Curriculum and Practices in Higher Education in the Context of the COVID-19 Pandemic*

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ABSTRACT

The contagion by the Sars-CoV-2 virus brought consequences to all spheres of social life, and Higher Education also needed to respond to the health emergency. The response speed of Higher Education Institutions to maintain academic activities in this scenario was related to the technical and technological capabilities and the mastery of the distance and/or online education model already installed. The discussion about digital accessibility and connectivity also permeated the construction of these responses. This study aims to analyze university pedagogical practices and the need for curricular reinvention imposed by the global crisis of the COVID-19 pandemic. It is a qualitative and quantitative research. A literature survey was conducted and an online semi-structured questionnaire was applied. The sample is composed of 106 professors who work in Brazilian public and private Higher Education Institutions. The research findings show that the pandemic context demanded an emerging pedagogical model, called emergency remote teaching. It was found that there was an effort by professors to qualify for the use of digital technologies in the mediation of the teaching and learning process, curriculum, and pedagogical practices readjustment, enabling students to have new learning experiences.

KEYWORDS
Pandemic COVID-19. Remote teaching. Curriculum. Pedagogical practices. Higher education.

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Currículo e Práticas na Educação Superior no Contexto da Pandemia da COVID-19

ABSTRACT

O contágio pelo vírus Sars-CoV-2 trouxe consequências para todas as esferas da vida social, e a Educação Superior também precisou responder a emergência sanitária. A velocidade de resposta das Instituições de Educação Superior para a manutenção das atividades acadêmicas neste cenário esteve relacionada às capacidades técnicas, tecnológicas e o domínio do modelo de Educação à Distância e/ou Online já instalado. A discussão sobre a acessibilidade digital e a conectividade também permearam a construção dessas respostas. Esse estudo tem como objetivo analisar as práticas pedagógicas universitárias e a necessidade de reinvenção curricular impostas pela crise mundial da pandemia da COVID-19. A abordagem da investigação é quanti-qualitativa. Foi realizada uma pesquisa bibliográfica e aplicado um questionário semiestruturado online. A amostra é composta por 106 docentes que atuam em Instituições de Educação Superior públicas e privadas brasileiras. Os achados da pesquisa evidenciam que o contexto pandêmico exigiu um modelo pedagógico emergente, denominado de ensino remoto emergencial. Constatou-se que houve o esforço dos professores de se qualificarem para a utilização de tecnologias digitais na mediação do processo de ensino e aprendizagem, readequação curricular e das práticas pedagógicas, possibilitando aos estudantes novas experiências de aprendizagem.

KEYWORDS

Pandemia da COVID-19. Ensino remoto. Currículo. Práticas pedagógicas. Ensino superior.

Currículum y Prácticas en Educación Superior en el Contexto de la Pandemia COVID-19

RESUMEN

El contagio por el virus Sars-CoV-2 tuvo consecuencias en todas las esferas de la vida social, y la enseñanza superior también tuvo que responder a la emergencia sanitaria. La velocidad de respuesta de las Instituciones de Educación Superior para mantener las actividades académicas en este escenario estuvo relacionada con las capacidades técnicas y tecnológicas y el dominio del modelo de educación a distancia y/o en línea ya implantado. El debate sobre la accesibilidad digital y la conectividad también impregnó la construcción de estas respuestas. Este estudio pretende analizar las prácticas pedagógicas universitarias y la necesidad de reinvención curricular impuesta por la crisis global de la pandemia del COVID-19. El enfoque de la investigación es cuanti-cualitativo. Se realizó una búsqueda bibliográfica y se aplicó un cuestionario semiestructurado en línea. La muestra está compuesta por 106 profesores que trabajan en instituciones de enseñanza superior públicas y privadas de Brasil. Los resultados de la investigación demuestran que el contexto pandémico exige un modelo pedagógico emergente, denominado enseñanza remota emergente. Se encontró que hubo un esfuerzo de los profesores para calificar el uso de las tecnologías digitales en la mediación del proceso de enseñanza y aprendizaje, el currículo y el reajuste de las prácticas pedagógicas, permitiendo a los estudiantes tener nuevas experiencias de aprendizaje.

PALABRAS CLAVE

Pandemia COVID-19. Enseñanza remota. Currículum. Prácticas pedagógicas. Enseñanza superior.

Introduction

The year 2020 forever marked the history of humanity. The sudden appearance in China at the end of 2019 of a virus that spread throughout the world during the following months represented, because of its severity, an unprecedented global challenge: a pandemic. The word has its origin in the Greek pandemías, meaning "all the people." It can also be represented by the junction of the Greek elements: "pan" - all, everything; and "demos" - people (DICIONARY, 2020). Historically, it was first used by Plato with a generic sense that referred to any event capable of reaching the entire population.

In its modern concept, it is an epidemic of large proportions, which spreads rapidly, as was the Spanish Flu and the H1N1 Influenza. According to the World Health Organization (WHO), it corresponds to the spread of a new disease in many individuals, without immunization in a specific region. According to the Pan American Health Organization (PAHO, 2020), it refers to a disease that spreads on a global scale on more than two continents. For Santos (2020, p. 10) it is an allegory, and "the literal meaning of the coronavirus pandemic is the widespread chaotic fear and death without borders caused by an invisible enemy. But what it expresses is far beyond that." Cardial (2020, p. 10) explains that,

> all areas of social and individual life suffered the effects of the health emergency, the educational field was severely disrupted because, although various natural and social phenomena had involved closures and disruptions to national and local education systems, at no other time in history have more than 1.215 million students, at all levels of education, around the world been suspended.

