CHAPTER
1

Emergency remote learning and tdic's during the covid-19 pandemic: Impulses and obstacles

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ABSTRACT
This article aims to report the experience of the researcher in a working group constituted to assist in the uninterrupted maintenance of the academic activities of a public educational institution during the COVID-19 pandemic. The group was constituted in a collaborative institutional effort of technicians and teachers. The researcher works in the technical staff of the institution, as a professional of Information and Communication Technology (ICT), however, also acts as a professor and researcher in the field of technologies in education. This work is intended to history the practices and activities of the group, designed and built collaboratively, focusing on the students and teachers of the institution, seeking to contribute to the existing projects of remote activities. This work portrays the effort to build and apply a set of actions that sought to reproduce, in a virtual teaching environment, the production and dissemination of content and teaching activities to integrate and link to teaching and learning actions in all units of the institution. Through free technological tools, solutions were proposed to incorporate and enrich teaching practices, as well as to promote the creation of educational policies and teacher training. The methodological basis used was that of participant research, which according to Brandão (1990) allows an active and critical positioning as being a possible intervention and search for transformation through the construction of new concepts and values from the collective dialogical-dialectical participation. It is expected that this report will have a significant impact not only on emergency remote teaching but as studies for water education grow. In the State of Minas Gerais, the "Conexão Se Liga" project has so far trained approximately 15,000 teachers, but the project is still ongoing and can serve 60,000 teachers from the state network of Minas Gerais.

Keywords: Emergency Remote Teaching, Virtual Environments, Educational Practices Interaction, Participant Research.

1 INTRODUCTION

Research in education in contemporary times is a vast and interdisciplinary space and the theories and practices that compose it are conducted by empirical reflections coming from different fields of knowledge. Of the ideas and critical research that feed the educational nature, some can be converted into educational policies, teaching practices, or teaching contents and materials and predictions. Educational research and its dynamics, when combined with technical knowledge, can provide educators with proposals for innovations and/or interventions that can contribute directly or indirectly to national education, whether as new forms of management, procedures, educational practices, materials, and means to achieve the quality of teaching.

Through the report of the experiences made of this work, the researcher is based on his studies, research, and previous practices within this theme. He speaks not only as a professional in the area of Technology but also as a teacher and researcher in the area of Distance Education and Digital Technologies in Education.

The impacts felt in the current context of the Covid19 pandemic [1]on society are enormous, in all segments, however, also in the educational context. And this unfortunate conjuncture, not only plagues national education but also afflicts the whole world, a situation and moment that become of extreme relevance and should be the object of contemporary research and discussions. It becomes impossible not to talk about this theme, due to the size and speed that this pandemic advances and about everything that has been affecting and that potentially and consequently will affect. There remain the salient questions of students, teachers, managers, politicians, and citizens: What will education look like after the pandemic?

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the crisis caused by Covid-19 has resulted in the closure of classes in schools and universities, affecting more than 90% of the world's students (UNESCO, 2020). For UNESCO, it is the worst health crisis of the century. At this moment, it is essential to rethink social and educational policies, returning to ancestral issues related to structural inequalities, misery, unemployment, and exclusion. It is possible that a global recession could bring violent consequences in the financing of education and other public services, as well as in the forms of survival of people. The current chaotic situation is also a season of (re)learning. Socially isolated, students and teachers are physically distant, but with a great challenge and potential in the perspective of working differently and rethinking educational practices.

In Brazil, the influence of the pandemic in the 2020 educational year can be fragmented into four distinct scenarios:

The first scenario is that there was already a moment of educational crisis, in addition to the political, social and economic crisis. These are difficult especially for the most disadvantaged in a context of intense social inequalities.

