exposes the weaknesses of education systems in Brazil, especially the municipal systems that gained autonomy by the end of the 20th century through Law no. 9394/1996. The list of weaknesses includes the training of education professionals, an object of concern for authors of critical theory since the last decades of the twentieth century, who in their studies and research highlighted the need to reflect on the use of technologies in education. This lack of solid training made it impossible for us to accumulate knowledge and experience to face the debate on challenging issues. The pandemic period imposes the use of technologies as the only possibility for educational institutions to carry out their activities. This situation puts us in front of a reality that requires the daily exercise of action-reflection-action. However, we ask: how to start the reflection, if we do not have sufficient theoretical basis on the subject? Think practice by practice? In this context, considering mainly education, "technology has gone from *modus operandi* to the condition of *modus viventi*"[4] (ZUIM *apud* HABOWSKI; CONTE, 2019, p. 97).

However, rethinking teaching-learning at the present time requires a professional who is open to this new reality, being able to always learn, while also developing his critical, reflective, autonomous and cooperative capacity, and these are important assumptions to make significant changes in the educational scenario and in the world in constant transformation.

The present work addresses the importance of technological tools in the teaching-learning construction process and the role of the teacher as a mediator of knowledge through the use of Information and Communication Technologies (ICT).

The study presented is far from having the intention of exhausting such a complex and innovative subject in the current scenario. However, it is expected to make a critical reflection on the role of the teacher / mediator and the use of educational technologies as essential tools for the production of knowledge in the period when isolation and / or social distancing is necessary.

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

4

**The teacher as a mediator in the use of technological tools**

The insertion of information and communication technologies in educational institutions has been relevant in recent years. However, some schools do not have enough technological tools, also, not all teachers are qualified to use these technologies properly, therefore needing public policies that guarantee investments in infrastructure, technological equipment and continuing education for teachers.

In modern times, when changes are taking place at an accelerated rate, it is necessary, as Habowski and Conte (2019) point out, to think of education as a political and human act in which technologies are part of this cultural universe. This requires the implementation of some essential elements in the educational systems, "training and updating teachers, so that technology is in fact included in the school curriculum, and not seen only as a supplement or peripheral tool (...) creation of innovative content that uses all the competence of these technologies"[5] (STINGHEN, 2016, p. 27).

Habowski and Conte (2019, p. 44) affirm that "machines make us think in a different logic than people, these diverge mainly in ways of thinking, which incorporate tastes, feelings, while machines do not"[6]. Therefore, the teacher needs to recognize themselves as a digital learner and strive to overcome practicality and naivety in face of these artifacts. How to use the social interactionism advocated by Vygotsky with technological mediation? Morais and Conte (2020, p. 120), based on the studies by Vygotsky (2005), reinforce the importance of building knowledge in an interactive way, recognizing that the social environment influences the development process of the subject. They also highlight "that the intellectual capacity is not inherited, but is built in the interactive process of the subjects with the vital contexts"[7].

The teaching practice mediated by technology, in a remote environment, constitutes a great challenge to the teacher, especially to those who work in basic education with children and adolescents. The living spaces of these subjects are plural, rich

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[5] Translation by the authors.
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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

5

in experiences, but many of them do not fit within the technique and discipline required by this teaching model. How to proceed? Who provides support for these teachers? We have been observing an attempt to transpose the real world to the virtual world, with the desire to guarantee the contents to students.

To escape the abyss of pure and simple technicism, the search for theoretical knowledge is necessary to work in an interactive perspective, breaking with the passivity of the student, making them participative, co-author in the pedagogical work (TORTORELI; GASPARIN, 2012).

It is known that one of the roles played by the teacher is to mediate and monitor the teaching and learning process of the students, whether in the relationship that provokes problem-situations or in the interactions and socialization of the knowledge acquired by them. However, according to Morais and Conte (2020, p.121),

> any mediating adult, whether they are parents or teachers, who act to show or teach about life and the world, has a very important role in the life of another person, since it is from that moment or that class that the individual learns the values needed to be a citizen.[8]

The teacher who has not been trained to use technological resources takes a lot of effort and consequently takes a long time to make their classes more attractive, often without success. When the opposite occurs, a teacher who has mastered the technologies and does so effectively, the tendency is to contribute with the students, in the sense of improving the knowledge already acquired and acquiring new knowledge. Therefore,

> the teacher does not need to be an expert in the use of the Internet, but it is necessary to know the possibilities of this tool in the teaching and learning process, to know how to use it in order to develop more pleasurable and dynamic classes. Often students feel more secure in the use of technologies, when they realize that the teacher uses these resources in a useful and meaningful way. (SOUZA, 2013, p. 20)[9]

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[8] Translation by the authors.
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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

6

With the use of technological resources in favor of learning, it becomes clear that the teacher is no longer the holder of knowledge, becoming a mediator, encouraging the student in the search for meaningful learning.