The international scenery shows a complex situation, even the major world economies are beginning to suffer the effects of a pandemic caused by COVID-19. This shows signs of great fragility, something that was believed to be a characteristic of only the weakest countries. Harvey (2020) supposes that while there was at first an immediate slowdown in global financial markets, it took only a few months for these markets to reorganize.

This movement brought consequences for all spheres of social life, and Education also needed to respond to the health emergency. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020a), 186 countries closed schools to contain the spread, affecting about 90% of students. In Brazil, with the beginning of the social isolation period from March 2020, 52,898,349 students were prevented from attending school. In Higher Education, there were 8,571,423 students impacted. Higher Education Institutions (HEIs), mainly private ones, offered an immediate response to the context and this was related to the technical and technological capabilities and the mastery of the distance and/or online education model already in place.

According to Dridriksson et al. (2020, p. 12), when "[...] proposing distance education as an immediate solution, there are two fundamental questions: What does it really mean what we are experiencing, what is distance education? The discussion about digital accessibility and connectivity filtered the answers to these questions and anxieties, which characterize the

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research problem of this study, and which were generated by social isolation and the consequent, imposition of emergency remote education (ERE). Thus, in a context of abrupt interruption of school activities, "[...] to have access to the above solutions, is all we have when science is as perplexed and distressed as we are. So soap and water and responsible, obligatory distance are sensible solutions" (DIDRIKSSON *et al.*, 2020, p. 12). The new coronavirus potentiated to the extreme the use of digital technologies of information and communication (TDICs), but it was possible to realize that not everyone (countries and individuals) was prepared for the social, cultural, educational and economic effects arising from this situation.

In October 2020, there was a gradual return of face-to-face activities in some private HEIs obeying a strict health control. Under the terms defined by Parecer CNE/CP nº 5/2020, this resumption of classroom activities must be accompanied by the development of biosafety plans, according to the measures established by protocols and local authorities (BRASIL, 2020). The reopening of educational institutions in the context of the crisis caused by the virus faces several challenges: sanitation and adequacy of environments; care for students, teachers, and staff; curricular, methodological and evaluative reorganization; school calendar; staff training; among others.

This study aims to understand the challenges of curricular reinvention and university pedagogical practices imposed by the pandemic of COVID-19. The justification and the research problem for this investigation are based on the set of decisions that were made where the continuity of school activities was implemented, by means of non-presence proposals that mixed the use of ICTs, the execution of self-study tasks, and the assimilation of contents via digital resources. For Ferreira and Barbosa (2020), such a process presents transformations because it requires familiarity and access to resources different from those conventionally adopted in face-to-face classrooms; however, on the other hand, it mobilizes new actions and reactions for teachers and academics.

The text is divided into five parts, considering its introduction and conclusions. The second part presents the bibliographical survey about the theme under discussion; the third part highlights the methodological procedure adopted in the study; and, in the fourth part, the data collected and the analysis of the results are listed.

The Pandemic In Light Of The Theory

When analyzing Higher Education and the confrontation of the international health crisis caused by the pandemic of COVID-19, one faces a reality immersed in an economic and political crisis unprecedented in Brazilian republican history. These aspects, as Žižek (2020) notes, are very different from other countries, since the epidemic is crossing Brazil in the midst of an economic crisis and a social division organized by the paranoid grammar of enemy production, self-purification, and anti-corruption hygienism.

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In this direction, the paranoid grammar of the current socio-historical, economic and cultural context unfolds, taking into account the following elements: increase of social inequalities; depoliticization of politics; scientific and religious disintegration and obscurantism; privatization of the public space; disqualification of public education and teachers; and existence of symbolic and physical violence against diversity of gender, ethnicity and cultures (FERNANDES, 2020).

The advancement of the virus has produced the need for social isolation and the search to maintain conviviality with students, both from the point of view of curriculum development, as well as the care of a generation the possibility of access to technical-scientific knowledge and the strengthening of a critical consciousness of humanity of our human citizen condition, mediated by technology. Nóvoa (2020) alerts to the importance of maintaining links with students, challenging them, besides indicating to teachers the need to reinvent themselves and not fall into the traps of what is set by the dominant discourse, which inflames demonstrations saying that it's no use, because teachers don't want to work. The author points out that this happened especially through the speeches of government managers who usually disqualify public institutions and public servants, teachers and/or administrators.

Emergency remote teaching was a temporary and transitory necessity for the maintenance of teaching-learning activities in educational institutions. The adoption of a provisional and emergent educational model may, as Nóvoa (2020) exposes, incur in a pedagogical impoverishment, especially in certain contents and subjects. On the other hand, we have also reflected on how the institutions and their communities would be without this possibility. The reading of the reality has revealed complex and complicated situations, but which also bring the protagonism of teachers, showing that they are indispensable from Elementary School to Higher Education.

In Brazil, the ERE has been held since March 2020, and its continuation on an exceptional basis is authorized by the Ministry of Health for as long as the pandemic lasts and/or classroom activities are suspended by local or state authorities. For the beginning of 2021 there is a probability of developing hybrid teaching, considered a trend for the 21st century, which is based on a curriculum that incorporates face-to-face and online activities.

Two concepts were central to the development of pedagogical practices in the context of the COVID-19 pandemic: distance education and online learning.

Distance education/teaching (DE) is configured as an educational modality carried out with the use of ICTs for the mediation of the didactic-pedagogical process, in which students, teachers and education professionals are in different places and at different times. Some countries have a large distance learning sector, and in others, there is little or no use of online learning, or there is interest in Massive Open On-line Courses (MOOC)[1] , Egypt and India are cited as examples (GARRET, 2019).