A second scenario was constituted with the pandemic, which only exponentiated the situation, bringing moments of tension, uncertainty and insecurity. With the advent tof face-to-face classes, education professionals were forced to readjust their lives and practices. The migration to a phase of remote education brought to the fore controversial educational issues about conceptions of space and time, about the use of educational technologies, and about concepts of mediation, distance and face-to-face. Obscurities and uncertainties marked this phase for students, parents and educators, who

1 COVID-19 is a disease caused by the coronavirus, called SARS-CoV-2, which has a clinical spectrum ranging from asymptomatic to severe infections. According to the World Health Organization, the largest (about 80%) of COVID-19 patients may be asymptomatic or oligosymptomatic (few symptoms), and approximately 20% of detected cases require hospital care because they have difficulty breathing, of which approximately 5% may require ventilatory support. Source: https://coronavirus.saude.gov.br/sobre-a-doenca#o-que-e-covid

largely without preparation or experience in remote education were forced to learn suddenly. Inequalities and derangements emerged not only technologically, but also related to the methodologies and educational practices practiced.

Notwithstanding all the problems of a technical and/or technological nature, a new phase of challenges arose: physically and mentally overloaded teachers, demotivation and evasion of students and other factors negatively impacting the life and profession of the teacher. Among the students, gaping, socio-economic, structural, historical and cultural inequalities, limiting situations of digital exclusion or problems with access to technologies, and the need to reconcile time with work, family, and leisure. Teachers use all possible means and artifices seeking to stimulate/encourage and make the student stay in this process.

For Maia and Dias 2020, social isolation, the absence of personal contact, the fear of being infected, the lack of space at home, and the lack of snacks for the less advantaged students, were some of the stressors that initially affected the mental health of the students, as well as their families. The authors confirm that there was a significant increase in psychological disturbance (anxiety, depression and stress) among college students in the pandemic period compared to normal periods. For the authors, encouraging solidarity, resilience and close relationships and interactions with teachers and students is an extremely important approach, and can contribute to reducing the psychological impact of the pandemic not only on students but also on teachers.

At this time, not all school institutions, whether public or private, are sensitized to the situation of physical and mental limitations of teachers, students and family members. One must also consider the substantial differences between the students and the confined families. Some parents can't help their children. Other aggravating factors, such as the amount of time available to devote to their children's studies, others in remote work, fulfilling their activities at home, and still, others need to go out to work and ensure income for the survival of the family. It is also necessary to consider the socio-economic and cultural conditions of the family, the possibilities of access to online materials; the difficulty of helping the child, and the differences in how the parents learned. In addition, numerous other issues can be taken into consideration regarding the role of parents in the education of their children in times of pandemic. This whole situation will generate an increase in inequality in Education and student progress (CIFUENTES-FAURA, 2020).

For Maia and Dias 2020, despite the students, the education authorities and school managers must also preserve the mental health of education professionals, even if they are also fragile. If educators become mentally exhausted and approach physical and mental exhaustion, they cannot help themselves or their students.

Image 1 - Result of the poll "How are you feeling now, with the remote teaching" made during a training of the researcher to 137 teachers. April/2020

A third scenario begins after the realization that the pandemic would last longer than planned, the school and educators were encouraged to tinker a little more in the methodological approach. Teachers, seeking to rescue concepts of their potential, not only focused on technology, glimpsed that the biggest challenge was not only to appropriate technology but new methodologies and pedagogical practices.

It points out that a large part of the population does not have access to quality computers, cell phones or the Internet and a considerable number of teachers have had to learn to use digital platforms, insert online activities, evaluate students at a distance and produce go and insert in the platform's contents of the disciplines, and help students to use them, in addition to recorded and/or online classes (asynchronous or synchronous,[2] respectively).

It is also noticed that in addition to disadvantaged students (whether on the outskirts of large cities or in rural areas), teachers also face the lack of adequate equipment, computers or cell phones, software and good quality Internet. In addition, in the pandemic, most schools and universities seek to explore and ensure the use of digital tools, but without having the time to test them or train the technical staff, faculty and students to use them properly.

