

Reflections on Distance Education as an alternative for emergency situations that require Social Isolation at the Institute Federal of Espírito Santo

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Abstract—The discussions around the world caused by the COVID-19 pandemic moved several areas of knowledge, including Education. In this scenario, the functioning of schools was much debated, especially in public institutions, which has a percentage of students in social vulnerability and issues involving the distance modality. This quantitative research presents a mapping carried out at the Institute Federal of Espírito Santo intending to know the reality of students in terms of digital inclusion for decision-making. The results point to solutions related to vulnerability issues, as well as regulation and training to ensure the quality of the courses offered, even in exceptionality in times of pandemic

Keywords— *Distance Education, Pandemic, Hybrid Education, Digital Inclusion.*

I. INTRODUCTION

Public education institutions in several countries, including Brazil, in their different levels of education, have faced an emergency situation caused by public health issues, due to the Pandemic caused by coronavirus (COVID-19). In Brazil the first decision in most public schools was the suspension of face-to-face classes, followed by the maintenance of rights related to social assistance and/or anticipation of school vacations. In this context, there is a growth in studies, debates, and opinions about the admission of remote classes, non-presential activities, and/or distance education (EAD).

As legal support for the implementation of distance education, there are three ordinances: 343 of 17 March 2020 [1], 345 of 19 March 2020 [2], 376 of 03 April 2020 [3]. Ordinances 345 and 376 allow the substitution of in-class disciplines, in progress, by non in-class classes using information and communication means and technologies, without the need to meet the percentage limits provided by

law, on an exceptional basis. As far as higher education is concerned, there is:

Art. 1st It is authorized, on an exceptional basis, the replacement of the disciplines in progress in person by classes that use media and information technologies and communication, by higher education institution of the federal education system, which art. Article 2 of Decree nº 9,235 of December 15, 2017

As for Professional Education, there is:

Art. 1st The institutions that are part of the federal education system dealt with in article 16 of Law nº 9.394, of December 20, 1996, and article 20 of Law nº 12.513, of October 26, 2011, are authorized, on exceptional basis, with regard to the high school technical professional education courses in progress, to suspend the classes in person or replace them with non-attendance activities, for up to sixty days, extendable, depending on the guidance of the Ministry of Health and state, municipal and district health agencies, in the form of this Ordinance.

The ordinances also define that it is the responsibility of the Educational Institutions to define the subjects that can be carried out online and their respective percentages of total workload, as well as the tools to be used and forms of evaluation.

In addition, there is the provisional measure 934 of 01 of April 2020 [4], which brings the possibility of reducing the school days provided for by law in the situation of exceptionality:

Art. 1st The establishment of basic education is exempt, on exceptional basis, from the obligatory observance of the minimum number of days of effective school work, pursuant to the provisions in item I of the caput and in § 1st of art. 24 and in item II of the caput of

art. 31 of Law nº 9.394, of December 20, 1996, provided that the minimum annual workload established in the aforementioned provisions is complied with, in compliance with the norms to be edited by the respective education systems.

In view of the facts presented, the educational institutions were obliged to make decisions in a short period of time. And it is known that any decision making implies in identifying the situation as a whole, being that this can be an opportunity or a problem, that to be solved it needs a diagnostic analysis of the situation to then evaluate a set of alternatives, which will be duly evaluated as well as the impact of each one, in order to then select and begin its effective implementation. Regardless of the decision to be made, will be responsible for monitoring and feedbacks to new and / or maintenance of the chosen alternatives.

During this period, the National Council of Education (CNE) prepared an opinion giving guidelines on educational possibilities in times of pandemic COVID-19 and approved by the Ministry of Education (MEC) on May 29, 2020.

In view of the above, EAD has been debated and questioned in different spaces, for example: unions, councils, associations, student representations, the academic community, etc. The objective of this article is to analyze the main questions from the perspective of researchers in distance education and the unexpected situation that arises in school contexts, and thus evaluate pros and cons of the implementation of this modality in a situation of exceptionality.