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[1] Acronym with roots in Distance Education. The massive open online course is a type of course offered over the Web, through virtual learning environments (VLE), which aims to offer to a large number of interested parties, the opportunity to expand their knowledge (MOOC, 2020).

Online learning is a modality in which the teaching and learning of the syllabus of a course are organized from virtual learning environments, combining synchronous (face-to-face or online) and asynchronous (online and/or distance) activities and meetings. It is a modality that has exerted a strong influence on the growth of enrollments in Higher Education, especially in countries such as Saudi Arabia, the United Arab Emirates, and Sub-Saharan Africa (GARRET, 2019).

However, the use of educational resources through ICTs cannot be the only solution to all the difficulties experienced by educational HEIs in this pandemic moment. This matrix tends to exacerbate the inequalities that already exist, which are partially leveled in school environments, because not all subjects of the educational process have access to the internet and computers/tablets or cell phones that enable the connection. In the country, a survey (CETIC, 2020) revealed that three out of four Brazilians access the Internet, the most used tool for this access being smartphones (99%) and secondarily computers (42%). In the same survey, data revealed that 20 million homes do not have Internet access, which corresponds to 28% of the total. In rural areas, the figure is 50%. Approximately 25% of the Brazilian population has no access to the Internet. In addition, it is necessary to reflect on the mastery in the use of technologies for learning purposes and development of digital skills, in addition to the resources and equipment of each family.

Thus, the consequences of the prolonged closure of educational establishments in the country are also related to the difficulties of the federal, state and municipal governments to come up with solutions that can mitigate the learning losses of the most vulnerable students. Souza, Franco, and Costa (2016) explain that if the goal is to invest only in ICTs, there will certainly be worsening in the teaching-learning process of students in the short, medium, and long term.

For the United Nations Educational, Scientific and Cultural Organization (UNESCO), which is the ONU agency responsible for monitoring and supporting education, communication and culture worldwide, the pandemic has deliberately impacted the learning of more than 1.5 billion students in 188 countries. Still according to UNESCO there is a predicted global demand for Higher Education of 414 million in 2030, this driven by population growth, middle class in emerging economies, and middle class gains (UNITED NATIONS BRAZIL, 2020).

However, it is clear that some changes were necessary. With regard to Education, UNESCO explains that the crisis caused by COVID-19 resulted in the closure of classes in schools and Higher Education Institutions, affecting more than 90% of students worldwide. The report of the international commission on the futures of education in a post-COVID 19 world points out nine ideas for public action that present basic principles for concrete actions that will advance education, which are: 1. education as a common good; 2. right to education that meets the connectivity and access to knowledge and information; 3. valuing the teaching profession; 4. participation and rights of students, young people, and students; 5. Participation and rights of students, youth and children; 5. Social spaces of schools; 6. Free and open

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source technologies for teachers and students; 7. Scientific literacy in the school curriculum; 8. Domestic and international financing of public education; 9. Global solidarity to end current levels of inequality (UNESCO, 2020b).

The contamination by the Sars-CoV-2 virus highlighted the extent to which societies manage to exploit power imbalances and how the global system exposes social inequalities. In this direction, UNESCO's international commission suggests renewed commitments to cooperation and multilateralism, along with the proposal of a revitalized global solidarity based on empathy and valuing humanity (UNESCO, 2020b).

It is a fact that when school institutions reopen, and in some parts of the world this event has already begun to occur, the emerging economic recession will increase social inequalities and this may reverse the progress achieved by some countries in expanding access to education and improving learning (DIAS and PINTO, 2020). In the context of Higher Education, the focus of this study, it will be essential that countries recognize these difficulties and make the commitment to create specific public policies to address the consequences of the pandemic of COVID-19 in HEIs, both public and private.

COVID-19 presents a real challenge and demands real responsibility from subjects, governments, and institutions. Finally, it is added that it is necessary to rethink the future of Education, including an appropriate articulation between DE and face-to-face teaching (UNESCO, 2020). These ideas invite debate, engagement and action by governments, national and international organizations, organized civil society, professionals and workers in education, as well as students and pupils at all levels.

The Methodological Path

In order to contribute to the understanding of the adaptations undergone by the curriculum and the practices that are developed in Higher Education in the context of the COVID-19 pandemic, a bibliographic research was used (GIL, 2007), generating a state of knowledge (MOROSINI and FERNANDES, 2014; MOROSINI, 2015) on the theme. This type of research, which takes into account its objective with an exploratory character, is also recognized for being a methodology of inventorying and descriptive character of the academic and scientific production.

In this way, the bibliographical research sought to gather information and data for the constitution of the state of knowledge since the themes: pandemic, remote teaching, and curricular reorganization are emerging and have entered the educational reality in an incisive way this year. Rondini, Pedro and Duarte (2020) emphasize that the COVID-19 caused educational institutions around the world to adopt the emergency remote teaching modality, in order to continue the school year, and, this has sharpened the academia in the development of projects and the publication of investigations and articles results of research conducted in this period.

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In parallel with the bibliographical research, an empirical research was carried out by means of a semi-structured questionnaire on the Google Forms platform. The use of a questionnaire sent through the internet was a possible way to understand social practices and data collection in a pandemic context. A pre-test of the instrument was conducted in August, asking members of research groups in which the authors were involved to evaluate it. Reorganized and considering the necessary adjustments, the virtual questionnaire was made available in September and sent through electronic media, such as e-mails, WhatsApp groups, and other social networks, in order to reach a significant number of teachers who work in Higher Education in Brazil. This targeting was a random choice; there was no other criterion in the sample selection. After 25 days left, the data collection related to this investigation was closed.