2 The Tools that allow the simultaneous participation of students and teachers at scheduled times and specific spaces (Any Place/Real Time), are classified as synchronous. Those that are independent of time and place (any place/any time) are classified with the asynchronous. Available in: <http://proec.ufabc.edu.br/uab/index.php>. Accessed 28 Aug. 2020.

2 METHODOLOGY

The methodological basis addressed was that of participant research, which according to Brandão (1990) allows an active and critical positioning, as well as an intervention and search for transformation through the construction of new concepts and values from the collective dialogical-dialectical participation. In this sense, it can be seen that this methodology allows the articulation of research extension and results in a learning process, which clarifies its importance, as well as the inseparability of the tripod: teaching, research, and extension, of an essential character in an academic institution.

The expected results were achieved mainly through the formation of a collaborative network, of dialogue, seeking the expansion of the horizons of information on technological and pedagogical issues. One can see the importance of research for the academic community, for society, and for Education as a whole. For Brandão (1990) the identification of problems and their possible outcomes can reflect on the institutionalization of action programs and add knowledge and procedures that can be used with the help of traditional or innovative techniques, as well as collaborative activities, documentary research, group dynamics, living information and active participation of the members involved.

3 DISTANCE EDUCATION AND REMOTE LEARNING

Law 9394 (LDB) in its article art. 32, determines that "Elementary education will be face-to-face, and distance learning will be used as a complement to learning or in emergencies." However, in article 80 of the same law, "distance education, organized with special openness and regime, will be offered by institutions specifically accredited by the Union." (BRAZIL, 1996)

Ordinance No. 343, dated March 17, 2020, of the Ministry of Administration, regulated the replacement of face-to-face classes by classes in digital media during the situation of Novel Coronavirus - COVID-19 pandemic, authorizing on an exceptional basis, the replacement of face-to-face courses, through the use of means and information and communication technologies, implying a distinction between distance education and remote learning. (BRAZIL, 2020)

Decree 9,057, of May 24, 1997, regulates article 80 of Law No. 9,394, of December 20, 1996, which establishes the guidelines and bases of national education.

> Art. 1 For this Decree, distance education is considered the educational modality in which the didactic-pedagogical mediation in the processes of teaching and learning occurs with the use of means and technologies of information and communication, with qualified personnel, with access policies, compatible monitoring, and evaluation, among others, and develops educational activities by students and education professionals who are in different languages and times.

And in its Article 4, it adds:

> Art. 4 The face-to-face activities, such as tutoring, assessments, internships, professional and laboratory practices, and defense of works, provided for in the pedagogical or development projects of the educational institution and the course, will be carried out at the headquarters of the educational institution, in the poles of distance education or a professional environment, according to the National Curriculum Guidelines

Thus, it is possible to establish that Remote Learning is not the model of Distance Learning (EAD), which has their regimes, regulations and characteristics. Although face-to-face activities are being provisionally replaced by remote classes, the format used is different from the traditional EAD (Distance Education) modality, in which the content is mostly asynchronous, self-instructional, with learning tracks, with the support of tutors who are professionals trained for the distance learning modality. In the case of Remote Teaching, institutions have been able to offer specific classes with remote activities, to meet the program of the disciplines planned for the face-to-face course, but with the use of synchronous or asynchronous technological tools.

4 TECHNOLOGIES AND PEDAGOGICAL PRACTICES IN EMERGENCY REMOTE TEACHING

Before starting the discussion, it is important to rethink the antagonistic view between online and distance. Remembering that the opposite of presence is absence, not distance. Thus, it is necessary to reflect on the fact that it is possible to think of an online proximity, recognizing in virtual spaces a possibility of a community of exchanges, of practices. Bouchard (2000) points out that the concept of proximity permeates traditional concepts of space, and in an educational perspective, can be understood in the educational act, face-to-face or at a distance. Face-to-face education may also be possible through hypermedia resources. For the author, the breadth of distance through the epistemological perspective and the respective pedagogical approach can be considered by how it separates or brings together teacher and student.

