

Medidas Institucionais da Universidade Federal do Paraná para o Enfrentamento da Pandemia de Covid-19: implicações no contexto dos cursos de licenciatura da área de Ciências da Natureza e Matemática¹

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Resumo

O estudo tem como objetivo mapear as iniciativas institucionais adotadas pela Universidade Federal do Paraná para lidar com a pandemia, com um foco especial nos cursos de Licenciatura nas áreas de Ciências da Natureza e Matemática. O plano de pesquisa adotado é de natureza analítico-documental, utilizando como corpus os editais, portarias e resoluções emitidos pela UFPR durante a pandemia de COVID-19. Ao suspender o calendário de 2020 e instituir Periods especiais de ensino remoto, foi viabilizada a continuidade da formação dos estudantes. Os resultados revelaram uma clara preocupação com a saúde tanto da comunidade interna quanto externa, com medidas garantindo a continuidade do calendário acadêmico por meio do ensino remoto. Destacam-se, nesse contexto, as ações assistenciais e de inclusão digital, além dos estímulos para a continuidade formativa nos cursos de licenciatura. Exemplos desses estímulos incluem bolsas para projetos de extensão realizados remotamente e a manutenção dos estágios supervisionados.

Palavras-chave: Ensino Remoto Emergencial. Ensino Superior. Pandemia. Ações Institucionais. Formação de Professores.

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Institutional Measures of the Federal University of Paraná for Coping with the Covid-19 Pandemic: implications in the context of teacher education programs in the Natural Sciences and Mathematics

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Abstract

The study aims to map the institutional initiatives adopted by the Federal University of Paraná to address the pandemic, with a special focus on Teacher Education programs in the Natural Sciences and Mathematics. An analytical-documentary research plan is carried out, using as *corpus* announcements, ordinances, and resolutions issued by UFPR during the COVID-19 pandemic. By suspending the 2020 academic calendar and implementing special periods of remote teaching, the continuity of student education was made possible. The results revealed a clear concern for the health of both the internal and external community, with measures ensuring the continuation of the academic calendar through remote learning. Noteworthy in this context are the assistance and digital inclusion actions, as well as incentives for ongoing education in teacher education programs. Examples of these incentives include grants for remotely conducted extension projects and the continuation of supervised internships.

Keywords: Emergency Remote Teaching. Higher Education. Pandemic. Institutional Actions. Teacher Education.

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Resumen

El estudio tiene como objetivo mapear las iniciativas institucionales adoptadas por la Universidad Federal de Paraná para hacer frente a la pandemia, con un enfoque especial en los programas de Licenciatura en las áreas de Ciencias Naturales y Matemáticas. El plan de investigación adoptado es de naturaleza analítico-documental, utilizando como corpus los edictos, disposiciones y resoluciones emitidos por la UFPR durante la pandemia de COVID-19. Al suspender el calendario de 2020 e implementar Periods especiales de enseñanza remota, se posibilitó la continuidad de la formación de los estudiantes. Los resultados revelaron una clara preocupación por la salud tanto de la comunidad interna como externa, con medidas que garantizan la continuidad del calendario académico a través de la enseñanza remota. Se destacan, en este contexto, las acciones de asistencia e inclusión digital, así como los estímulos para la continuación de la formación en los programas de licenciatura. Ejemplos de estos estímulos incluyen becas para proyectos de extensión realizados de forma remota y el mantenimiento de las prácticas supervisadas

Palabras clave: Enseñanza Remota de Emergencia. Educación Superior. Pandemia. Acciones Institucionales. Formación de Profesores.

Introduction

The Covid-19 pandemic brought significant changes to various social sectors, including the Brazilian university system. In response to the need for social distancing, the Federal University of Paraná (UFPR) implemented innovative measures to address the challenges posed by the pandemic. The goal was to preserve the health and safety of the academic community while ensuring the continuity of teaching, research, and extension activities. These actions included the suspension of in-person classes, the adoption of remote teaching, the reorganization of the academic calendar, the strengthening of Digital Information and Communication Technologies (DICT), the expansion of health resources, awareness campaigns, and financial support programs, among other initiatives.

This article aims to **map the institutional actions implemented by UFPR to address the pandemic, with a focus on undergraduate programs in the fields of Natural Sciences and Mathematics**. The article analyzes how these measures impacted the undergraduate courses, including discussions about the quality of education, the adaptation of teachers and students to remote teaching, measures to prevent student dropout, and the implications for research and extension activities. The methodology is based on documentary analysis, using resolutions, ordinances, and notices issued by UFPR as the documentary corpus. This study can provide valuable insights for future efforts to adapt higher education to social and technological changes and to understand viable strategies that contributed to mitigating the impacts of the Covid-19 pandemic on professional training.

Undergraduate Programs in Natural Sciences and Mathematics at UFPR during the Pandemic: Contextualization

The COVID-19 pandemic affected all spheres of education worldwide, including the undergraduate programs in the field of Natural Sciences (Biology, Physics, and Chemistry) and Mathematics at UFPR, significantly impacting how classes in these programs are taught and how students learn and are trained as teachers. UFPR offers nine undergraduate courses in these areas, namely: Biological Sciences (Palotina), Biological Sciences (Curitiba), Exact Sciences - Chemistry, Physics, and Mathematics (Jandaia, Palotina, and Pontal do Paraná), Sciences (Matinhos), Chemistry (Curitiba), Physics (Curitiba), and Mathematics (Curitiba).

Initially, the decision was made to suspend the academic calendar, driven by the initial perspective that the public health emergency would be quickly overcome. However, in light of the seriousness of the situation, UFPR adapted to social isolation and chose to implement Emergency Remote Teaching (ERT). The use of this term by UFPR, as employed in this article, acknowledges that ERT cannot be considered synonymous with Distance Education (DE), despite some similarities. DE has specific legislation, a distinct pedagogical concept, and is designed to be conducted remotely through various elements, involving the teacher, the student, the educational environment, and the cognitive space for teaching and learning, among others (VELOZO; WALESKO, 2020). While ERT was an alternative to adapt in-person teaching and allow for the continuation of undergraduate classes amidst the health emergency, it aimed to enable students to complete their higher education courses.

In this context, the institution had to quickly restructure itself to offer support and opportunities to students, including providing technological resources. There was a need to train the teaching staff and ensure students had access to technology and the internet, allowing them to continue their education amid a period of constant uncertainty. Alongside these changes and adaptations at UFPR, other higher education institutions also found themselves required to reorganize.

Rodrigues (2023) conducted a literature review using the Google Scholar and Scielo databases to search for articles related to the impacts of the pandemic on Higher Education. According to the author, challenges such as time management and physical and mental health, which existed before the pandemic, became more daunting for both teachers and students.

These difficulties were also highlighted by Andrade and Cavaignac (2022) in a study conducted at the Federal University of Ceará. The results underscored the different consequences experienced by students, faculty, and staff, especially regarding the need to adapt to activities that were previously conducted in-person at the institution, particularly emphasizing the challenges of access to the internet and technological materials.

Nóvoa and Alvim (2021), in their analysis of the history of education over the last 150 years, emphasize how the construction of education occurred and how this process influenced the attitudes adopted towards education during the pandemic. Over these years, many criticisms of the school model have been made, especially concerning the devaluation of the teaching profession. However, during the pandemic, these professionals had to reinvent themselves to continue educating citizens remotely and under social distancing, even while recognizing that education is an action that occurs

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collectively in the classroom, in person. We believe that the challenges faced in Higher Education during the pandemic become even more evident when observing current resolutions and legislation.