II. FUNDAMENTALS OF DISTANCE EDUCATION

The definition of EAD presented in the decree of nº 9,057 of May 25, 2017 [5], affirms us:

[...] Distance education is considered the educational modality in which didactic-pedagogical mediation in teaching and learning processes occurs with the use of means and information and communication technologies, with qualified personnel, with access policies, with compatible monitoring and evaluation, among others, and develops educational activities by students and educational professionals who are in different places and times.

From the definition of EAD, bringing to context in an emergency situation already imposes many challenges: how to ensure that everyone has access to information and communication technologies? How to guarantee the teaching qualification in a short period of time? How will pedagogical mediation take place? How will evaluations be carried out without face-to-face support? How to develop an autonomous study in the student?

More and more technological resources are present in our daily activities, in Education is not different. EAD already has an expertise with the use of technologies, this can be proven by data from the CensusEAD.BR [6] which presents the technological resources available for students at the headquarters of the poles. (Figure 01)

FIGURE 01 - TECHNOLOGICAL RESOURCES AVAILABLE TO STUDENTS AT THE HEADQUARTERS OR POLE, IN PERCENTAGE, BY ADMINISTRATIVE CATEGORY.



Source: CensusEAD.BR (2017)

However, despite being something that is already common in most people's daily lives, it is noticeable that in some educational environments there is still a large portion of the population that has limited access to technological resources, such as smartphones, computers and the Internet, and still have those who have no access at all.

According to Litto [7] for "students without their own digital equipment, schools must have a system of

manual distribution, or via mail, of educational material", that is, this option is something to be considered, respecting all public health issues at a time of pandemic.

Despite several challenges, on the other hand, EAD has already contributed to a large portion of the population, among them 14% of the Brazilian population with reduced mobility enabling access to education [7], flexibility in studies allows the choice for a given subject according to its personal moment in daily life (examples: more prone to reading, watching video lessons, producing text, performing calculations and/or schemes, etc.), this same flexibility also allows students with more difficulty to return and review their studies as many times as necessary, and also allows students to easily advance in their studies and/or complementary challenges.

In a scenario of so much uncertainty regarding the duration of a pandemic, the "EAD can be considered a way to extend the school hours of basic education in person (predominantly of only 4 hours), involving the apprentices in more contact with new knowledge" [7].

Another issue reported is the quality of the EAD course, according to Litto [7] "[... the EAD practiced in Brazil today is satisfactory in relation to face-to-face: the results of ENADE [MEC] in the period 2007-2012 revealed that those who studied distance obtained higher marks than those who studied face-to-face; now the averages are similar".

Passos, Sondermann e Costa [8], defend that the modality of EAD should be an option and not something that puts it as a second option. However, it is known that at a time of pandemic it is the only option to the alternative of indefinite suspension of classes in person.

It is believed in EAD as a teaching modality that should be used regardless of the issue of the impossible scope of classroom teaching, because it places EAD as a second option. Although EAD students have proven to be older, this tends to change in the future, when society realizes the real values of the modality and the choice for a modality will depend exclusively on the student's motivation and not on the credit or discredit it promotes. Institutions should work in this

direction, so, effectively we will have the insertion, consolidation and institutionalization of the EAD (p. 10).

In addition to the issues presented, EAD needs to ensure quality in the teaching materials used, whether digital and/or printed. In addition, be accessible, especially for deaf students and /or visually impaired. As atividades pedagógicas também devem fomentar práticas que tragam o aluno para o protagonismo de seu processo de aprendizagem. Collaborative learning and effective planning, preferably accompanied by an experienced EAD professional, are also key factors for quality EAD.

Given the context presented, it is verified the complexity of implementing the effective EAD, however, in a state of emergency, other actions are possible to minimize the impacts of having students outside the school, especially those with greater social inequality.