Information and communication technologies are instruments that help the teacher to achieve means of interaction between technological tools and learning in a relevant way, bringing innovation to the classes and valuing the knowledge already acquired by the student.

The current expansion of the technological sector causes many to be dazzled and to conclude that they will be able to solve the great educational problems without the presence of the teacher. However, technology alone will not solve these problems, but if it has qualified and competent professionals for its use, it will be possible to mitigate and/or solve them. Still, many teachers are not prepared to deal with this new reality. At this point, Habowski and Conte (2019, p. 114) state that:

> technology, alone, is not a magic solution to the problems of education, but when combined with social practice and human interaction it can contribute to the collective (re) construction of learning. Therefore, it is feasible to state that this new reality scares and generates difficulties in school planning, as many teachers do not know how to use these interfaces and, consequently, guide students in understanding how to relate and produce meanings with technologies.[10]

According to Perrenoud (2001), one of the ten competencies for a new teaching profession is to use new technologies. However, these need to be used in a way that involves students in their learning and, mainly, that help in the construction of their own knowledge. In addition, the insertion of digital and technological resources in education is already foreseen in the official teaching parameterization documents issued by the Ministry of Education. The general competence 5 of the National Common Curricular Base (BNCC, in the acronym in Portuguese), for example, contemplates the development of competences and skills related to the significant and responsible use of digital technologies, that is,

> understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

7

(including school ones) to communicate, access and disseminate information, produce knowledge, solve problems and exercise protagonism and authorship in personal and collective life. (BRASIL, 2017, p. 9)[11]

Teachers are constantly challenged to innovate. Thus, it is clear that technological resources have an important role in the student's life for the development of skills and competences. When bringing them into the teaching and learning process, the educator must be aware that ICT are tools that must collaborate to approach the contents, aiming at meaningful learning.

To make the use of technologies relevant, it is essential to have a good theoretical foundation on the subject, as well as to know how to use practical and differentiated methodologies, to work in a computerized environment. According to Teruya (2005, p. 27), "Technology itself does not increase students' motivation, but if the work proposal is interesting and the learning environment is challenging, students participate with commitment and interest in knowledge"[12]. It is up to the teacher to relate the theoretical content with the media resources so that there is an integration between them.

The State is the proponent responsible for public policies and education is a policy of social relevance, it is essential to guarantee conditions for the teacher to provide means for students to become active subjects that are able to relate content, research, analyze and thus build their knowledge with the help of information and communication technologies.

The use of new methodologies and the handling of technological tools as a didactic resource in the daily life of the student contribute to increased participation in the teaching-learning process, encouraging them to develop their autonomy in the search for knowledge.

Thus, information and communication technologies are great allies in the teaching-learning process, but need qualified teachers/mediators that are able to use them effectively to achieve the desired goals. It is clear that no work can achieve good results without the help of the teacher and that the construction of knowledge can be acquired

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[11] Translation by the authors.
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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

8

by students through technological resources. However, teacher/mediator supervision is essential. The mediator will stimulate research and the search for knowledge selectively, providing moments of participatory construction involving student and teacher. On this issue, Oliveira says:

> the use of technology should be seen by the teacher as a resource, a tool that does not promote learning by itself. All work must be based on the pedagogical framework that will provide the appropriate support for the development of the educational project, with technology being seen as another resource that mediates the process (OLIVEIRA, 2001, p. 6).[13]

Thus, it is clear that the role of the teacher as a mediator is essential for good student learning and that the insertion of information and communication technologies in educational environments is fundamental.

## The importance of the use of technological tools in the teaching-learning process

Technology is changing the educational scenario that is increasingly in need of various technological equipment such as TVs, slide projectors, modern computers, various types of software and high quality internet, so that it is possible to provide attractive and effective classes, contributing to the improvement of pedagogical practices.

For this, it is of fundamental importance that schools, when acquiring new technological equipment, do not use them only as mere illustrative instruments, but that they in fact explore their potential, capable of offering activities that provide learning, not only to fill the idle time of learners, since they use technological equipment with cyberspace activities, especially social networks, to fill their idle time, seeking only pleasure and satisfaction without any relation to the various learnings (HABOWSKI; CONTE, 2019, p. 93).

Some educational institutions, in an attempt to incorporate new resources and to propose differentiated skills, acquire equipment that is of high technology, however it is not always successful, because, many times, they only acquire new machines without,

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

9

however, being able to change the habit of expository and traditional classes. This fact is linked to the absence of a policy of continuing education for the teacher which provides knowledge to deal with these technological resources.