Guiding National Institutional Measures

The repercussions of the Covid-19 pandemic are unprecedented in Brazil's recent history. Despite denialism, discredit, and the initial inaction of the Brazilian leader in response to the pandemic, the Ministry of Education (MEC), through the National Education Council (CNE), issued significant opinions and resolutions with guiding principles to address the public health and economic emergency, particularly those related to Higher Education, the focus of this study.

The CNE, aware of the potential prolongation of the suspension of in-person school activities and the consequences for the 2020, 2021 calendars, and potential impacts in 2022, including dropout rates and setbacks in learning, published Opinion CNE/CP No. 5/2020 on April 28, 2020. The aim of this opinion was to reorganize the school calendar, guiding and regulating the possibilities for "counting non-presential activities to fulfill the minimum annual workload" across the Brazilian educational system (BRASIL, 2020a, p. 01). The opinion regulated the provisions of Provisional Measure No. 934/2020, dated April 1, 2020 (converted into Law No. 14.040 on August 18, 2020), which established exceptional educational norms during the state of public calamity (BRASIL, 2020c; BRASIL, 2020t).

As one of the first consequences of the provisional measure and the opinion, the school (and academic) calendar in higher education was relaxed, exempting the requirement to fulfill 200 school days, provided that the minimum workloads established by the educational systems were met (BRASIL, 2020a). This flexibility is supported by the Law of Guidelines and Bases of National Education (LDBEN – Law No. 9,394/1996), which, in Article 23, emphasizes that "§ 2 The school calendar must adapt to local peculiarities, including climatic and economic conditions, at the discretion of the respective educational system, without reducing the number of class hours provided for in this Law" (BRASIL, 1996r).

Despite the provisions related to Higher Education in the Law of Guidelines and Bases of National Education (LDBEN), which establishes that the "regular academic year, irrespective of the civil year, must have at least two hundred days of effective academic work, excluding time reserved for final examinations, when applicable" (BRASIL, 1996, art. 47), Law No. 14,040/2020 regulated this flexibility:

Art. 3 The higher education institutions are exempt, on an exceptional basis, from the obligation to observe the minimum number of days of effective academic work, as provided in the caput and § 3 of Article 47 of Law No. 9,394, of December 20, 1996, for the academic year affected by the state of public calamity referred to in Article 1 of this Law, in accordance with the national guidelines issued by the CNE and the regulations to be issued by the respective educational systems, provided that:

I - the curricular workload for each course is maintained; and

II - there is no harm to the essential content required for the practice of the profession.

§ 1 The development of non-presential pedagogical activities linked to the curricular content of each course may be carried out through the use of information and communication technologies, for the purpose of fulfilling the required workload (BRASIL, 2020c).

In this context, Opinion CNE/CP No. 5/2020 recognizes the tradition of Higher Education in using technological resources as mediators, both in face-to-face teaching and in Distance Education (DE). The CNE's guidelines focus on the use of Digital Information and Communication Technologies (DICT), allowing the continuity of formative processes through technological DE platforms, virtual learning environments, and synchronous and asynchronous communication resources, applicable to undergraduate, specialization, and postgraduate courses at the master's and doctoral levels (BRASIL, 2020a; BRASIL, 2020d).

Regarding undergraduate programs, which are the focus of this investigation, Opinion CNE/CP No. 5/2020 establishes that teaching practices can be adapted for non-presential teaching and learning processes (BRASIL, 2020a). Thus, on April 1, 2020, the Supervised Internships of undergraduate programs were authorized to proceed virtually, either synchronously or asynchronously, through recorded classes. The opinion also advised that these internships, when associated with virtual or online activities, could be integrated into the extension activities of higher education institutions, undergraduate courses, and teacher training programs.

These guidelines encouraged the complementarity of the theories discussed in the classroom of undergraduate programs with practical experience in teaching and learning processes mediated by DICT, which proved to be especially relevant during Emergency Remote Teaching (ERT). According to Opinion CNE/CP No. 5/2020, internships conducted remotely have the potential to promote knowledge dialogues between the university and the school (BRASIL, 2020a).

In addition to the mandatory supervised internships in undergraduate programs, extension activities were also authorized to be conducted virtually or online, allowing for the application of academic knowledge for the benefit of the community in areas such as environmental education and sustainability, health education, emotional education, among others (BRASIL, 2020a). Additionally,

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Course Completion Works (TCC), assessments, and complementary activities were also authorized to continue. For subjects requiring laboratory activities, field trips, or other specific practices, the opinion suggested finding an appropriate way to fulfill these activities during this exceptional pandemic period (BRASIL, 2020a, p. 17).

Opinion CNE/CP No. 5/2020 recognizes that activities conducted in a non-presential, virtual, and online manner can contribute to the development of digital skills and virtual interaction in various work environments, encompassing both undergraduate programs and other bachelor's degree courses. Additionally, the opinion allowed for the "completion of higher education within the time frame for course fulfillment for students in the final phase of their studies, offering the possibility, even if mediated by some replacement, for their completion" (BRASIL, 2020a, p. 17). These foundations and recommendations resulted in the following guidelines for Higher Education:

- Adopt the replacement of in-person courses with non-presential classes;
- Substitute in-person activities related to assessments, selection processes, TCC, and laboratory classes with non-presential activities, considering the appropriate digital information and communication technologies model for the necessary infrastructure and interaction;
- Regulate complementary activities, extension activities, and TCC;
- Organize the operation of laboratories and predominantly practical activities in accordance with local realities;
- Implement non-presential activities for practices and internships, especially for undergraduate programs and teacher training, extendable to applied social sciences courses and, where applicable, other areas, informing and sending to SERES or the regulatory body of the educational system to which the institution is linked the courses, subjects, stages, adopted methodologies, and available technological infrastructure resources for distance practical or laboratory interactions;
- Offer courses in a distance or non-presential mode for the theoretical-cognitive subjects in health area courses, regardless of the period they are offered;
- Supervise internships and professional practices to the extent of available tools;
- Define the conduct of assessments remotely;
- Implement home-based learning for students who test positive or are in high-risk groups;
- Organize training processes for teachers for distance or non-presential learning;
- Implement telework for teachers and staff;
- Provide public service in accordance with safety regulations issued by public authorities and based on international references;
- Disclose the structure of selection processes remotely and fully digitally;
- Reorganize virtual learning environments and other available technologies in higher education institutions to comply with the curricula of each course;
- Conduct synchronous online activities according to technological availability;
- Offer asynchronous online activities according to technological availability;
- Conduct online tests or through printed materials delivered at the end of the suspension period; and

- Utilize long-reach social media (WhatsApp, Facebook, Instagram, etc.) to stimulate and guide studies and projects (BRASIL, 2020a, p. 18).

The opinion emphasized the need to gradually resume in-person activities, following the protocols established by local authorities (BRASIL, 2020a), even in the absence of a vaccine at that time to prevent and reduce mortality caused by the disease. This was a consequence of the denialist process experienced by the Brazilian state during the pandemic, which led to discredit in scientific research among the population. Bartelmebs, Venturi, and Sousa (2021) highlight that one way to address these challenging situations of misinformation is through the development of critical and reflective thinking, particularly through a solid training of teachers in higher education, including undergraduate and postgraduate courses in Science Education.

It is crucial to emphasize that these guidelines were presented as suggestions for Higher Education Institutions (HEIs), recognizing that innovation and creativity could drive even more effective and appropriate measures for each situation and context, given the circumstances experienced in 2020 and 2021. After all, Opinion CNE/CP No. 11/2020 acknowledges that:

(...) Higher Education Institutions have the autonomy to define their academic calendars, provided that they comply with higher education legislation, as well as to freely manage various aspects of academic activity. To this end, HEIs are guided by the National Curriculum Guidelines and by rules established in their internal regulations or statutes, which are evaluated by the Ministry of Education during the assessment processes for accreditation and reaccreditation (BRASIL, 2020d, p. 16)

Lastly, it is crucial to emphasize that these opinions underpinned provisional measures, decrees, and laws, at both federal and municipal, state, and district levels, culminating in CNE/CP Resolutions No. 2 of December 2020 and No. 2 of August 2021. These resolutions served as guidelines intended to inform the decision-making of all Higher Education Institutions (HEIs), including the Federal University of Paraná, as will be addressed and discussed next.