> "There is a set of aspects that indicate coherence with the epistemological conception that interfere in the distance and communicational direction created between teacher and students, which are present both in face-to-face education and in distance education. Distance, which can distance or bring people together, refers to pedagogical mediation, being designated by Moore as "transactional distance", whose amplitude can be measured by the level of educational dialogue that can vary from low to frequent and by the degree of the variable structure between rigid and flexible" (Bouchard, 2000, p. 76).

With the ease of access and use of digital technologies, enhance ond learning and the student is the active subject in the process, based on interaction and collaboration. For Kensky (2005)

> Just as each teaching modality requires the differentiated treatment of the same content - according to the students, the objectives to be achieved, the space and time available for its realization - each of the media supports has specific care and forms of treatment that, when used, change the way education is given and how it is done (KENSKY, 2005, p.1-2)

Thus, when it comes to the use of technologies in educational projects, our imagination articulates us directly to the newest digital technological opportunities of information and communication, that is, the internet and all its developments and innovations. However, it is possible to also think about the use of so many other forms of technologies (still in force) such as the use of television programs, movies, radio, the newspaper and all forms of printed media etc. – even if known and used in teaching activities, including chalk and the blackboard. For Kenski (2003)

> "It's not the technologies that are going to revolutionize teaching and, by extension, education as a whole. But the way this technology is used for mediation between teachers, students and information. This can be revolutionary, or not. The processes of interaction and communication in teaching have always depended much more on the people involved in the process, than on the technologies used, be it the book, the chalk or the computer and the networks." (Kenski, 2003, p.121)

Freitas (2006) points out that new technologies appear in the educational context slowly, with the school culture still stuck to rites, and with resistance to welcoming the new.

> [...] a new school organization more decentralized, a curriculum the most flexible, the installation of new school times, less rigid and scheduled, changes in the very space of the classroom. And this does not happen overnight: it requires time, specific aids, incentives, and a whole support structure (FREITAS, 2006, p. 197).

The assertions of Libâneo (2003) present a freshness in the contemporary situation, when he already defended the need for the education professional to adjust his didactics to the new realities of society, the valorization of the knowledge built by the student in the evaluations, of the different cultural universes, of the present media, given the existence of:

> [...] of a broader general culture, the ability to learn, competence to know how to act in the classroom, communicative skills, mastery of informational language, knowing how to use means of communication and articulate classes with media and multimedia (LIBÂNEO, 2003, p. 10).

Just as each teaching modality requires the differentiated treatment of the same content, focused on the reality of the student and the objectives to be achieved, the space and time available, the media resources, the care and forms of treatment to be used, form among themselves a particularized form of the way education is given and how it is done

5 EXPERIENCES AND ACTIONS AS A WORKING GROUP

Due to the situation of the coronavirus disease (COVID-19) pandemic, declared by the World Health Organization (WHO), the institution of the researcher through ordinance 645/2020, to maintain uninterrupted school activities, in an institutional effort to maintain remote activities, as well as reduce the impacts arising from social isolation instituted a working group. It aimed to discuss and define guidelines, standards, and technological solutions to support remote activities, as well as to support the operationalization of these guidelines and standards by users.

Through a collaborative format, some actions were established that were well accommodated and brought a positive impact to teachers, students, and the community, establishing some standards and technical guidelines to support remote activities and the enhancement of successful practices shared by the units that make up the institution. Moran (1998, p. 185) states that:

> Our focus cannot remain only individual, but must also be directed to the community, to the important groups in which we participate. The more we can insert ourselves in spaces of community action, the more we will grow, learn, and live. Within this perspective of personal and community integration, we will find in technologies.