The research is characterized, thus, as a survey design, since the analyses are focused on specific questions of the respondents' experience with regard to the practices carried out in Higher Education during the pandemic period. The goal was to obtain descriptive data, verifying the current state of this phenomenon. In this sense, when it is desired to know the behavior of a certain sample, it is pertinent to perform this type of survey, because questions are asked directly to a significant group, in order to know the psychological and psychosocial aspects concerning the phenomenon (MARCONI; LAKATOS, 2003).

The data analytical approach was quanti-qualitative (GAMBOA, 1995). For the complex reality of the educational universe to be studied with scientific rigor, it needs the subsidies found in the qualitative and quantitative aspects. According to the interpretation of Lüdke and André (1986) what determines the choice of methodology is the nature of the problem.

What University Practices During The Pandemic Revealed

With the principle of understanding the challenges of reinventing the curriculum and pedagogical practices that were established during the pandemic of COVID-19 by university professors, as well as unveiling how academic activities took place in HEIs, an online instrument consisting of 19 questions (open and closed) was applied to the respondents. The objective was to identify in what way, which resources, and how the use of ICTs was used in the execution of tasks and the assimilation of content via digital resources.

The form was divided into three parts: the introduction presented the research, requesting interest and agreement to participate, through a consent form. It did not have any identification such as name or other personal data, it only asked for the e-mail address, if the participant was interested in registering, and this item was not considered mandatory. In the second part, we sought to characterize the respondents; and, in the third part, the focus was on getting to know the pedagogical issues related to the exercise of university teaching in a pandemic context.

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There were 106 respondents, all professors working in Higher Education. The results of the first part of the data collection instrument show that 59.4% were female and 40.6% male. Their ages ranged from 26 to 74 years old. Regarding the level of education, 62.3% are PhDs, 25.5% are masters, and 12.2% are specialists. These data reflect those obtained by the 2019 Census of Higher Education on master's and doctorate degrees to work at this level of education, an obligation imposed over the years by the Law of Directives and Bases of National Education (1996). In Brazilian Higher Education there are 935,459 teachers, of whom 55.33% are PhDs, 34.80% have a Master's degree, and 11.87% even have a specialization (INEP, 2020). Graph 1 shows the percentage and number of teachers in Higher Education by level of education.

Graph 1. Percentage share and number of faculty members in Higher Education by degree according to academic rank (2019)
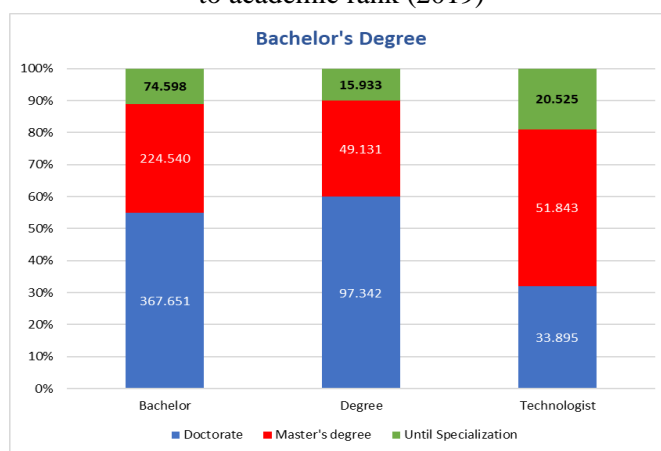
Source: Inep (2020).

Another question related to the characterization of the respondents indicated the type of HEI that the teacher worked at the time of the survey application. According to the data collected, 43.4% of the respondents work in federal public institutions, 14.2% in state public institutions, 13.2% in private for-profit institutions, and 21.7% in private non-profit institutions. Among the respondents, 8.5% marked the option other and informed that they work in municipal public HEI, in public-private institution, and in community institution.

**Graph 2**. Type of HEI the professor works for
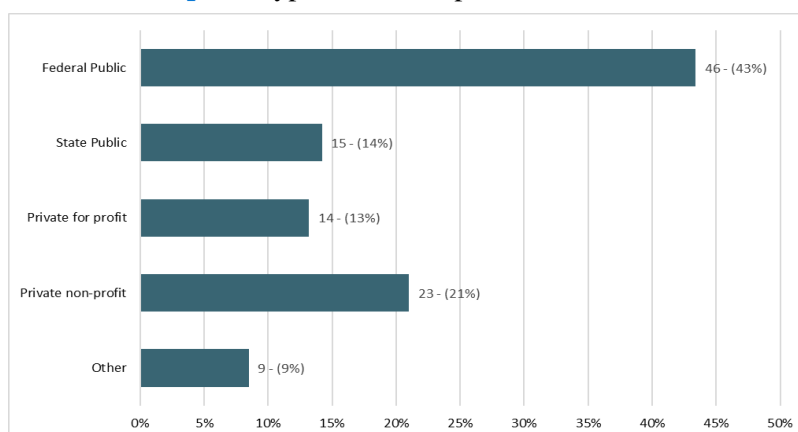
Source: Authors.

Next, to complement the characterization, the state of the federation in which the teacher worked was requested, and the results were separated into regions for better visualization: a) in the northern region - Amazonas, Rondônia, Tocantins; b) in the northeast region - Alagoas, Bahia, Maranhão, Rio Grande do Norte, Sergipe; c) in the central-west region - Goiás, Mato Grosso and Mato Grosso do Sul, besides the Federal District; d) in the southwest region - Minas Gerais, Rio de Janeiro and São Paulo; and, e) in the south of the country - Paraná, Rio Grande do Sul and Santa Catarina. Of the 26 Brazilian states, 17 states plus the Federal District were represented in this research, which represents a significant number of Brazilian states.