III. REMOTE LESSON AND THE USE OF EDUCATIONAL TECHNOLOGIES

In the urgency of making decisions, some private educational institutions immediately opted for remote classes, keeping the pre-established class schedules so that students can follow the classes through web conference resources, which allow synchronous meetings, that is, all should be connected at the same time. Others have chosen to make recordings of these meetings to attend them later. However, some problems have arisen: dispute for the only personal computer in the house, slow internet connections, adaptation to work in home office conciliated with studies, etc. In addition, the emotional state in times of pandemic.

In the absence of a Virtual Learning Environment (AVA) properly configured in schools, some institutions have resorted to networks and social media, for example, Facebook, Instagram, YouTube, WhatsApp etc. According to Song [9] "Learning in the digital age no longer depends on the acquisition, storage and retrieval of individual knowledge; instead, it depends on connected learning that occurs through interaction with various knowledge sources (including the Internet and learning management systems) and participation in communities of common interest, social networks and group tasks.

Technological innovations and their use for scientific, technological, cultural, social and educational purposes were instrumental in bringing the benefits of technology closer to the needs of qualification [10].

According to Silva and Gomes [10], "The teachers traditional need to develop new knowledge and implement professional updating in their activities, in addition to overcoming the resistance of the institutions to assume the deep and adequate changes to the new reality".

It is noticeable that the advancement of the discussions gives rise to a new term, the Non Presential Activities (ANP), nomenclature adopted by the National Education Council.

Se por um lado blinda a EaD da ampliação dos preconceitos com a modalidade já existentes, por outro abre o debate sobre ações em virtude da excepcionalidade e das incertezas geradas pelo momento de pandemia. Para as instituições públicas o desafio é ainda maior, pois muitos alunos são de baixa renda e não possuem acesso à Internet.

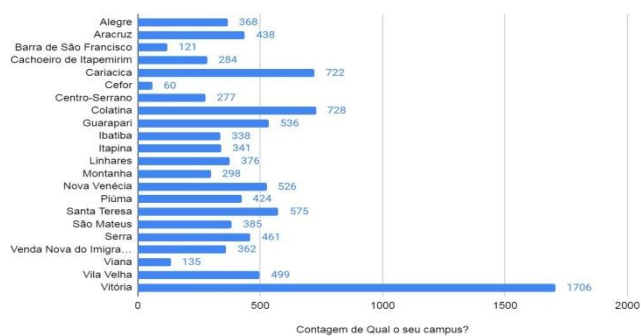
IV. METHODOLOGICAL PATHS

This quantitative survey took place at the Federal Institute of Espírito Santo (Ifes), in order to evaluate possible scenarios and contribute with Ifes to identify the situation of the student body and thus assist in the taking of preliminary decisions, on what to do and how to do it with the classes of the students of the in-person courses during the period of distance due to the pandemic of coronavirus (COVID-19), so, a survey was conducted on Information and Communication Technology at the institute from March 27, 2020, with the intention of to identify the profile of students regarding internet access and other Communication and Information Technologies. The survey link can be viewed at : <https://docs.google.com/forms/d/e/1FAIpQLScxTlmX8U63>

xBZh80ZaxusMqVFRqx0CHh31rV-vNv5_HmUzKg/viewform.

The survey took place in the 22 Ifes campuses and counted with the participation of 10,974 students. Figure 2 shows the quantity per campus and also the municipalities in the state where Ifes is present, bringing public education at various levels and to all the capixabas microregions.

FIGURE 2: RESPONDENTS PER CAMPUS



Source: Ifes (2020)

Ifes is concerned with offering quality education and this concern is not only restricted to face-to-face education, but also includes distance learning. However, during the pandemic period, the need of emergency adequacy to the functioning of the classes in person was followed, due to the social withdrawal. The teaching that was foreseen for the model only in person, due to the health crisis in public health, made the teaching institutions, which have pedagogical autonomy, think about actions and strategies, and this required planning to adapt to the possibilities of the EAD modality in order to guarantee quality education for all.