Research Pathways

This research is characterized as descriptive and exploratory, favoring a qualitative or interpretative approach aimed at understanding facts and phenomena (BOGDAN; BIKLEN, 1994). From a methodological standpoint, the research plan is of an analytical-documentary nature, focusing on the analysis of documents such as notices, ordinances, and resolutions issued by UFPR during the COVID-19 pandemic. Documentary analysis is a process of examining documents to extract relevant and meaningful information, seeking to produce new knowledge, understand phenomena, and share

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these developments (SÁ-SILVA; ALMEIDA; GUINDANI, 2009). This approach can provide an in-depth understanding of the history, context, and perspective of a specific topic, as well as identify patterns, trends, and relationships between different types of information (LÜDKE; ANDRÉ, 1986).

The documentary corpus consisted of 33 documents, including notices, ordinances, and resolutions issued by bodies such as the Office of the Dean of Undergraduate Studies and Professional Education (PROGRAD), the Office of the Dean of Extension and Culture (PROEC), the Council for Research, Teaching, and Extension (CEPE), the Office of the Dean of Student Affairs (PRAE), and the Rector. These documents are available and have been published on the websites of these bodies.

The next step involved a detailed examination of these documents, aiming to conduct a more in-depth analysis through an exploratory content analysis approach, as proposed by Bardin (2011). This process included pre-analysis, exploration of the material with the definition of analysis categories, and the treatment of results, including the proposition of inferences and interpretations. Six categories of document classification emerged: i) Suspension of the Academic Calendar (5); ii) Resumption and Remote Period (13); iii) Digital Monitoring (5); iv) Remote Licensing Program (4); v) Strengthening of Extension (2); and vi) Socioeducational Measures through the Psychosocial Support Unit (UAPS) (4). This structure was adopted to facilitate the analysis process, providing greater credibility to the discussion of the data, which will be presented in the next section.

Analysis and Discussion of the Data

For methodological reasons, we will present the data in the same order mentioned in the previous section, as we present the categories that emerged from the exploratory analysis.

Suspension of the Academic Calendar

Regarding the category "suspension of the academic calendar," it was found (as shown in Table 1) that UFPR, as an institution dedicated to promoting scientific knowledge, demonstrated a commitment not only to the health of the academic community but also to public health. In light of the first cases of coronavirus infections, UFPR promptly took action, publishing Resolution CEPE No. 26/2020, which regulated the complete suspension of the academic calendar.

Table 1 - Normativas de suspensão do calendário acadêmico

Nº	Normative (Resolution)	Regulates/Provides	Period
1	26/2020-CEPE	Suspension of the academic calendars for undergraduate, postgraduate, and professional and technological education courses.	03/16/2020 to 03/29/2020
2	40/2020-CEPE	<i>Idem</i>	03/30/2020 to 05/04/2020
3	42/2020-CEPE	<i>Idem</i>	For an indefinite period starting from 05/04/2020.
4	Nº44/2020-CEPE	(...)the didactic activities of the courses offered in the EAD or partially EAD modalities, mandatory internships, non-mandatory internships, and pedagogical training activities, as well as the formative and guided didactic activities of higher education, professional, and technological courses at UFPR during the suspension of the academic calendar in the first semester of 2020.	From 04/05/2020 until the suspension of the academic calendar for the first academic semester of 2020 remains in effect
5	58/2020-CEPE	Includes a new paragraph in Article 3 of Resolution No. 44/2020-CEPE: "The course councils are delegated the authority to grant exemptions from any of the approvals (...) for the completion of supervised internships.	07/15/2020

Source: the authors.

Initially, the suspension was determined to be temporary, as it was believed that the infections caused by the coronavirus would be brief and under control. However, due to the spread and severity of the pandemic, changes to the university calendar became frequent in the face of a situation of uncertainty, as evidenced in Table 1 above.

The decisions made were based on recommendations, letters, guidelines, motions, and campaigns from the World Health Organization (WHO) aimed at combating the spread of Covid-19, also supported by Law No. 13,979, dated February 6, 2020. Additionally, they were backed by the resolutions of the CNE and Provisional Measure No. 934/2020, mentioned in the foundations of this study.

Despite the adversities and the suspension of the academic calendar, it is possible to observe that, after 49 days of interruption of the calendar and teaching activities, UFPR, considering its experience in developing courses in hybrid, in-person, and DE formats, and with the support of virtual learning environments such as Moodle, UFPR Virtual, and Microsoft Teams, authorized the resumption of some activities and courses on May 4, 2020. Initially, courses that already had DE workloads and supervised internships, including those for undergraduate programs, were authorized; these activities served as a pilot project for the resumption of remote activities, as will be discussed in the next section.

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Resumption and Remote Period

Regarding the "Resumption and Remote Period," 13 regulations (ordinances, normative instructions, and resolutions) were published, as shown in Table 2.

Table 2 - Regulations governing the implementation of the remote period for teaching activities and the gradual return to in-person instruction.

Nº	Normative	Regulates/Provides	Period
1	Resolution 59/2020-CEPE	Special Period for the Development of Teaching Activities at UFPR: The duration of the special period for the academic semester of 2020 for all semester-based higher education, professional, and technological courses at UFPR is from 06/29/2020 to 09/26/2020. The duration of the special period for the academic year of 2020 for all annual higher education, professional, and technological courses at UFPR is from 06/29/2020 to 11/07/2020	06/29/2020 to 11/07/2020
2	Resolution Nº65/2020-CEPE	New Special Period: The duration of the special period for higher education, professional, and technological courses at UFPR is from 11/03/2020 to 03/27/2021.	11/03/2020 to 03/27/2021
3	Resolution Nº22/21-CEPE	The teaching activities of the higher education, professional, and technological courses at UFPR, starting from 04/12/2021, will encompass the offerings for the academic year 2020, as stipulated in Articles 6 to 10 of this Resolution .	04/09/2021
4	Resolution Nº 23/21-CEPE	Resumption of the 2020 calendar: on 04/12/2021, with classes starting on 05/04/2021, offering 3 cycles of courses .	04/12/2021 to 08/14/2021
5	Resolution Nº34/21-CEPE	Modifies Article 33 of Resolution 22/21-CEPE: "The offering of a course group or curricular unit that has a workload, whether total or partial, classified as Laboratory, Specific Practice, or Field, which needs to be articulated through hybrid teaching, must be authorized by the course council and sectoral committee(s) or practical activities and biosafety."	06/21/2021
6	Normative Instruction PROGRAD nº 02/2021	Establishes on 08/27/2021 the academic calendar for the 2021 academic year for undergraduate and professional education courses at UFPR, detailing: Start of the 2021/1 academic period – 09/20/2021 End of the 2021/1 academic period – 12/18/2021 Start of the 2021/2 academic period – 01/31/2022 End of the 2021/2 academic period – 05/07/2022	08/27/2021
7	Normative Instruction PROGRAD No. 02/2021 (Updated)	Article 1: The academic calendar is established for the 2021 academic year for undergraduate and professional education courses at UFPR, detailing the academic period for 2021 (updated version on 02/14/2022)	02/14/2022
8	Normative Instruction PROGRAD nº	Article 1: The academic calendar is established for the 2021 academic year for undergraduate and professional education courses at UFPR. It details the academic	02/25/2022

