

ADAPTATION AND FUTURE CHALLENGES FOR PUBLIC UNIVERSITIES IN BRAZIL IN THE FACE OF THE COVID-19 PANDEMIC

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INTRODUCTION

The COVID-19 pandemic forced Higher Education Institutions (HEIs) around the world to adapt quickly to face the new realities imposed by the global health crisis. Especially in less developed countries, the pandemic further exposed the weaknesses of different sectors of the economy and government, as well as social inequalities (Pires, 2020). The pandemic also undoubtedly highlighted the interdependence of countries, but it also simultaneously triggered nationalist reactions, closing borders (Butler, 2020), and a fierce dispute over the supply of inputs and equipment by several countries to supply their populations.

In Brazil, as soon as COVID-19 led to social isolation, several Brazilian public universities redirected human and financial resources, in an unprecedented effort, to carry out a quite wide range of actions. Those actions focused not only in research, but also in teaching and charity activities, whether by engaging in the international effort of science and technology, on the most varied fronts - unraveling the structure of the virus, searching for medicines and vaccines, or offering assistance to governments - or expanding the capacity of University hospitals to serve the population, among numerous other (Gimenez, Souza, & Feltrin, 2020).

Universities have faced the urgent need for remote education, which poses several challenges for teachers and students. For educators, the challenge was to change from an already established form of teaching to a new format with new pedagogy, preparation, and conduct of classes. For many students, the challenge was to access the technology needed to attend online classes (computers, high speed internet), as well as to deal with factors such as housing costs, interruption of research and experiments, etc. For both, these changes took place in a scenario of economic and health uncertainty, in addition to bringing the need to reconcile domestic affairs with the discipline needed to plan and establish work and study routines in a less structured environment (Aquino, Silveira, Pescarini, Aquino, & Souza-Filho, 2020; Cruz et al., 2020, Saraiva, Oliveira, & Morejon, 2020, Senhoras, 2020). Those challenges, in turn, caused a severe strain on mental health.

Despite budget cuts (aggravated by the steep decrease in tax collections) and questions raised about their role in the society, Brazilian universities have tried to fully maintain all student support programs, such as scholarships and housing assistance. For these reasons, in many cases, it was necessary to start partnerships with companies or carry out donation campaigns for the continuity of research and attendance at University. This is the case of University of Campinas, a large public research university in the state of São Paulo that has been conducting donations campaigns of food, medical supplies, money, computers, internet plans, etc.

Thus, Brazil, a large country with important regional disparities, saw the increase of already high rates of unemployment, informality, illiteracy, and poverty. A study published in 2019 found that income inequality in Brazil, in 2018, reached its highest level since the beginning of the series of national statistics in 2012, reflecting an economic slowdown that affected the poorest portion of the population (Neri, 2019). Another study by Oliveira, Jungstedt, Audibert, and Meirelles (2020) pointed out that 43.3% of the Brazilian population lives in municipalities with vulnerabilities in relation to the equipment needed to treat COVID-19, such as beds in hospitals and respirators. Besides that, Baqui, Bica, Marra, Ercole, & van Der Schaar (2020), evaluated regional variations in patients with COVID-19 admitted to hospital and concluded that a higher risk of death among Pardo and Black Brazilians and in the north region of Brazil.

In this context, the pandemic has exposed that, while it is important to make the University accessible to the low-income population¹, University it is necessary to have equal opportunities and study conditions. Distance learning showed a profound digital inequality, making it impossible for many students to follow the classes properly, as pointed out by Gimenez, Souza, and Feltrin (2020).

The present work delves on the challenges that Brazilian public universities face during and after the post-COVID-19 world, taking as a starting point the complex shift to virtual classes, which kept approximately 700 thousand students (out of more than 1.1 million) without classes. We focus our attention on federal universities because they have a high level of representation and capillarity in Brazil and available online data. We consider official data from the Ministry of Education (MEC), in addition to the recent literature on the impacts of the pandemic.