To assist those involved in the creation and consumption of teaching objects that will be used during the period of validity of the emergency plan, the working group established technical-pedagogical guidelines, aiming to enhance the achievement of the expected results, considering the limitations imposed by the situation of exceptionality, and standardizing what was possible in institutional teaching activities. Among these actions, the following stand out:

1. The sharing of materials between professors of the same disciplines among the units of the institution, through the Moodle collaborative environment;
2. Elaboration and dissemination of video tutorials to students, also taking into account the aspects that some students did not have or had limited access to the Internet so that their use should be optimized as much as possible. Elaboration of tutorials to teachers, with tooltips and considerations In this sense, the following suggestions are made to content creators:
3. Encourage and plan possibilities of assistance among students, to contribute to those with difficulties of access, or with learning difficulties.
4. Differentiated strategies for generating and delivering content to the class.
5. Assistance to teachers in planning the integration of synchronous and asynchronous activities, taking into account that activities that require simultaneous participation by students represent an important mechanism for teaching, but at the same time consume technological resources that may not be available to everyone at all times. Synchronous

video activities require student bandwidth and low latency. Depending on the situation, the student may not have a data franchise available at the time, or the connection is delayed, generating interruptions in audio and video. Therefore, these activities should also be made available through recordings for those unable to participate.

6. In presentations at video conferences, prioritize the use of objects that are easily visible to students, who may be experiencing instability or poor quality in the video, which results in low video resolution.
7. Whenever possible, make the presentations available for download by the student before the beginning of the activities. In the same way that downloading the teacher's video in real-time consumes Internet resources, sending the student's video in real-time is equally costly. Whenever possible, make it optional for the student to participate with video in the conference.
8. Guidance on appropriate forms of recording, seeking special attention to audio quality and availability of headphones with built-in microphones.
9. Recording of lessons and availability in advance. Thus, students can assist them with their possibilities and participate later in the discussions.
10. Considering the need to standardize the means of interaction with students, the institution promoted several pieces of training in the use of *Google Classroom and Moodle* as content and communication platforms. The units that chose to use other tools also received training.
11. Community program for the donation of equipment;
12. Institutional program of monthly assistance to disadvantaged students for hiring internet links or cell phone chips with a mobile data plan.
13. Support groups and knowledge-sharing experiences with teachers of the institution were formed. Some groups have been formed through the WhatsApp app to share ideas and successful experiences.
14. Virtual training with approximately 400 teachers of the institution:
15. Virtual training with approximately 60 thousand teachers and education professionals of the State of Minas Gerais, through an agreement between the institution and the state government, to present to teachers/education professionals in the state of Minas Gerais, ideas, actions, practices, teaching methodologies to be applied in teaching in this period of pandemic caused by COVID-19.
16. For teachers and education servers in the State of Minas Gerais, 7 free virtual webnários were offered and open to embroidering the challenges of implementing Emergency

Remote Teaching in face-to-face classes with valid participation certification as Initial and Continuing Education to teachers:

1. Remote Education in Times of Pandemic
2. Assertive Communication for Technology-Mediated Education
3. Lesson Plans for Remote Education
4. Evaluation in Distance Education
5. Active Methodologies for Distance Learning
6. Pedagogical Sequence Applied to Online Teaching
7. Google Classroom.

Image 2 - Presentation screen during the first round of training for teachers in the State of Minas Gerais, through the program "Conexão Se Liga" presented by the researcher to 2800 teachers present - Agostol/2020

During the training rounds, there was a concern to offer, even through a virtual environment, a little support for emotional health, enabling proximity to teachers. Prado and Valente (2002) assert that participating in a digital environment is close to being together virtually since acting in an environment means expressing thoughts, making decisions, dialoguing, exchanging information and experiences, and producing knowledge. Interactions through the resources available in the environment provide individual exchanges and the constitution of collaborative groups that interact, discuss problems and themes of common interests, research and create products at the same time as they develop.