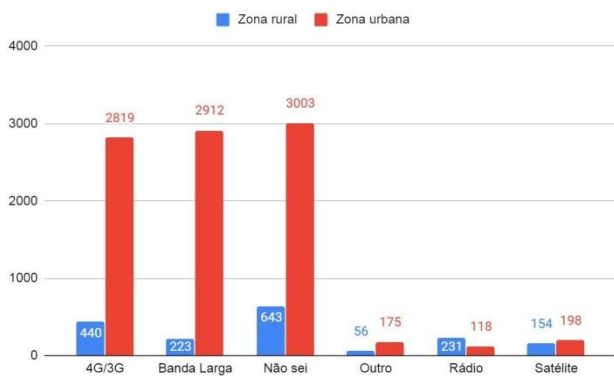
Education is one of the affected areas in the pandemic situation, so, in view of this fact, it has become necessary to reorganize the times, spaces and activities mediated by technologies [11] to ensure the continuity of teaching. This need for adaptation refers to both students and teachers, who are mostly unfamiliar with EaD and/or the use of educational technologies, thus facing the commitment to, as Passos, Sondermann and Costa [8] points out, "[...] to guarantee the excellence of academic activities carried out at a distance, offering instigating and quality support material, in addition to providing support and guidance for student learning". In addition, there is the impossibility of direct contact with the tutor, a professional who acts in the support poles in the distance courses, to which the student is linked, which is of utmost importance, to solve doubts, obtain clarifications or deepen the knowledge made available in a virtual way, and

"stimulate the motivation of the student for his continuity of the course" [8].

The survey, together with the student body, demonstrates the different levels of education offered by Ifes, where, of the respondents, 53% are from the Integrated Technical to High School courses, 32% from the Undergraduate courses, 12% from the Concomitant or Subsequent Technical courses and 3% from the other courses offered as Postgraduate, Integrated Technical to High School-Projea and Professional Qualification, which shows the diversity of levels of education attended.

Regarding the place of social isolation, 84% of the students said they were in urban areas and 16% in rural areas. It was chosen to make a correlation between the questions to know the type of connection used and the place of social isolation, obtaining the following data according to Figure 4. This information allows the planning of actions to be taken to create possibilities for students to continue studying, because the technologies are not neutral, they open paths, create bonds, bring us closer, create opportunities to break paradigms, allow more freedom to learn. And in this way, involved in the construction of one's own learning, it provides opportunities for the development of critical thinking. However, when observing the type of connection one notices the lack of knowledge about the subject and still diverse possibilities to be considered in order to provide solutions for the ample student attendance.

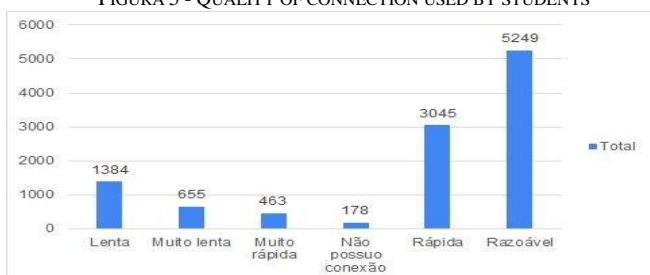
FIGURE 4 — PLACE OF SOCIAL ISOLATION OF STUDENTS DURING THE COVID-19 PANDEMIC AND THE TYPE OF CONNECTION USED



Source: Ifes (2020)

And as for the connection quality, presented in Figure 5, approximately 32% of the students evaluate their connection as good quality, since it presents a fast connection, on the other hand 66.4% say they have a connection from reasonable to very slow and still, there is 1.6% that do not have any connection. This situation may interfere directly in the classes, since these may happen through web conferencing, videos, among other possibilities, and with a low quality connection it is compromised the transmission and quality assurance in the teaching-learning process.