	02/2021 - (Updated)	calendar for the 2021 academic period (updated version on 02/25/2022)	
9	Normative Instruction PROGRAD nº 02/2021 - (Updated)	Article 1: The academic calendar is established for the 2021 academic year for undergraduate and professional education courses at UFPR, detailing the academic calendar for the 2021 academic period (updated version on 03/10/2022).	03/10/2022
10	Dispatch No. 69/2022/UFPR/R/P ROGRAD/COPAP Process No. 23075.045457/2021-16	Article 1: The academic calendar is established for the 2021 academic year for undergraduate and professional education courses at UFPR, detailing the academic calendar for the 2021 academic period (updated version on 03/10/2022).	02/25/2022
11	Dispatch No. 79/2022/UFPR/R/P ROGRAD/COPAP Process No. 23075.045457/2021-16	Modifies Normative Instructions No. 02 and 03, dated November 26, 2021, which establish the detailed calendar for the 2021 academic year. Changes the final deadline for course cancellation requests from 2020 to 2021 for students who requested enrollment in semester courses offered in 2021/2.	03/10/2022
12	Rectorate Ordinance UFPR Nº 133/2022	Declare, based on Circular <i>Memorandum</i> No. 2/2020-UFPR/R/PRA; <i>Memorandum</i> No. 76/2021-UFPR/R/PRA; and Information No. 5/2022-UFPR/R/PRA, that the institution, as of February 14, 2022, will enter the Opening Phase with Exceptionalities (AE) and that it is the responsibility of the UFPR Units to comply with the measures outlined in the aforementioned Memorandums related to the mentioned phase.	02/14/2022
13	Resolution Nº03/22-CEPE	Article 1: Ratify the <i>ad referendum</i> decision of the CEPE Plenary (doc. SEI 4208728 dated 01/28/2022) that approved the changes to Resolution No. 22/21-CEPE, allowing for the resumption in hybrid, in-person, and remote formats. Article 2: Amend § 4 of Article 2: The authorization for the offering of a course group or curricular unit through hybrid teaching is expressly conditioned on the approval of the course council and sectoral committee(s) for practical activities and biosafety [...]. Article 3: Amend the caput of Article 33, §1, and §3: The offering of a course group or curricular unit that has a workload, whether total or partial, classified as Laboratory, Specific Practice, or Field, which needs to be articulated through hybrid teaching, must be authorized by the course council. Return to in-person instruction (in hybrid format) starting from 02/01/2022	02/01/2022 Ratified <i>ad referendum</i> on 01/28/2022

Source: the authors(2023).

The initial Resolution (59/2020) established a special period of Emergency Remote Teaching (ERT 1) for the first semester of 2020, occurring from 06/26/2020 to 09/26/2020 for semester-based courses, such as undergraduate programs, and from 06/29/2020 to 11/07/2020 for annual courses.

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Subsequently, Resolution 65/2020 defined a new special period (ERT 2) from 11/03/2020 to 03/27/2021 for semester-based courses. However, it is important to highlight that these special periods did not constitute the offering of the 2020 academic calendar, which remained suspended, and students were not required to enroll in ERT 1 and ERT 2. For this reason, many students remained active and "enrolled" in the regular classes offered for the first semester of 2020, prior to the pandemic.

The academic calendar for 2020 was resumed, remotely, only on 04/12/2021, with teaching activities continuing until 08/14/2021. However, this academic calendar corresponded to the offering of courses and curricular units related to both semesters of 2020, as many students had already completed various courses during the special periods. Therefore, there was no division between semesters, and in August 2021, an adjustment was made to the students' enrollments to regularize and organize the offering for the first semester of 2021.

The first semester of 2021 began only on 09/20/2021, ending on 12/18/2021. To recover the suspended calendar period, the second semester of 2021 took place from 01/31/2022 to 05/07/2022. Given the significant progress in vaccination across Brazil, on 02/01/2022, Resolution No. 03/22-CEPE was published, allowing the return of classes to in-person format, adopting a hybrid model, especially for courses with laboratory, practical, or field workloads, provided that sanitary protocols were strictly followed. Additionally, on 02/14/2022, Rectorate Ordinance No. 133/2022 declared that UFPR entered the Opening Phase with Exceptionalities, authorizing all other courses to conduct their activities in in-person and hybrid formats as necessary.

Although the process of resuming activities seemed slow, it is evident that UFPR, aware of the pandemic's impacts on health, economic, institutional, and managerial aspects, promoted the prompt reintegration of academic activities. The resumption began with some teaching activities on 05/04/2020, just 49 days after the suspension of the academic calendar, while activities for the special remote periods started on 06/26/2020, approximately 4 months after the suspension.

However, the extension of the academic calendar's resumption until 04/14/2021, more than a year after the suspension, allowed many students to return to their hometowns, reunite with their families, seek paid activities, and avoid abandoning their courses. Nonetheless, the increase in bureaucratic workload for conducting teaching activities during the calendar suspension period significantly impacted the mental and psychological health of faculty, especially those in management positions in undergraduate programs and departments.

In light of the multitude of resolutions, normative instructions, and ordinances mentioned so far, we assert that there are no historical records documenting such a tumultuous and complex period in the academic life of professors, technical staff, and students at UFPR. In addition to the measures for suspending the academic calendar, the university also implemented initiatives to provide scholarships and assistance, as will be addressed in the following discussions.

Digital Monitoring

Regarding Digital Monitoring, one (01) Resolution and four (04) notices were issued, as evidenced in the subsequent Table 3:

Table 3 - Regulations governing the Emergency Digital Monitoring Program..

Nº	Normative (Resolution /Notice)	Regulates/Provides	Period
1	Resolution nº 55/2020 - CEPE	Establishes the Emergency Digital Monitoring Program, by adapting the Institutional Monitoring Program, while restrictions on the development of in-person classes remain in effect due to the coronavirus pandemic	28/05/2020
2	Notice No. 03/2020 - PROGRAD/COAFE/DIGITAL MONITORING Emergency Digital Monitoring Programl	Emergency Digital Monitoring Program aimed at supporting courses and activities conducted remotely.	09/11/2020
3	Notice No. 04/2020 - PROGRAD/CIPEAD/COAFE Emergency Digital Monitoring Program - Support for NTES	Action Plan to describe the activities to be carried out by the scholarship recipients requested to support NTES, according to Notice 01/2020 – PROGRAD/CIPEAD/COAFE.	08/11/2020
4	Notice No. 02/2021 - PROGRAD/COAFE/Digital Monitoring Emergency Digital Monitoring Program	Emergency Digital Monitoring Program aimed at supporting courses and activities conducted remotely	04/05/2021
5	Notice No. 05/2021 - PROGRAD/COAFE/DIGITAL MONITORING/2021 Emergency Digital Monitoring Program	Emergency Digital Monitoring Program aimed at supporting courses conducted in remote and hybrid formats.	1/10/2021

Source: the authors (2023).

During the pandemic, regulations regarding the implementation of digital monitoring during the suspension of in-person classes at UFPR were enacted through Resolution No. 55/2020 - CEPE. Subsequently, notices were published covering the submission of proposals, the selection of scholarship students for the Digital Monitoring program, and action plans for the pandemic period.

As highlighted in Notice No. 03/2020, monitoring can be considered a complementary activity for undergraduate students who are interested and available to assist faculty in the activities and

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courses at UFPR. In the context of this specific notice, the monitors would perform functions in planning and developing remote activities, as well as in virtual learning environments (AVA), as long as restrictions on in-person teaching remained in effect during the Covid-19 pandemic (UFPR, 2020b).

Additionally, this measure provided support to students with learning difficulties, even if only virtually. The assistance offered by the monitors constituted a means for students to continue their studies, aiming to minimize the challenges faced by those who had to quickly adapt to remote learning.