For the authors, Prado and Valente (2002, p. 29) the approaches to distance education through ICT can be of three types: broadcast, virtualization of the classroom in person, or being together virtually. In the *broadcast approach*, technology is used to "deliver the information to the student" in

the same way as occurs with the use of traditional communication technologies such as radio and television.

The virtualization of the classroom occurs when the resources of the networks are used in the same way as the classroom, which seeks to transfer to the virtual environment the paradigm of space-time of the class and two-way communication between teachers and students. This approach is the closest to the remote learning model, which does not rule out the use of the other two approaches.

Virtual being together, also called technology-assisted learning, explores the interactive potential of ICT favored by multidimensional communication, bringing students and teachers closer together, and allowing the creation of learning and collaboration conditions.

However, it is necessary to understand that it is not enough that students are inserted in the digital environment, nor can they admit that access to hypertexts and multimedia resources account for the complexity of educational processes, but for meaningful interactions to occur and the content to be appropriate, the teacher must perform appropriate interactions and measurements, what it means to reinvent oneself, as Kensky (2003) asserts

> The teacher, in a networked world, is a tireless researcher. A professional who reinvents himself every day, who accepts the challenges and unpredictability of the time to improve himself more and more. Who seeks to know himself to define his paths, at every moment. (2003, p.90).

On the technological aspects, Kensky (2007, p. 120) also announces that:

> What can be affirmed is that other languages, resources and methodologies must be permanently incorporated into the school environment, among them the technologies stand out [...]. New hybrid and interactive ways of using digital technologies incorporate all types of devices that have a small screen and transform them, also, into virtual spaces of networked learning. Through these screens, whether from televisions or wristwatches, students can interact with teachers and peers, talk, and perform educational activities together.

6 FINAL CONSIDERATIONS

For UNESCO, it is essential that the global crisis be addressed through solidarity, empathy and appreciation for the human being, and that in the future, it can provide a reflection on the fundamental lessons of the past, necessary to mitigate the negative effects of the disturbances caused in our lives. COVID-19 does not discriminate, but it redefines reality. It is essential to reflect on the future of Education, including an articulation between distance education and face-to-face teaching (Hybrid Teaching).

In our view, in addition to thinking about school and teaching, it is essential to think about the other. Provide the reception even if virtual, and maintain the bond and the care. Thinking about school in this context is thinking about interactions, always being attentive to emotional issues, valuing the

experiences of the other, and openness and responsibility towards the other. The important thing now is to preserve life and to be together in a commitment to our students and community

In addition to the need for technological fluency for interactions to be consolidated, especially in this time of the pandemic, we must think about the future, the need for an efficient and intrinsic connection between remote education, face-to-face education, distance education, literacy and digital inclusion, remembering that all are forms of education. Not that one can be a substitute for another but as a complement to another.

Let us also think about the need to work on the development of skills related to literacy and digital inclusion so that students can have more access to non-face-to-face training. It is observed that there are interactive digital learning environments capable of promoting the development of the expression of thought, allowing the student the opportunity to discuss, express himself freely, and develop individual and group productions of quality.

Finally, with the pandemic new (re)learning is emerging, overcoming the focus only on the content, the product delivered or the task, but in the process of what is being produced, be seen from a learning point of view. The group witnessed many positive situations and many encouraging reports. Teachers manage to give shows of classes, creative and attractive, awakened leadership in students, promotion of collective work, stimuli to the protagonism of the student, respect for diversity and individuality, collaborative productions and sharing of knowledge. Teachers also reported greater ease of articulation, using formative and in-process assessments, the use of more motivating dynamics to the student's activity/production based on active methodologies, more meaningful learning for the student and the use of technologies with more responsibility.

In conclusion, we realize that collaboratively, with the contributions of new technologies, and with planning and action, we can learn a lot from this crisis and evolve in search of quality education, taking advantage of the richness of each modality, promoting new educational policies, and thus, be able to democratize access to education, forming conscious and critical citizens transform Education in Brazil and the world.

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