Having good equipment is the basic condition for carrying out differentiated pedagogical activities. However, the qualification of professionals to use these resources is precarious. Teacher training courses, in the process of initial and continuing training, have not adequately prepared professionals for the good use of technological resources. The use of these resources in the teaching-learning process, depending on the use made of it, can lead to advantages and disadvantages. For Souza:

> there are many advantages that the Internet offers for the teaching and learning process when used properly, however, there are some problems and limitations when its use is done in an incorrectly and unprepared manner, which can cause some inconvenience in the educational process. (2013, p.21)[14]

Therefore, the use of technological resources in teaching is useful, necessary, enriching, transformative and urgent. It allows educators and students to insert new methodologies and open borders, elevating them in the educational process. However, it must be used appropriately so that there is learning.

The use of technology in the educational context provides responsibility for the teacher and the student, through the acquisition of new knowledge. The student must be held responsible for tracing new paths in his learning, understanding its meaning and autonomy (ELIAS *et al.,* 2020. p. 327). "The teacher and the student become collaborative in the teaching and learning processes"[15] (ROMANELLO, 2016 *apud* ELIAS *et al.,* 2020. p. 321).

Education mediated by ICT is undoubtedly a challenge for everyone: teachers, managers and students, because they need to seek the training of human beings, preparing them to live in a society that is constantly changing. For this, it is necessary to have an education that does not ignore the reality of those involved, but that seeks ways

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[14] Translation by the authors.
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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

10

of inserting technologies in the school context in order to guarantee the right to learning. Neira, in his studies, highlights that:

> education and Technology go together, but uniting the two is a task that requires preparation by the teacher inside and outside the classroom. At the same time that it offers challenges and opportunities, the digital environment can become an obstacle to learning when misused (NEIRA, 2016, p. 04).[16]

Technological resources are essential nowadays, but they need trained teachers/mediators to reach the learning objectives. It is of utmost importance the proper use of resources for the sake of teaching. Therefore, the school needs to seek mechanisms that offer adequate subsidies so that teachers and students can effectively use technologies in the teaching-learning process. Sharing this same view, Elias *et al.* (2020, p. 327) affirm that:

> even in the educational context, the use of this technology generates a responsibility for both the teacher and the student in face of the acquisition of new knowledge. Holding students accountable for their learning can open new paths for them to understand meaningful learning. This process has the possibility of awakening in the student an autonomous posture to interfere in his daily life and to decide what has effective significance for his life.

Technologies allow students to easily research, produce and share information that favors their intellectual development, making learning relevant. Therefore, it becomes necessary the mediation by teachers who are also aware of the importance of using information and communication technologies for the construction of knowledge.

The internet has become an excellent way for students to acquire knowledge, as it enables the exchange and search of fundamental information in the construction of learning. However, the Report published by the Getúlio Vargas Foundation in October 2020, entitled Portraits of Education in the context of the coronavirus pandemic, provides information that:

> according to data from ANATEL, 28% of the municipalities - most of them in the North and Northeast, and corresponding to 7.4% of the Brazilian population - do not have an optical fiber connection structure, and another 19% have only low speed connections. In 13% of the municipalities there is no 4G coverage, limiting or

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

11

even preventing access to different platforms and content.[17] (FUNDAÇÃO GETÚLIO VARGAS, 2020, p.25)

In this perspective, recognizing the importance of the internet in the production of knowledge, Souza (2013, p. 20) reinforces: "The Internet needs to be used in schools in order to provide students with different ways of elaborating and building knowledge, promoting access to new teaching structures in order to achieve quality education".

Having the internet as an ally in the construction of knowledge, the educator has different ways of promoting teaching-learning. By following and monitoring the student's development, the teacher-mediator can assess whether they are developing significant knowledge in the construction of their own knowledge, using technological resources in a profitable way, especially in the current context in which we are living.

## The use of educational technologies in pandemic times

In times of pandemic, when social distancing is essential to minimize the proliferation of the virus, safeguarding people's lives and at the same time guaranteeing the right to education, new actions must be taken. For this, information and communication technologies come as a great ally to education.

It is highlighted, as stated by Morais and Conte (2020, p. 122) that "more and more the technological world is transforming the ecology of learning and reconfiguring education in the ways of teaching and learning"[18], thus creating spaces for the use of these new tools in the educational environment is of paramount importance, since the physical presence of the teacher is not possible at this time of pandemic. The dialogue between students and teachers is now mediated by the use of technologies, which goes back to the importance of using speech in an affective perspective to break the coldness of the technique. In front of this, come the questions: how many cameras do not work and remain turned off during the period of classes? How to establish an affectionate dialogue without looking in the eyes? The tools exist and many are already known, chat, forum, list, blog,

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[17] Translation by the authors.
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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

12

website and Learning Management Systems (LMS), and as defended by Silva (2013, p. 65) "The teacher can use these interfaces to co-create communication and learning in their classroom and online"[19]. The author also assures that these tools "favor integration, feeling of belonging, exchanges, criticism and self-criticism, thematic discussions, elaboration, collaboration, exploration, experimentation, simulation and discovery"[20]. The questions persist: will everyone have machines that provide access to those cyber spaces? Are teachers able to create their virtual classrooms?