CHALLENGES FACED BY FEDERAL UNIVERSITIES IN COVID-19 TIMES

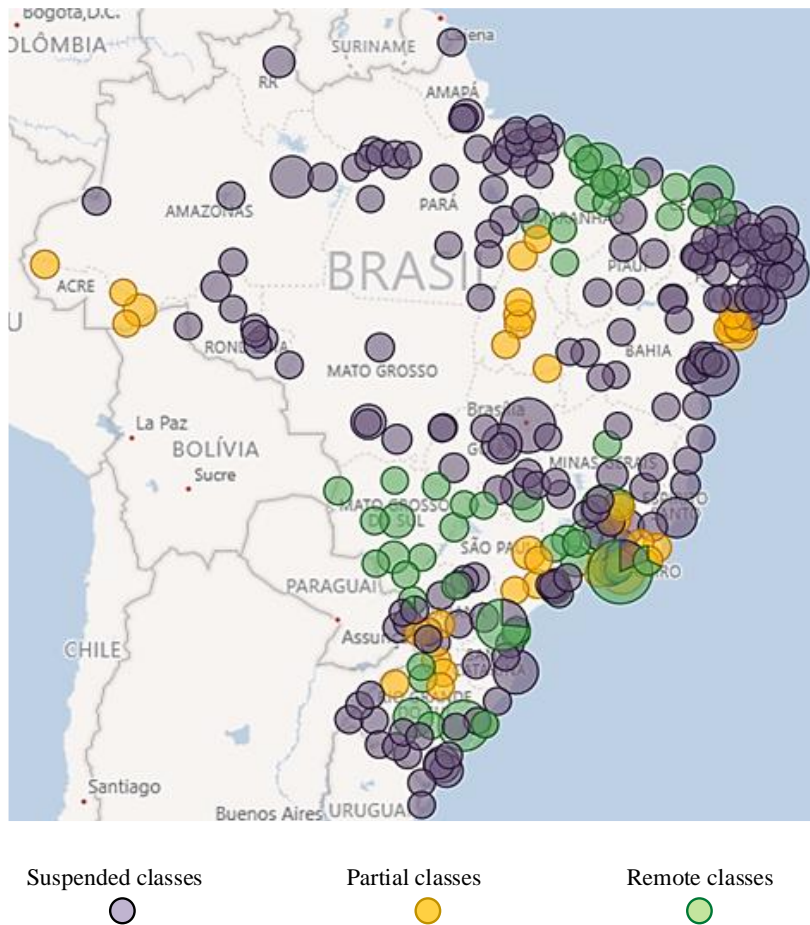
Data from the Ministry of Education (on August 1, 2020) indicated that in the federal education system there were approximately 1,650 ongoing actions² to combat COVID-19, aimed at reaching more than 25 million people, which demonstrates the engagement of these institutions with the solution of the problems triggered by the pandemic. On the other hand, remote teaching activities could not be fully implemented due to the reasons mentioned before. Some institutions were able to overcome many of the hurdles employing campaigns for computer and notebook donations, as well as by offering free Internet access to students from less privileged social classes, as mentioned by Lauretti (2020), Said (2020), Cruz (2020), and Guimarães (2020).

Remote classes were not carried out in approximately 67% of the 110 institutions of the federal education system (69 universities and 41 educational institutes and centers). Only 23 of the 69 universities offered remote education (on August 1, 2020). The number of students who did not have access to education ranged from 960 thousand May to 700 thousand (August), out of 1.1 million students who are enrolled in federal universities. In March 2020, approximately 60% of federal universities could not implement remote classes during quarantine (Palhares, 2020). The justification was the lack of resources and structure to offer online classes with the same quality as face-to-face classes (Palhares, 2020), as well as the difficulty experienced by many students to access the resources needed to attend remote classes (Paixão, 2020). Figure 1 shows the current picture of teaching activities at federal universities.

¹ In 2012, an affirmative action called Quota Law expanded access to higher education by placing students from low-income families in public universities. (Federal Act nº 12.711, 29 August, 2012).

² Manufacture of hand sanitizer, maintenance and repair of hospital equipment, preparation of educational materials on the Coronavirus, scientific dissemination, development of vaccines and diagnostic tests, loan of laboratory equipment, training, and qualification of health professionals, and others (MEC, 2020).

Figure 1. The situation of Classes at Brazilian Federal Universities



Source: Adapted and translated from the Ministry of Education (MEC) - Brazil (31 July, 2020).

A survey carried out in 2019 by the Regional Center for Studies for the Development of the Information Society (Cetic.br) found that 30% of Brazilian households had neither access to a computer nor to the Internet. The survey also found that 85% of the internet access in the poorest sections of the Brazilian population was carried out by mobile devices. This type of service provides is more expensive and less reliable than broadband internet making attending remote classes less feasible. Therefore, when thinking about remote education, this is a structural issue that needs to be considered. Besides, many students only had access to the internet through universities or using service providers (LAN houses, cafes, etc.) which could not work during the quarantine.

CHALLENGES DUE TO COVID-19

From a teaching point-of-view, Brazilian Universities should be more prepared to face the challenges that arise in crises such as the COVID pandemic, as discussed by Bonacelli and Garcia (2020). The Brazilian federal higher education system has not been able to maintain educational activities, leaving over 60% of students without classes. As a result, after the pandemic a significant number of students will

have outdated curricular content and may have dropped out of the course (particularly due to economic issues). This situation occurs during the so-called 'information age', whose benefits clearly do not reach everyone. As emphasized by Manoel Castells, the 'network society', characterized by a new technological paradigm that is organized around information and communication technologies integrating the world into global networks, may accentuate and expose inequalities (Castells, 1999, 2005).