FIGURA 5 - QUALITY OF CONNECTION USED BY STUDENTS

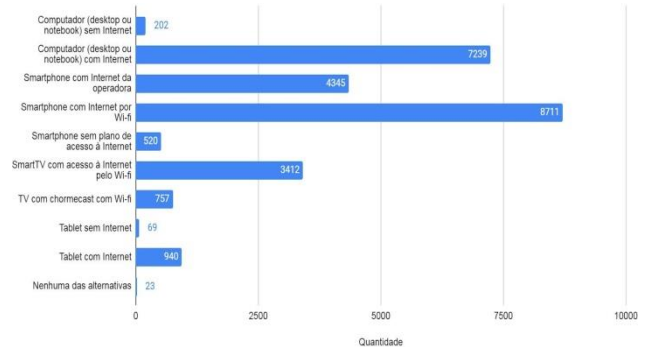


Source: Ifes (2020)

The use of various multimedia in education makes the teaching-learning process more effective and dynamic and virtual rooms have become an environment conducive to learning. Digital technologies are embedded in our culture and challenge us to think of new ways of teaching and learning. Mobile technologies are strategies for pedagogical innovation [12].

Both teachers and students need to adapt to this context, because they increase the possibilities of search, information exchange, sharing, multiplying the learning spaces. Regarding the digital technologies available in places of social distancing, many said they had some kind of digital technology, such as Smartphone, Computer, Tablet or Smart TV with Internet access (Figure 6). Smartphone is highlighted, however, although Mobile Learning is an educational trend, there are some restrictions that can lead to exhaustion. If this is a possible solution it is prudent to explore different resources, for example, audio and video, and also records in notebooks. The use of the Smartphone to the resources available in the cloud is a help regarding insufficient memory and demands Internet connection. Memory cards can be an alternative, at least for access to Information.

FIGURE 6 - DIGITAL TECHNOLOGIES USED BY RESPONDENTS



Source: Ifes (2020)

And when asked about the lack of Internet access in their home, 44% said they could use someone who lives with them, 33% get access from a neighbor and the 23% said they can't see an alternative. And so, part of the students could be harmed, amplifying the educational inequalities, therefore, alternatives to the access of materials and activities should be conditions for the implementation, even in times of pandemic.

In addition to the question related to connection, which makes the teaching-learning process very difficult in non-classroom activities, there is also a concern among respondents about the quality of learning in face of the physical structure in their home, lack of appropriate space for studies. As already presented, the questions imposed by socioeconomic inequalities compromise the conditions of teaching-learning; this is evident in the transcription of the reports of the students obtained in the survey.

Online classes aren't the same as face-to-face classes, the moment is of crisis so extreme measures and an opportunity to develop new means of integration, I've already done another college and the difference between the online class (I've had it in another college) and the face-to-face class are very big, when the crisis passes I suggest that we go back to normal Ifes is a teaching reference and this will affect a lot the quality.

I don't think that distance learning classes are comparable to in-person classes, but since the minimum workload is required, I do believe that I should have some online activities. I believe that they should only be complementary activities, and not classes in themselves, because students who suffer from a lack of attention have a much harder time with video lessons because of the lack of assistance a teacher can give in class.

The students, who were against the implementation of activities in the distance modality, were guided by the issue of social inequality, as reported below:

I'll use this gap to leave my opinion on the subject: I do not consider EAD, nor AVA, democratic solutions to deal with the issue of social isolation, since many students at the Federal Institute do not have access to a quality internet service and would thus be immensely harmed.

Ifes is an institution with many students in a vulnerable situation, which was evidenced in the survey that 75% of the students receive some type of student assistance, mostly for food, housing and transportation. Only 25.3% said they didn't get the aid.

Still as one of the questions raised in the survey, regarding the Virtual Learning Environment (AVA) - Modular Object-Oriented Dynamic Learning Environment (MOODLE), 57.9% said they have already accessed the environment, 23.1% said they have never accessed and 19% never even know what an AVA is.

According to Passos, Sondermann e Costa [8] the EAD methodology used by Ifes "values the autonomous study, promoted by the available readings and proposed activities in the virtual learning environment, mediated by the distance tutor and support of the in-person tutors". And, in view of the respondents' reports, how can all students have access to the available online content and be able to carry out the non-presential activities? How to make students develop this autonomy to manage their own learning? How can we ensure that the social inequalities between students imposed by distance/ remote education are not increased in the face of this challenge imposed by the pandemic?