It is clear that ICTs are essential in the current educational scenario. Technological tools provide new ways of learning, "remote education allows the use of platforms already available and open for other purposes, other than strictly educational ones, as well as the insertion of auxiliary tools and the introduction of innovative practices"[21] (GARCIA *et al.*, 2020, p. 05).

Remote education, with the use of new technologies, avoids the infection by SARS-CoV-2, since there is no physical contact between teachers and students, allowing them to continue learning at home. This way, students need to create a study routine and have focus and discipline so that the learning objectives are achieved. At this time, family participation and monitoring are of fundamental importance, since interaction with the teacher is limited.

Morais and Conte (2020, p. 122), based on the constructivist theory, present "three types of mechanisms of educational influence that operate at three different levels: that of interaction, which is established between teacher and students in the course of teaching activities and learning, that of interactions between students and that of the organization and functioning of the educational institution"[22]. With remote education, the physical space of the educational institution becomes the space of the residence. How does the interaction take place in this space? What level of concentration is it possible to establish

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

13

in thousands of homes for children and adolescents in the country, where many share tiny rooms with other family members?

However, due to the pandemic caused by Covid-19, teachers had to look for alternatives that would allow them to teach their classes remotely. The use of technological resources has become essential to continue the studies, which until then were offered in person. Classes become non-face-to-face, however the presence of the teacher is fundamental for learning to happen and the appropriate use of Digital Information and Communication Technologies (DICT) is an alternative to students. To Costa *et al.*:

> DICT's [sic] bring several benefits, but this does not only depend on the equipment being used, but also on the way in which these resources are used, and it can be used in the school environment as a learning tool that provides interaction between students and teachers and collective learning. (COSTA *et al.*, 2020, p. 08)[23]

Therefore, it is necessary to insert technologies that make virtual contact between students and teachers possible, enabling pedagogical mediation, which allows the teacher to provide all the necessary support so that students understand the content clearly and solve their doubts. Here we agree with Masetto (2020, p. 144) when he says:

> by pedagogical mediation we understand the attitude, the behavior of the teacher who stands as a facilitator, encourager or motivator of learning, who presents themselves with the willingness to be a bridge between the learner and their learning - not a static bridge, but a 'rolling' bridge which actively collaborates for the apprentice to reach his goals. (MASETTO, p. 144-5, *apud* FRANCE, 2020, p. 4)[24]

Having this in mind, this new form of teaching requires a change of focus and attitude on the part of teachers regarding the insertion of new technologies in pedagogical practice and in teaching systems in the way of offering it. In this sense, technological resources are bringing some benefits to education, providing new ways of teaching and learning. Even though, the fight for the democratization of the resources and especially for the use of the internet needs to be included in the agenda of public educational policies.

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**Cenas Educacionais**, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

14

**Final considerations**

As already mentioned in the course of this study, the current scenario, with the arrival of the Covid-19 pandemic, required the adoption of new ways of teaching and learning. The use of technologies has become more essential than ever in the educational context, since to contain the proliferation of the virus it was necessary to close schools. Because of this, school activities started to be carried out remotely.

In order to safeguard the lives of teachers, students, and their families, health authorities recommended some measures, among which we highlight the closure of schools, isolation and social distancing. However, teachers, researchers, social activists, started to discuss the right to education for everyone as a constitutional principle. In order to guarantee this right, one of the ways to ensure the continuity of teaching remotely is the use of information and communication technologies in the teaching-learning process.

In the context of a pandemic, technological tools are essential in the provision of interactive teaching and meaningful learning. Educators and students, through information and communication technologies, will have the ability to interact so that learning happens effectively. But, for this to happen, it is necessary that the didactic principle that comprises the relationship between teacher, student and the content to be established, even if in a mediated way. What raises concern is the lack of technical, pedagogical and psychological support to teachers and students who live with loss, with mourning, with suffering, in this historic period, March 2021, the humanity, particularly Brazil, is going through, where the number of deaths, on the rolling average, is the highest on the entire planet.

The educational community, like other social sectors that are fighting to guarantee rights, in particular the right to life, continues to seek alternatives so that teachers/mediators can use ICT in a dynamic, efficient and responsible way, always aiming at the provision of quality education. To this end, the government must propose and offer teachers continuing education courses for the use of technologies, regardless of the pandemic period, making them a great ally in the teaching-learning process.

*Cenas Educacionais*, Caetité - Bahia - Brasil, v.4, n.10740, p.1-17, 2021.

15

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16

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17