Another pertinent information to unveil the respondents' profile was related to the time period during which the teacher has been working in Higher Education. It is evident that among the participants, most have experience working at this level of education. Those who have been working for more than 20 years represent 24.5% of the respondents, followed by those who have been working between 5 and 10 years (23.6%), and between 15 and 20 years (22.6%). Teachers who have been teaching between 10 and 15 years, account for 17.9%, and those who are beginning their careers between 1 and 5 years, represent 11.6%, as shown in graph 3.

Graph 3. Time working in Higher Education in years
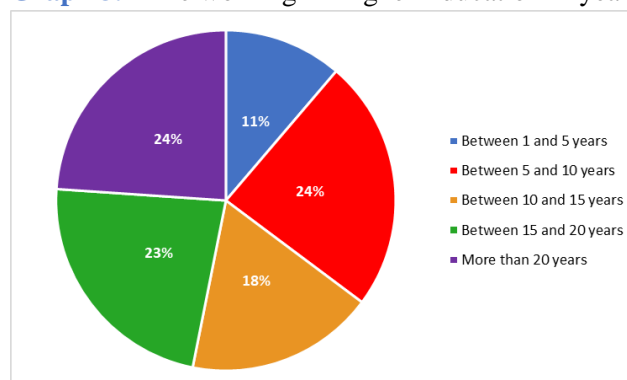
Source: Authors.

In the third and last part of the questionnaire, the focus is on the pedagogical action of the teacher, and the elements listed provide an opportunity for specific reflections on the period that is the time frame of the article presented. For this, the question was asked if the teacher had any kind of experience in distance education or with differentiated teaching models. It was observed that 55.7% had no experience, and 40.6% identified that they had already developed activities. The other respondents (3.7%) reported that they had participated in meetings, video conferences, courses held in virtual learning environments, lato sensu specializations, among other situations related to the teaching work.

According to the Anísio Teixeira National Institute of Educational Studies and Research (INEP) there was a growth trend in EaD, which had been increasing every year in Brazil, specifically in the Higher Education contingent. In 2019, 63.2% (10,395,600) of the vacancies offered were in this modality, among the 16,425,302 vacancies available for the level of education (INEP, 2020). However, starting in 2020, the pandemic situation caused many HEIs to migrate to emergency remote education to continue the school semester. While institutions were closed, confinement and social isolation dictated the world rules.

According to Behar (2020) ERE and EaD are not synonymous, so it is important to clarify the concepts. The term "remote" means distant in space and refers to a geographical distance, teachers and students are prevented by federal decree from attending universities to avoid contact and the spread of the virus. For the author, "It was necessary to think of pedagogical activities mediated by the use of the Internet, punctual [...] to minimize the impacts on learning from classroom teaching" (BEHAR, 2020, p. 01). It is worth emphasizing that the curriculum of most HEIs was not created to be applied remotely.

As already presented, DE is an educational modality in which the didactic-pedagogical mediation in the teaching and learning processes occurs with the use of ICTs, with academics, tutors and teachers developing educational activities in different places or times. For Behar (2020, p. 02), the modality has a modus operandi of operation with a differentiated didactic-pedagogical conception, which "covers content, activities, and an entire design appropriate to the characteristics of the areas of general and specific knowledge, contemplating the student assessment process.

Accustomed to face-to-face activities on campus, the teachers reorganized their practices and had to reinvent themselves in a short period of time; however, a large part of them were not qualified for this transposition from face-to-face to the exclusively virtual. In this sense, another question in the questionnaire asked the respondent if he or she had participated during the pandemic of COVID-19 in some kind of continuing education for the use of digital technologies in the mediation of the teaching and learning process. Of the respondents, 63.2% said yes, 32.1% said no, and 4.7% said they sought training through lives, videos on digital platforms, and courses. Going deeper into this question, the participants were asked about which training proposals for the use of digital technologies for the mediation of the teaching and learning process they had already participated or were participating in, and Graph 4 shows the data related to this question.

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Graph 4. Training proposals for the use of digital technologies to mediate the teaching and learning process
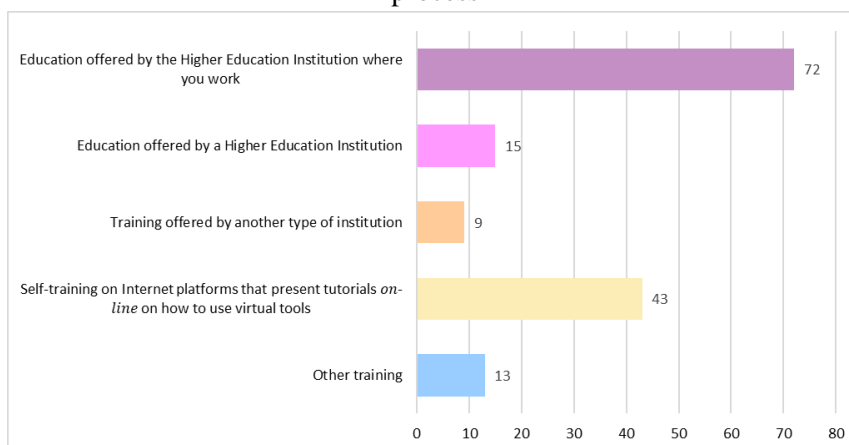
Source: Authors.