The students who applied and were selected as monitors received financial assistance proportional to the course workload: up to 30 hours (two installments of R\$400.00); from 45 to 60 hours (three installments of R\$400.00); and over 75 hours (four installments of R\$400.00). This assistance represented a stimulus and support for the student monitors during the pandemic, significantly contributing to the planning directed toward remote teaching. In many cases, this support may have been crucial for the families of the students, whose sources of income were affected by the suspension of in-person work activities.

Remote Licensing Program

In general terms, the Remote Licensing Program aims to promote closeness and integration between the undergraduate programs at UFPR and basic education, with an emphasis on the public network (UFPR, 2020c). During the pandemic, adjustments were made to the development of activities, resulting in the publication of four notices regulating various aspects of the program, such as its duration, the selection of projects, and scholarship recipients (see Table 4). Proposals for the continuation of the program were the responsibility of faculty members with active ties to UFPR, and it was necessary to follow the specific rules outlined in the aforementioned notices.

Table 4 - Regulations governing the Remote Licensing Program.

Nº	Normative (Ordinance)	Regulates/Provides	Period
1	Notice 01/2020 - PROGRAD/COAFE/REMOTE LICENSING	Selection of projects for the Remote Licensing Program to be executed in the year 2020.	03/17/2020
2	Notice 01/2020 - PROGRAD/COAFE/REMOTE	Rectification of the rules governing the Remote Licensing Program 2020..	03/25/2020

Nº	Normative (Ordinance)	Regulates/Provides	Period
	LICENSING - Rectification Act 01/2020		
3	Notice 04/2020 - PROGRAD/COAFE/Remote Licensing Selection of Scholarship Recipients for the Duration of Resolution 42/20 - CEPE - Remote Licensing Program 2020.	Selection of Scholarship Recipients for the Remote Licensing Program, in accordance with item 2.5 of Notice 03/2020. For the students selected in this notice, their affiliation with the program and the validity of the scholarship will begin on 06/01/2020 of the current year, in remote format.	06/01/2020
4	Notice No. 01/2021 - PROGRAD/COAFE/REMOTE LICENSING/2021	Selection of projects for the Remote Licensing Program to be executed in the year 2021. Start of the Remote Licensing Program on 05/03/2021.	05/03/2021

Source: the authors (2023).

Notice 01/2020 addresses the selection of projects for the continuation of the Remote Licensing Program throughout 2020, still considering the possibility of in-person activities. However, the second Notice 01/2020, mentioned in Table 4, is a rectification of the previous notice, adjusting the program's duration and adapting the proposals for remote format. The extension of submission deadlines and adjustment of proposals may have facilitated the organization of faculty, especially in light of the worsening pandemic and the suspension of activities and the academic calendar.

Notice 04/2020 refers to the selection of scholarship recipients for the project, emphasizing the need for remote activities to initiate the projects. Additionally, the projects should be linked to basic education and propose activities to assist schools in using tools for non-in-person teaching (UFPR, 2020d). To compete for a scholarship, students (both scholarship recipients and volunteers) needed to be enrolled in undergraduate programs. This program was one of the main initiatives specifically aimed at undergraduate studies that continued to adapt during the period of social distancing. The involvement of undergraduate students in teaching-related activities during the pandemic may have contributed to their integration into the remote educational reality of that moment. Finally, Notice 01/2021 provided for the selection of projects for the year 2021, establishing as one of the criteria for approval the necessity for projects to be directly linked to remote teaching, allowing for synchronous and/or asynchronous activities until the return to in-person instruction (UFPR, 2021e).

Strengthening Extension

PROEC plays a crucial role in promoting and executing activities related to extension between the university and the community, as outlined by UFPR (2021f). Furthermore, according to UFPR

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(2021f), PROEC aims to establish effective dialogue with the social environment, disseminating knowledge in an accessible and contextualized manner. This highlights the importance of the face-to-face contact and dialogue established between the academic community and the external community of UFPR through various means, such as courses, lectures, classes, visits, and joint actions.

With the suspension of the academic calendar and in-person activities, Extension Projects faced the need to (re)think the development of their activities. In this context, PROEC issued notices offering financial support opportunities for Extension projects interested in developing socially relevant action proposals during the pandemic (see Table 5).

Table 5 - Regulations Governing Extension Strengthening Actions.

Nº	Normative (Ordinance)	Regulates/Provides	Period
1	Notice PROEC/UFPR No. 04/2020 - Strengthening Continuous and Remote Extension Activities.	To provide financial support for strengthening the continuous and remote actions of extension programs and projects that focus on areas of significant social relevance.	29/06/2020 a 26/07/2020
2	Extension of Notice PROEC/UFPR No. 04/2020 - Strengthening Continuous and Remote Extension Activities	Extend the execution period of the proposals, item 4.2 of Notice No. 04/2020 PROEC/UFPR. The deadline is extended by an additional 2 (two) months	31/10/2021

Source: the authors (2023).

The coordinators of the projects approved in Notice PROEC/UFPR No. 04/2020 were instructed to conceive actions of great social relevance, such as initiatives focused on health prevention and emergency assistance to the community. Additionally, they were asked to prepare detailed reports documenting comprehensively the activities carried out and the resources used (UFPR, 2020g). The socially relevant actions were planned to fit both remote and in-person activities, adhering to the guidelines established for addressing the pandemic.

The extension projects and programs that received financial support for their initiatives, even if conducted remotely, had the opportunity to continue disseminating scientific knowledge between the university and the community. This continuity occurred through planning and interventions that utilized Digital Information and Communication Technologies (TDIC). This aspect was crucial, especially given the flow of digital information about the coronavirus, including misinformation (fake

news), which often caused alarm and concern among the population. In summary, extension projects played an essential role in informing and communicating with the public online, employing learning platforms, videos, video calls, texts, activities, and, above all, social media and instant messaging applications.

Socioeducational Measures through the Psychosocial Support Unit (UAPS)

The PRAE played a crucial role for students during the pandemic, particularly considering the socioeconomic vulnerability of some students who were impacted after the suspension of the academic calendar in March 2020. The situation was exacerbated by the closure of University Restaurants (RU), libraries (which provided books and computers), and Psychosocial Support Units (UAPS) in each sector of UFPR.

A UAPS, dentro deste setor, é uma unidade encarregada de acolher, acompanhar e encaminhar estudantes que necessitam de apoio pedagógico e/ou psicossocial, seja por iniciativa própria ou recomendação. Além disso, orienta os estudantes em questões acadêmicas, encaminhando-os para profissionais de serviços especializados, quando necessário. A UAPS também fornece orientações sobre condutas adequadas em situações desconfortáveis e adversidades envolvendo estudantes, participando da seleção de candidatos em programas de assistência estudantil.

Responsible for managing the distribution of PROBEM⁵, assistance and all program demands, the UAPS monitors the academic performance of assisted students, analyzes, advises, and handles reallocations, withdrawals, and substitutions. Moreover, it promotes sports activities, offers pedagogical support through the Peer Tutoring Program, and administers the Digital Inclusion Program (Laptop Loans) for students with approved registration by PROBEM (UFPR, 2023h).

Through the UAPS, the PRAE implemented socioeducational and assistance measures to mitigate the economic and social vulnerabilities of students, including lack of access to the internet and computers, as highlighted in Table 6.

⁵ PROBEM, created to support students with socio-economic fragility who need financial assistance to stay on the course, is made up of the following benefits, alone or in combination: Subsistence Allowance, Meal Allowance, Housing Allowance and Day Care Allowance

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Table 6 - Regulations governing the Socioeducational Measures.