Bacich and Moran [12] argue that collaborative work allied to the use of digital technologies enables learning moments, where learning from peers becomes even more significant.

It's agreed with Bacich and Moran [12] that despite the challenges and problems related to the use of digital technologies, it's necessary to propose active and liberating learning. In this sense, changes are necessary and with them comes adaptations, constructions and reconstructions and thus creates possibilities for innovative learning with the use of digital tools. However, in the context presented, EAD, has a great challenge and is full of questions that need to be resolved, since the educational institutions had to change the dynamics between students and teachers when they became online, without preparing for it.

In addition, a survey was also conducted from April 1, 2020, with the aim of knowing the profile of teachers and Administrative Technicians in Education directly linked to the area of support to teaching, regarding the use and training in the area of Distance Education and Educational Technologies, aiming at the planning of educational actions during and / or after the period of suspension of teaching activities in person.

The link of the research, can be viewed at: <https://docs.google.com/forms/d/e/1FAIpQLScBE0CDT36A6QSPy0NnmCceS5JGtu0HFrpndLnbGKeC6ciRw/viewform>.

It was possible to verify, in this survey, that many teachers who answered the questionnaire already had or were conducting training to work with EAD.

Faced with the scenario presented by Ifes, even knowing the challenges imposed and the lack of understanding about the exceptional situation for decision-making, sought a solution in a collaborative manner and with diverse representations, which culminated in the approval of a resolution for Pedagogical Activities Non-Presential, nº 1/2020 of the Superior Council, dated May 6, 2020, available at:

https://www.ifes.edu.br/images/stories/Resolu%C3%A7%C3%A3o_CS_n_1_2020_Normas_Atividades_n%C3%A3o_Presenciais_Periodo_Pandemia_Covid_3.pdf, approved after a long meeting lasting approximately nine hours.

In addition to the resolution, Ifes approved an ordinance for emergency aid for Digital Inclusion, available at: <https://www.ifes.edu.br/noticias/19332-ifes-lanca-regulamento-do-auxilio-emergencial-de-inclusao-digital>, which guarantees

The hiring of Internet by 12 months, since the institution believes that even in the return of classes, digital inclusion should be part of daily school life. Other actions were also in progress until the writing of this article, such as: equipment lending, equipment action campaigns, rental studies, safe use of campuses laboratories through protocols, etc.

Parallel to the regulatory actions, Ifes through the Center of Reference in Training and Distance Education (CEFOR) expanded the list of training courses, created the Nuclei of Educational Technologies (NTEs), in addition to a Frequently Asked Questions (FAQ), available at: <https://cefor.ifes.edu.br/index.php/component/content/article/2-uncategorised/17185-chegando-agora-na-ead-pode-contar-com-a-gente>.

This article had the initial objective of presenting the mapping of Ifes students in terms of digital inclusion and presenting possible solutions, but due to the urgency some actions were highlighted for further studies on the results achieved.

V. FINAL CONSIDERATIONS

The pandemic in virtue of COVID-19, brought on the agenda issues that had already been discussed in major studies on educational trends, for example, hybrid teaching and the use of educational technologies in the educational field. From one hour to the next, all institutions had to reinvent themselves or remain in inertia, waiting for the end of the pandemic. Teachers and students found themselves with a new reality installed, both in their personal and academic lives, so this study brought a mapping that can be taken advantage of by many institutions, adapting them to their specificities.

Once the issues of regulation, training, and Internet connection have been resolved, it is expected that a legacy in favor of the use of educational technologies will be seen as an important ally in the teaching-learning process and, in particular, that the academic community will understand that the student's protagonism is something essential to

contemporary society, whether in face-to-face, distance, or hybrid education. And, also, that teacher, holder of knowledge, walks to be a mediator, a curator or producer of educational contents that can be shared and that allow their co-creation.

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