Tiecher, Fialho and Ens (2020) explain that if higher education teaching is permeated by a variety of knowledge, and in this process it is necessary to highlight the training that takes place inside the HEIs. The pandemic required special attention on this point. As observed in the graph above, 67.9% of the teachers participated in the training that was offered by the HEIs, demonstrating the concern for adequacy to the procedures required for remote teaching. With the same interest, 14.2% sought training offered by other HEIs or type of institution (8.5%). Besides that, a large portion (40.6%) sought self-training on platforms that presented online tutorials on how to use the virtual tools.

Cunha (2014) points out that it is risky to train teachers as an individual responsibility and a solitary process. However, it was the emergence of the pandemic that created this context. In this sense, it took a reorganization of the curriculum, processes and university management to keep up with the needs. This is because it is fundamental that HEIs consolidate themselves as a training space, in which the programs value, encourage, and understand the teacher in this differentiated reality of remote teaching, which should last as long as there is this pandemic.

This conception is corroborated by Isaia (2006, p. 63), who understands the professional teacher of Higher Education as a unitary subject, "interwoven by the personal path (life cycle), the professional path (the various paths built by the profession) and the institutional path (the various contexts in which he or she works or has worked). With COVID-19 the public has invaded the private, the classroom has moved into the homes of teachers and academics, taking over the space and time that was previously dedicated to the family. Related to this question, it was asked for clarification whether the HEI where the teacher was working at the time of data collection for the research adopted emergency remote teaching. The answers indicated that, at that moment, 89.6% had adopted emergency remote teaching; 7.5% were in the process of implementation, and 2.9% in different situations, reaching a total of 97.1% of HEIs with remote educational practices.

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The ordinances and provisional measures of the Federal Government issued since March highlight that the year 2020 was surprised by the inauspicious emergence and spread of the new human Coronavirus, Sars-CoV-2, which shook societies in several countries, reaching Brazil in a brutal way. As a consequence, it caused losses and paralyzed all kinds of operations, including altering school calendars and educational activities, both in Basic and Higher Education. The Parecer nº 5/2020 of the National Education Council (CNE) made the 200 school days more flexible and started counting the remote classes within the 800 hours of mandatory workload, offering guidelines on how to develop practices in this totally adverse period (BRASIL, 2020).

In the Federal Institutions of Higher Education (IFES) it was found that most institutions (98%) conducted the ERE during the COVID-19 pandemic (ANDIFES, 2020). In a survey of Brazilian HEIs, Arruda (2020) points out that most institutions sought to implement remote teaching strategies, so that the classes were transmitted in instantaneous time by web conferencing systems (lives). With this, it was possible to reproduce an environment that was able to provide interaction and organization of learning times in the closest way to what happens in face-to-face education.

In the research carried out, in the part where the questions related to pedagogical practices are unfolded, one of the reflections emphasized the organization of the working time with students, trying to understand how the educational activities were developed in emergency remote teaching. The data can be seen in the chart below:

Graph 5. Time working with students during emergency remote teaching
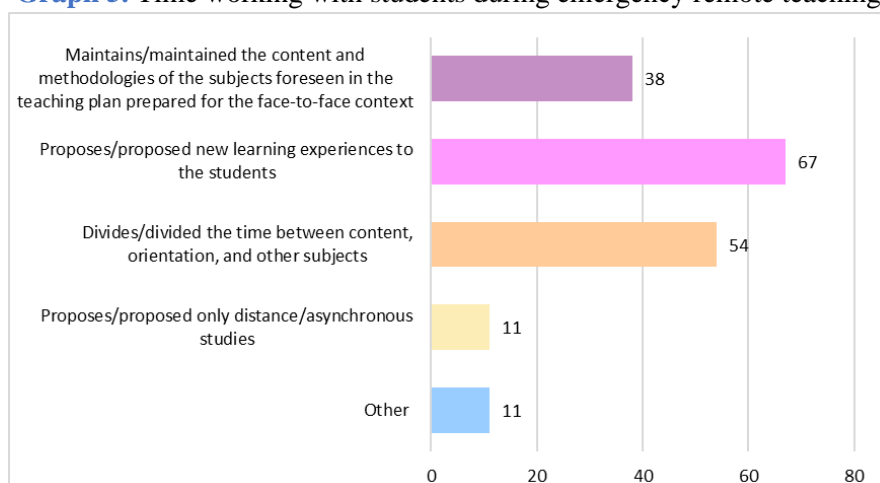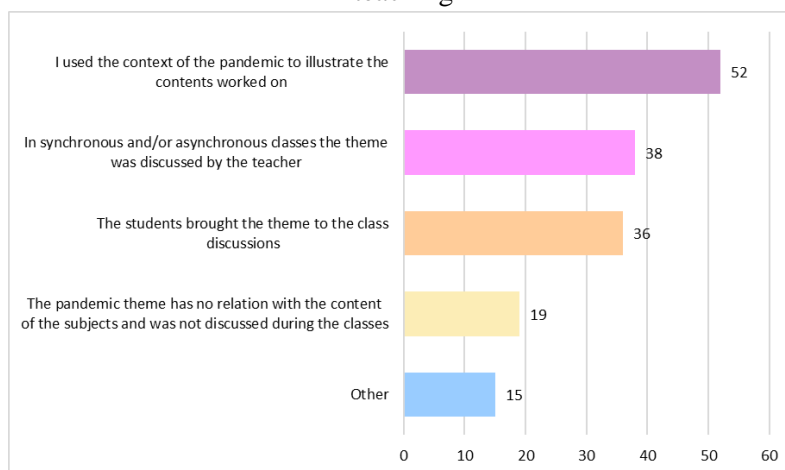

Source: Authors.