Nº	Regulation (Notice)	Regulates/Provides	Period
1	Notice No. 11/2020: Emergency Meal Assistance	[...]to make public the information regarding the granting of Emergency Meal Assistance intended for student [...]	04/01/2020 until the suspension of the University Restaurant (RU) is lifted
2	Notice No. 20/2020: Pedagogical Assistance – Computer Loan Modality	[...]to make public the Notice for Pedagogical Assistance - Computer Loan Modality for students [...]	11/06/2020 and 04/01/2021.
3	Edital Nº 14/2020 - PRAE/UFPR - Auxílio Emergencial - Aquisição de Prestação de Serviços de Conexão à Rede Internet	to make public the notice for Emergency Assistance – Internet Access - COVID/19 - for the acquisition of internet connection services for undergraduate students [...]	06/09/2020
4	Edital Nº 16/2020 - PRAE/UFPR - Auxílio Emergencial - Aquisição de Prestação de Serviços de Conexão à Rede Internet	Extension and new selection of beneficiaries for the program covered by Notice No. 14/2020.	06/18/2020

Source: the authors(2023).

In response to the closure of the University Restaurant (RU), UFPR implemented support measures through Notice 11/2020, introducing emergency meal assistance for students benefiting from the PROMISAES, MEC, and PROBEM programs (housing assistance, maintenance, meals, and daycare assistance). The aim was to ensure the food security of students, prioritizing access to essential food.

After securing students' meals, UFPR, through Notice No. 20/2020, facilitated the loan of computers from computer labs and laptops for students. Although computer loans had been available before the pandemic, the duration for which students could keep the equipment was extended during this period. To request a loan, students needed to be beneficiaries of PROMISAES and/or PROBEM and apply for access to the benefit.

Notice No. 14/2020 provided emergency internet access assistance during the pandemic. In addition to ensuring internet access, this measure facilitated the continuity of studies for many students during remote learning. The requirements to participate in the selection process included being enrolled in undergraduate courses in the first semester of 2020, proving economic vulnerability through an approved registration in one of the university's assistance programs (PROBEM, PROMISAES, or PBP-Mec), having no financial liabilities with PRAE, and describing the student's

social context, justifying the need for assistance. The assistance granted was valued at R\$ 100.00, and recipients were required to provide monthly reports to PRAE.

It is important to highlight that during the suspension of in-person activities at UFPR, PRAE continued to provide remote support to students, including psychological counseling and communication via email. This relevant approach helped prevent students from abandoning their courses and mitigated socio-emotional issues arising from the ongoing crisis.

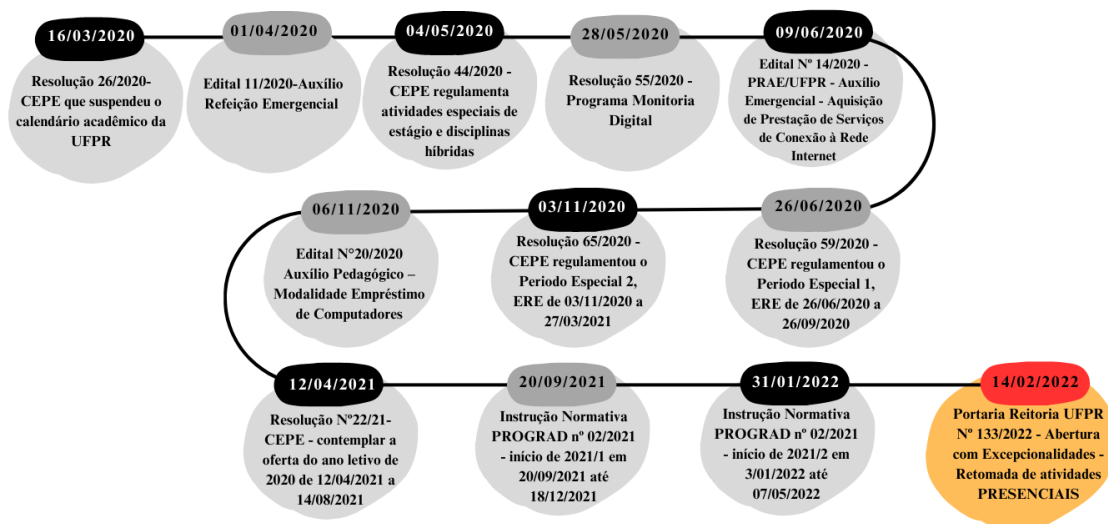
Perceptions and Reflections

The suspension of in-person activities and the academic calendar at UFPR aligned with the guidelines of local and state governments as well as global scientific movements, following the recommendations of MEC and CNE. This measure aimed not only to reduce the transmission of the virus but also to alleviate the burden on the healthcare system. It highlights the prioritization of protecting the lives of the internal community, including staff, faculty, students, and collaborators, corroborating the conclusions of Castilho and Silva (2020), who analyzed actions taken in federal institutes.

Throughout the process of suspension and the transition to remote modality, followed by a shift to a hybrid teaching format and ultimately achieving a feasible return to in-person classes, both faculty and students experienced a temporal journey marked by slowness and psychological strain. However, examining UFPR's trajectory during this period, as presented in the timeline in Figure 1, reveals the impact and uniqueness brought about by the Covid-19 pandemic. The public health emergency only ended on 05/05/2023, driven by mass vaccination, as indicated by the WHO (2023).

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Figura 1: Timeline of the main measures taken by UFPR.



Source: the authors (2023).

The situation of suspended academic calendars and the transition to remote teaching was quite heterogeneous among higher education institutions and federal institutes. However, we observed similarities between UFPR, the Federal Technological University of Paraná (UTFPR, 2020), and the Federal University for Latin American Integration (UNILA, 2020), all of which suspended their academic calendars in line with UFPR. As of July 2023, both UFPR and UTFPR had regularized their calendars, with the second semester of 2023 currently underway. However, UNILA is still in the process of calendar adjustment, as its second semester of 2022 concluded only on 06/14/2023. These facts reinforce the effectiveness of the strategies adopted by UFPR during critical moments.

Some universities, such as the Federal University of Mato Grosso do Sul (UFMT), implemented Emergency Remote Teaching (ERE) strategies starting in March 2020, without interruptions or cancellations of their academic calendars. However, as pointed out by Lima, Evangelista, and Maciel (2021), they faced internal resistance due to delays in a possible return, student preparedness, and faculty training for the implementation of ERE in other institutions. The authors also question the quality of the education offered to students, raising concerns about the potential neglect of students and learning due to the urgency in maintaining the academic calendar.

Other higher education institutions and federal institutes opted to maintain their activities in remote format right at the beginning of the pandemic; however, in May 2020, they suspended them. The decision to suspend stemmed from the "concern of the Federal Institutes regarding the provision of equal education for all their students, thus ensuring equal conditions of access and retention in

school, as stipulated by Article 206 of the Federal Constitution" (CASTILHO; SILVA, 2020, p. 31). The anxiety regarding access to technology is not new, as digital exclusion is a reality present at all levels of Brazilian education, from basic education to higher education, as discussed by Almeida et al. (2005). Furthermore, as previously mentioned, it is important to emphasize that Emergency Remote Teaching (ERE) is not the same as Distance Education (EaD), but it still requires a minimum preparation of both faculty and students for the continuity of formative processes and knowledge construction.

In this context, Figure 1 illustrates the diversity of strategies adopted by UFPR for the implementation of remote teaching, despite the necessary improvisations. It is crucial to mention the difficulties faced by students regarding access to technology, even with notices for the provision of internet access and computers. Many were unable to register, were not included in these assistance measures, or returned to their homes in rural areas without network coverage.