Regarding the use of technological resources, the graph reveals that 63.2% of teachers proposed new types of learning experiences to students arising from the legal proposals of emergency remote education approved by the governing bodies of HEIs. This result shows how important it is for teachers to critically reflect about the current reality, their knowledge, and their students in relation to the DTICs and the learning objectives. In the other answers that add up to 10.4% of the respondents, it is highlighted that in several HEIs, "adherence to remote teaching was voluntary" and for the development of activities mediated by the DTICS

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the option was "synchronous classes". One participant explained that "In the first semester, I had weekly synchronous activities in the form of a seminar to present the post-graduation students' projects and work". Others responded that they "were not yet working" and that they were preparing for this new pedagogical model.

Coll and Monereo (2010) point out that only incorporating technological resources does not transform the teaching and learning processes, it can of course modify them, thus paving the way for an eventual transformation. This fact is corroborated by França Filho, Antunes and Couto (2020), who indicate through investigations the relevance of considering the technical and functional nature of the DTICs.

Another basic question for the development of the analysis that is the object of study of this article was related to the approach of the COVID-19 theme in the classes and what was the emphasis given by teachers to this approach. Graph 6 presents the results obtained:

Graph 6. Approach to the topic of the COVID-19 pandemic in the lessons during emergency remote teaching

Source: Authors.

"The pandemic context is the justification for all the actions developed in class (form/methodology)" according to a teacher. For another, "[...] the pandemic was addressed by the group I participated in because it changed the format of data collection in the research of post-graduates since many will not be able to conduct interviews in person and are completing their work. It was also signaled that: "the impact on companies that is already being caused and future projections; as well as a debate on health and prevention". It is also noteworthy that the 14.2% contemplated the following options: courses and/or extension projects.

The face-to-face teaching needed to be transposed to the digital media in an agile way. In the ERE, the class takes place in synchronous time (following the principles of face-to-face teaching), with video class, lecture through a web conference system, and the activities follow during the week in the space of a virtual learning environment (VLE) in an asynchronous way. The physical presence of the teacher and the student in the face-to-face classroom space is "replaced" by a digital presence in an online class, what is called a "social presence". This is how presence is projected through technology (BEHAR, 2020).

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In a survey conducted by Rondini, Pedro and Duarte (2020) with 170 Basic Education teachers in the state of São Paulo, who declared to be developing teaching activities in the remote modality, it is observed a trend that teachers find it difficult to develop remote activities in curriculum components that require greater demonstration for solving activities and problem situations. For Lagarto (2013) this fact may be associated with the teachers' poor repertoire of available digital tools, since most teachers use basic resources, such as Microsoft Office package, Youtube, social networks, among others.

When investigating the perception of Basic Education teachers about the adverse moment in which education finds itself and the challenges that the pandemic imposed to their pedagogical practice, Rondini, Pedro and Duarte (2020) also identified that even with the difficulties in transposing face-to-face teaching to the emergency remote modality. For the authors, besides the use of the DTICs, the teachers signal how challenging this moment is for their practice, bringing out the process of "reinvention" of pedagogical and curricular practices. The data from the research conducted in this study corroborates this premise, since one teacher stated: "I am an experienced user of technologies and have worked for a long time in DL. Still, the situation we are living is unprecedented.

The final questions asked for details about the strategies used to approach the context of the COVID-19 pandemic in the teaching activities the teacher had developed up to the moment the research instrument was applied. Table 1 presents 76 responses that highlight how this approach was related to the content of the discipline of the teachers participating in the research.

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Table 1. Strategies and/or contents addressed in the subjects taught during the pandemic

Strategies/content related to disciplines that deal with information	Strategies/content related to disciplines that address health and safety	Strategies/content related to disciplines that address management and law	Strategies/content related to disciplines that address teacher training
Content:	Content:	Content:	Content:
Texts	Biosafety measures	Organizational change	Reports
News	Physical examination	management	The Social Function of
Printed material	Anamnesis	Consumer behavior	School
Reports (national and	Nursing procedures	Customer service	Intensification of teaching
international)	Immunity	Consumer profile	work
Ordinances and	Physical activity	Consumption habits	Teacher Training
decrees of the federal,	Virus sequencing	Management in times of	New technologies
state and/or municipal	Genetics	crisis	Students' socioeconomic
government	Drug Testing	Company bankruptcies	contexts
Fake news	Virus	Opportunities	Technologies in
Information links	Infection	Legal mechanisms	education
Strategies:	Disease	Web or mobile	Knowledge
Debates	Epidemic	applications	construction of
Seminars	Control Measures	COVID-19 law	knowledge
Audio and video	Vaccine	Social rights	Foundations and
Student reports	Science	Human Rights	Methodology in
Problem situations	Myths and truths about	Environmental Rights	Education
Reading and text	the virus	Time Management	
production	Prevention and care at	Public Administration	Processes of teaching and
Articles	home	Public Administration	learning
Writing academic-	Public Health	Strategic administration	Strategies:
scientific textual	Impacts of the disease	Management and	Online activities
genres		Professionalization	Interviews with 4 and 5-
			year-old children about
			the representations of the
			pandemic
			Methods of data
			collection

Source: Authors.

It was possible to infer from the above answers that the approach was often related to the contents of the subjects. In other situations, one of the teachers participating in the research pointed out that the subject "was not related to the content [explicitly about the pandemic], but practically every class someone talks about it, tells about an acquaintance, family members who are sick. Another faculty member reported that: "They are reports of anguish, fear and a lot of insecurity of some in facing the pandemic." Among the answers obtained in the research instrument, there was one that provoked great reflection: "Without a doubt, how can we work in face of a situation that had never been witnessed before, without touching the main object of all the changes related to the new teaching style. The big question that has been asked, will our educational action be the same as before, or will we be better, will we teach with more humanity and with more solidarity?"