However, we recognize the digital inclusion initiative as one of the most significant measures for the resumption of teaching activities in a remote format. In total, 205 students benefited from the notices granting emergency assistance for internet access, and 751 students received loans for computers over the two years of the pandemic. Other actions also played important roles, such as maintaining digital monitoring and research scholarships, strengthening extension projects, and providing meal assistance. However, without access to technology, the implementation of Emergency Remote Teaching (ERE) at UFPR would not have occurred equitably in terms of access, which would have impacted students' retention and graduation, especially in teacher training programs.

Once digital inclusion was ensured, another notable measure was the flexibility of the academic calendar in special periods, configured as formative cycles, respecting the workload of each subject, as provided by the regulations of the MEC, CNE, and the Provisional Measure mentioned in the foundations of this study. Teaching activities were conducted synchronously or asynchronously, utilizing the digital information and communication technology resources provided by UFPR, such as Microsoft Teams and UFPR Virtual (remote meeting/class platform and Virtual Learning Environment).

In a specific guideline for the teacher training programs at UFPR, on 05/04/2020, Supervised Internships were optionally authorized by faculty and course committees to continue their activities virtually or non-presentially, as outlined in the regulations of the MEC and CNE. This guidance aimed to integrate theories, practices, and initiatives that incorporated educational technologies. Although

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limited, noteworthy initiatives included the proposal developed by Venturi and Lisbôa (2021) for the Supervised Internships in Science and Biology for undergraduate students in Biological Sciences at UFPR, Palotina campus – PR. Thus, we understand that such initiatives aligned with the CNE/CP Opinion No. 5/2020, aiming for the development of digital competencies and the completion of Licensure courses, as highlighted in studies by Qualho and Venturi (2021) and Costa and Venturi. (2021).

Final considerations

In the emergent context of the pandemic, we identified significant actions implemented by UFPR to mitigate the inequalities arising from the needs for emergency remote teaching and social distancing. Initially, the priority was the health of both the internal and external community, emphasizing non-negotiable values related to health and life, despite the denialist propaganda from authorities unworthy of mention in this text.

Subsequently, the resumption of the academic calendar was delayed due to concerns about access and the need for digital inclusion (internet and computers) for a significant portion of students. Following this, a proposal was made to relax the calendar, keeping it suspended in 2020 while creating special remote periods. This approach allowed for the continuation of studies for those in their final stages of their courses without hindering students facing various obstacles in pursuing their education. In the fourth phase, the academic calendar resumed in 2021, with adjustments and the incorporation of Digital Information and Communication Technologies (TDIC).

Specifically, for the teacher training programs in the areas of Natural Sciences and Mathematics, there were formative challenges but also gains in terms of technological and digital competencies, aspects that will be further explored in future research.

In the next steps, we will investigate institutional measures aimed at promoting retention and preventing dropout among teacher training students in Natural Sciences and Mathematics during the Covid-19 pandemic. Studies will also be conducted to analyze the formative implications of teaching and learning processes during remote instruction, as well as the impacts on dropout rates in these programs during the pandemic period.

Finally, we acknowledge that the trajectory and institutional measures described were not ideal, but rather the best possible within the democratic options available in a university of the size and scope of UFPR. The consequences of these measures need to be explored through research in the

field of education, encompassing impacts on the mental health of faculty, students, and technical staff at the university, as well as the reflections on retention and the formative development of the policies adopted, especially in teacher training programs.

References

- ALMEIDA, L. B. De.; PAULA, L. G. De.; CARELLI, F. C.; OSÓRIO, T. L. G.; & GENESTRA, M. O retrato da exclusão digital na sociedade brasileira. **JISTEM - Journal of Information Systems and Technology Management**, v. 2, n. 1, p. 55–67, 2005. DOI: 10.1590/S1807-17752005000100005.
- ANDRADE, F. R. J.; CAVAGNAC, M. D. Serviço Social e universidade em tempos de ensino remoto emergencial. **Serviço Social & Sociedade**, [S.L.], n. 144, p. 52-70, set. 2022. FapUNIFESP (SciELO). <http://dx.doi.org/10.1590/0101-6628.280>.
- BARDIN, L. **Análise de conteúdo**. São Paulo: Edições 70, 1977. 141 p.
- BARTELMEBS, R. C.; VENTURI, T. SOUSA, R. S. Pandemia, negacionismo científico, pós-verdade: contribuições da pós-graduação em educação em ciências na formação de professores. **Revista Insignare Scientia**, [S.L.], v. 4, n. 5, p. 64-85, 2021. Disponível em: <https://periodicos.uffs.edu.br/index.php/RIS/article/view/12564/8056>. Acesso em: 05 abr. 2023.
- BOGDAN, R.; BILKEN, S. **Investigação Qualitativa em Educação**. Coleção Ciências da Educação. Porto: Porto Editora. 1994
- BRASIL. Congresso Nacional. **Medida Provisória nº 934, de 2020**. Estabelece normas excepcionais sobre o ano letivo da educação básica e do ensino superior decorrentes das medidas para enfrentamento da situação de emergência de saúde pública de que trata a Lei nº 13.979, de 6 de fevereiro de 2020t. Brasília, 06 de fevereiro de 2020.
- BRASIL. Diário Oficial da União. **Lei nº 14.040, de 18 de agosto de 2020**. Estabelece normas educacionais excepcionais a serem adotadas durante o estado de calamidade pública reconhecido pelo Decreto Legislativo nº 6, de 20 de março de 2020; e altera a Lei nº 11.947, de 16 de junho de 2009. Brasília, 19 de agosto de 2020c.
- BRASIL. **Lei nº 9.394, de 20 de dezembro de 1996**. Estabelece as diretrizes e bases da educação nacional. Brasília, 1996r.
- BRASIL. Ministério da Educação. Conselho Nacional de Educação. **Parecer CNE/CP nº 9/2020**. Reorganização do Calendário Escolar e da possibilidade de cômputo de atividades não presenciais para fins de cumprimento da carga horária mínima anual, em razão da Pandemia da COVID-19. Brasília, 28 de abril de 2020.
- BRASIL. Ministério da Educação. Conselho Nacional de Educação. **Parecer CNE/CP Nº: 11/2020**. Orientações Educacionais para a Realização de Aulas e Atividades Pedagógicas Presenciais e Não Presenciais no contexto da Pandemia. Brasília, 7 de julho de 2020d.
- BRASIL. Ministério da Saúde. **Portaria nº 356, de 11 de março de 2020**. Dispõe sobre a regulamentação e operacionalização do disposto na Lei nº 13.979, de 6 de fevereiro de 2020, que estabelece as medidas para enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus (COVID-19).

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BRASIL. **Portaria N° 356, de 11 de março de 2020a**. Dispõe sobre a regulamentação e operacionalização do disposto na Lei n° 13.979, de 6 de fevereiro de 2020, que estabelece as medidas para enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus (COVID-19). Diário Oficial da União. Ministério da Saúde. 12 mar. 2020, ed. 49, Seção 1, p. 185.

CASTILHO, M. L.; SILVA, C. N. N. A COVID-19 E A EDUCAÇÃO PROFISSIONAL E TECNOLÓGICA: um panorama das ações de acompanhamento e enfrentamento da pandemia nos institutos federais. **Revista Nova Paideia - Revista Interdisciplinar em Educação e Pesquisa**, [S.L.], v. 2, n. 3, p. 18-34, 14 set. 2020. Revista Nova Paideia. <http://dx.doi.org/10.36732/riep.v2i3.60>. Disponível em: <https://ojs.novapaideia.org/index.php/RIEP/article/view/41/32>. Acesso em: 12 abr. 2023.

COSTA, P. A. G.; VENTURI, T. Relato de experiência sobre o estágio supervisionado em Biologia: os desafios no processo de ensino e aprendizagem de Biologia face à pandemia. **Revista Brasileira de Educação em Ciências e Educação Matemática**, [S. l.], v. 6, n. 2, p. 286–303, 2022. Disponível em: <https://e-revista.unioeste.br/index.php/rebecem/article/view/28317>. Acesso em: 9 maio. 2023.

LÜDKE, M.; ANDRÉ, M. E. D. A. **Pesquisa em educação: abordagens qualitativas**. São Paulo: EPU, 1986.

NÓVOA, A.; ALVIM, Y. C. COVID-19 E O FIM DA EDUCAÇÃO 1870 - 1920 - 1970 - 2020. História da Educação, [S.L.], v. 25, p. 01-19, 2021. **FapUNIFESP (SciELO)**. <http://dx.doi.org/10.1590/2236-3459/110616>. Disponível em: <https://www.scielo.br/j/heduc/a/KNh6dGg9qLCjMknGPffLz4j/>.

ORGANIZAÇÃO MUNDIAL DA SAÚDE (OMS). **Vacinas para o covid-19**. 2023. Disponível em: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines>. Acesso em 10 mai. 2023.

QUALHO, V. A.; VENTURI, T. Articulação teoria e prática no estágio supervisionado remoto em biologia: vivência, formação e percepções em tempos de pandemia. **Revista de Ensino de Biologia da SBEnBio**, [S. l.], v. 14, n. 1, p. 487–504, 2021. DOI: 10.46667/renbio.v14i1.457.

RODRIGUES, Antonia Railene de Souza. Impactos na educação superior e o uso das tecnologias digitais durante da pandemia do novo coronavírus. **Kiri-Kerê - Pesquisa em Ensino**, [S.L.], v. 1, n. 15, p. 133-149, 29 jun. 2023. Universidade Federal do Espírito Santo. <http://dx.doi.org/10.47456/krkr.v1i15.39494>. Disponível em: <https://periodicos.ufes.br/kirikere/article/view/39494/27677>. Acesso em: 23 nov. 2023.

SÁ-SILVA, J.; ALMEIDA, C.; GUINDANI, J. 2009. Pesquisa documental: pistas teóricas e metodológicas. **Revista Brasileira de História & Ciências Sociais**, São Leopoldo, v. 1 n. 1, 2009. Disponível em: <https://periodicos.furg.br/rbhcs/article/view/10351>. Acesso em: 30 jan.2023

UNIVERSIDADE FEDERAL DA INTEGRAÇÃO LATINO-AMERICANA - UNILA (Foz do Iguaçu). Ministério da Educação. **Calendário Acadêmico da Graduação**. 2020. Disponível em: <https://portal.unila.edu.br/estudantes/calendario-academico-graduacao>. Acesso em: 15 maio 2023.

UNIVERSIDADE FEDERAL DO PARANÁ. Conselho de pesquisa, ensino e extensão. **Resolution nº26/20 CEPE**. Dispõe sobre a suspensão dos calendários acadêmicos dos cursos de graduação, pós-graduação e de educação profissional e tecnológica. Curitiba, 17 de março de 2020a.

UNIVERSIDADE FEDERAL DO PARANÁ. Conselho de Planejamento e Administração (COPLAD). **Resolution nº 67/19-COPLAD**. Fixa o Regimento da Pró-Reitoria de Extensão e Cultura da Universidade Federal do Paraná. 2021f.

UNIVERSIDADE FEDERAL DO PARANÁ. Programa Emergencial de Monitoria Digital. **EDITAL Nº 03/2020 - PROGRAD/COAFE/MONITORIA**. Torna público o edital para submissão de propostas ao Programa Emergencial de Monitoria Digital destinado ao apoio das disciplinas desenvolvidas de forma remota, cujo funcionamento no Período de sua vigência, esteja devidamente amparado em resoluções e instruções do CEPE, em todo o âmbito da UFPR. Curitiba, 09 de outubro de 2020b.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-Reitoria de Assuntos Estudantis – PRAE. **Edital 14/2020 - prae/ufpr auxílio emergencial - aquisição de prestação de serviços de conexão à rede internet**. Torna público o edital de Auxílio Emergencial – Acesso à Internet - COVID/19- para aquisição de serviço de conexão à rede internet para estudantes de graduação e educação profissional e tecnológica da UFPR. Curitiba, 09 de junho de 2020.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-Reitoria de Assuntos Estudantis – PRAE. **Atendimento Social**. Curitiba, 2023h. Disponível em: <http://www.prae.ufpr.br/prae/atendimento/atendimento-social/>. Acesso em 10 jan. 2023.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-Reitoria de Extensão e Cultura. **Edital proec/ufpr n.º 04/2020 - fortalecimento de atividades contínuas e remotas de extensão**. Torna público o Edital de apoio financeiro para as ações extensionistas contínuas de projetos e programas de Extensão em 2020, em caráter remoto e/ou presencial que estejam em consonância com as orientações da comissão epidemiológica da UFPR. Curitiba, 21 de outubro de 2020g.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-reitoria de Graduação e Educação Profissional. **Edital 01/2020-PROGRAD/COAFE/LICENCIAR. ATO DE RETIFICAÇÃO Nº 01/2020**. Torna pública a seguinte RETIFICAÇÃO das normas que regem o Programa Licenciar 2020, especificamente quanto as datas do envio da proposta, cronograma de atividades e início das atividades.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-reitoria de Graduação e Educação Profissional. **Edital 01/2020- PROGRAD/COAFE/LICENCIAR**. Dispõe sobre a seleção de projetos do Programa Licenciar para execução no ano de 2020. Curitiba, 17 de março de 2020c.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-reitoria de Graduação e Educação Profissional. **Edital nº 01/2021-PROGRAD/COAFE/LICENCIAR/2021**. Dispõe sobre a seleção de projetos do Programa Licenciar para execução no ano de 2021. Curitiba, 11 de março de 2021e.

UNIVERSIDADE FEDERAL DO PARANÁ. Pró-reitoria de Graduação e Educação Profissional. **EDITAL Nº 04/2020 - PROGRAD/COAFE/LICENCIAR**. publica o presente edital específico de Seleção dos Bolsistas do Programa Licenciar, para atendimento ao disposto no item 2.5 do Edital 03/2020 PROGRAD/COAFE/LICENCIAR. Curitiba, 11 de maio de 2020d.

UNIVERSIDADE FEDERAL DO PARANÁ. UAPS – **Unidade de Apoio Pedagógico e Psicossocial Portal da Informação**. Jandaia do Sul. 2023. Disponível em: <https://jandaiadosul.ufpr.br/uaps-unidade-de-apoio-psicossocial/>. Acesso em: 22 fev.2023

UNIVERSIDADE TECNOLÓGICA FEDERAL DO PARANÁ (UTFPR). **Calendários acadêmicos de 2021**. Publicados os calendários acadêmicos para o ano de 2021. 8 de dezembro de 2021.

Institutional Measures of the Federal University of Paraná for Coping with the Covid-19 Pandemic: implications in the context of teacher education programs in the Natural Sciences and Mathematics

VELOZO, F. S.; WALESKO, A. M. H. Estágio Supervisionado Remoto de Línguas Estrangeiras em Tempos de Pandemia: Experiências e Percepções na UFPR. **Rev. Nova Paideia -Revista Interdisciplinar em Educação e Pesquisa**: Brasília/DF, v. 2, n. 3. n.esp. p.35-57, 2020.

VENTURI, T. LISBÔA, E. S. ESTÁGIO EM TEMPOS DE PANDEMIA: MUDANÇAS DE PARADIGMA NA CONCEPÇÃO E OPERACIONALIZAÇÃO NO ENSINO SUPERIOR. **Cenas Educacionais**, [S. l.], v. 4, p. e10746, 2021. Disponível em: <https://revistas.uneb.br/index.php/cenaseducacionais/article/view/10746>. Acesso em: 9 maio. 2023.



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