It was also explained by a research participant that: "The COVID-19 theme was only mentioned to explain why teaching is in the remote system and not in face-to-face," corroborating with another respondent who pointed out: "The approach about the pandemic has no direct connection with my content, but there is always room for discussion of the current situation with the new ways of teaching." On the other hand, another teacher detailed the type of activity developed: "We also reconfigured the reading activities so that the time designated to synchronous activities is better used. We have changed the bibliographic references to open and easily accessible sources, and we are trying to replicate in the environment the type of activity we expect the trainees to be able to do, even renaming activities to evoke concepts (such as autonomy, collaboration and empathy, for example) that we believe are fundamental for them to critically understand this moment".

Another strategy adopted during the ERE period was presented by a teacher: "I used several videos and several reports about the Pandemic in order to bring to the discussion the social contradictions that permeate the supply of Brazilian education in different contexts. In the courses they taught during the ERE, one teacher reported that it was essential to deal with "How to deal with loss, anxiety, depression, and suicidal thoughts". In other subjects, the respondents reported that there was a curricular re-adaptation: "It would be possible to discuss the physical concepts behind a pandemic, its statistical description, although the subjects I teach do not correspond to this area of Physics knowledge".

In some subjects it was noticeable that the "approach was totally synchronized with the discipline". In others, "[...] it is not related, but it was necessary to give emotional support to the students". Several responses corroborated this finding. An exemplifying situation was brought by a teacher who exposed: "In a work oriented by three teacher educators, the students elaborated pedagogical proposals, with texts and activities that use mathematical concepts present in scientific and media approaches about COVID-19 with a greater emphasis on mathematical-epidemiological models. They also wrote experience reports, already approved for presentation at the XIV Mathematics Education Meeting of São Paulo".

The use of ICTs has enabled the emergence of new forms of connection with digital tools, using platforms and/or programs such as: Microsoft Teams, Google Meet, Mentimer, Zoom, Hangouts, Duo, Jitsi Meet, among others, began to be used in academic environments, previously restricted to companies. One of the professors who answered the questionnaire explained that in his professional activities he used videoconferences, WhatsApp groups, lives on the Instagram social network, the HEI's virtual environment, the integrated system for academic activity management (SIGAA), the Modular Object-Oriented Dynamic Learning Environment (MOODLE), Google Classrrom, Google forms for evaluations, and telephone.

Some answers contributed to illustrate the types of activities carried out during the pandemic, as well as the strategies that were used. The following excerpt brings a reflection about these activities and strategies: "I realized that digital technologies promote a very significant interaction. It depends a lot on the teacher, to really assume his role as a mediator.

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Although it is not being very easy, I am really enjoying this context." Another account indicates that: "Knowing and using the tools provided by the DTICs, in my strategies, I opt for dialogicity. It has been very good, and I even notice that the student loosens up more than in face-to-face learning. In relation to learning evaluation, one of the respondents informed that: "I admit that the idea in the background has always been the flexibility of the evaluative activities, that is, the elaboration of mini-tests, implying a greater frequency, but on the other hand, which will not be held strictly during class hours, being on an interior day, two days, or a weekend".

An ANDIFES survey evaluated remote emergency teaching in the IFES. Regarding the difficulties, the students of these institutions listed the family conditions and the precariousness of internet access; the faculty, in turn, reported as problems the work overload and the lack of training for the RES (ANDIFES, 2020). Regarding the impact of the pandemic on the performance of teachers in Higher Education, one of the research participants recorded that "The biggest difficulties of the people I interact with have not been with the technologies themselves, but with the demands that the pandemic is placing and that cannot be adequately met. Thus, we are using the available resources in a more rational way, avoiding information overload and structuring the work in a more user-friendly way. I work closely with a colleague and start from the objectives and the content of the face-to-face course, making adaptations and even changes that help us to cope with the limits imposed by social isolation. We reorganize dates and tasks in a more fluid way, reconfigure the spaces of the virtual environment we were using before the pandemic to allow a clearer separation between the purposes of each activity, task or topic.

Final Considerations

Hundreds of people are still dying every day as a result of the problems related to the second wave of contamination in the world, because the SARS-CoV-2 virus still does not let up and mutates twice as fast as the flu. In Brazil, by December 27, 2020, 7,465,806 cases with 190,795 deaths have been officially registered (CORONA VÍRUS BRASIL, 2020).

Most schools and HEIs are doing their best to guarantee the bond between teachers and students through the use of the DTICs, but without enough time to test them or to qualify the teaching and technical-administrative staff to use them correctly. The reflections revealed in this investigation prioritized the discussion about the methodologies, the contents, and the teaching-learning process in the HEI space. The results pointed out that in some disciplines it was possible to notice that the theoretical-methodological approach used was synchronized with the situation; in others, it was not possible to achieve this articulation.

There was an effort by the teachers to readjust and rearticulate the curriculum taking into consideration the context in which the students were inserted. As the situation experienced is unprecedented in recent history, although some teachers had experience with the Distance Education educational model, the pandemic demanded an emerging pedagogical

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model of its own, which was called ERE. With it, curricular reinventions and pedagogical practices surfaced. The methodologies were adequate to the learning possibilities made possible by the mediation of the technologies and within the existing conditions.

The challenges that Brazilian education has faced, in the context of the crisis caused by the pandemic, as well as other countries, involve learning to deal with the new and the different, the need for specific public policies to face the consequences of this pandemic. It is necessary to overcome, reinvent, and give new meaning to pedagogical practices with a view to socializing knowledge in a sustainable and less unequal way, valuing the learning and good practices that have been experienced in the current context.

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