According to a global projection covering 180 countries, carried out by The United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020), about 24 million children and young people, from pre-primary education to tertiary education, are at risk of dropping out or not having access to education next year due to the economic impact of the pandemic. Another report, prepared by The UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC) (2020), recommends that governments should regard higher education as an instrument of economic and social recovery and that HEIs guarantee equal access to classes for all their students.

Brazilian Universities are facing an unprecedented scarcity of financial resources, a tendency that was already a reality even before the COVID-19 pandemic. As a result, teaching, research and extension activities will suffer, and loss of quality will be almost inevitable. In order to mitigate these deleterious effects, new partnerships may be necessary to bring the resources and skills needed to keep those activities running. This is particularly important considering that, given the inevitable worldwide recession that will follow the pandemic, robust support systems (health assistance, food, housing) will be crucial to prevent low income students to drop out the school. However, Brazilian public Universities need to evolve, both technically and culturally, in order to properly benefit from this new reality. The pandemic has accelerated the process of remote education expansion, And the lessons learned need to be properly explored to modernize and rethink our universities.

Also, the new reality that unveils will require curricula and teaching practices that are connected both to major global challenges and to local problems and demands, as global and local needs become increasingly interconnected and interdependent.

REFERENCES

- Aquino, E. M., Silveira, I. H., Pescarini, J. M., Aquino, R., & Souza-Filho, J. A. de. (2020). Medidas de distanciamento social no controle da pandemia de COVID-19: Potenciais impactos e desafios no Brasil. *Ciência & Saúde Coletiva*, 25, 2423–2446. <https://doi.org/10.1590/1413-81232020256.1.10502020>
- Baqui, P., Bica, I., Marra, V., Ercole, A., & van Der Schaar, M. (2020). Ethnic and regional variations in hospital mortality from COVID-19 in Brazil: a cross-sectional observational study. *The Lancet Global Health*. [https://doi.org/10.1016/S2214-109X\(20\)30285-0](https://doi.org/10.1016/S2214-109X(20)30285-0)
- Bonacelli, M., B., M., Garcia, N. L. Ensino, Pesquisa e Formação na (pós)Covid19 e a Universidade que Precisamos. *Boletim Covid-19 - DPCT/IG n.º 17 – 27 julho de 2020*. Retrieved from <https://www.unicamp.br/unicamp/noticias/2020/07/28/ensino-pesquisa-e-formacao-na-pos-covid-19-e-universidade-que-precisamos>
- Cruz, R. M., Borges-Andrade, J. E., Moscon, D. C. B., Micheletto, M. R. D., Esteves, G. G. L., Delben, P. B.,... Carlotto, P. A. C. (2020). COVID-19: Emergência e impactos na saúde e no trabalho.

- Revista Psicologia Organizações e Trabalho*, 20(2), I-III. Retrieved from http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1984-66572020000200001
- Butler, J. (2020). *Judith Butler sobre a Covid-19: O capitalismo tem seus limites*. Tradução de Artur Renzo, para o Blog da Boitempo. Publicado em 20/03/2020. Retrieved from <https://blogdaboitempo.com.br/2020/03/20/judith-butler-sobre-o-covid-19-o-capitalismo-tem-seuslimites/>
- Castells, M. (2005). Chapter 1: The Network Society: from Knowledge to Policy. In Castells, Manuel & Cardoso, Gustavo (Eds.). *The Network Society: From Knowledge to Policy*. (pp. 3-21). Washington, DC: Johns Hopkins Center for Transatlantic Relations.
- Castells, M. (1999). *A Sociedade em rede. (A era da informação: economia, sociedade e cultura)*. V.1. São Paulo: Paz e Terra.
- Clarivate Analytics. (2019). *Research in Brazil: Funding excellence*. Analysis prepared on behalf of CAPES by the Web of Science Group. Retrieved from https://jornal.usp.br/wp-content/uploads/2019/09/ClarivateReport_2013-2018.pdf
- Cruz, A. (12 May, 2020). *USP distribui mais de 2 mil kits internet para estudantes com necessidades socioeconômicas*. Retrieved from <https://jornal.usp.br/institucional/usp-distribui-mais-de-2-mil-kits-internet-para-estudantes-com-necessidades-socioeconomicas/>
- Gimenez, A. M. N., Souza, G., & Feltrin, R. (2020). Para além do ensino, da pesquisa e da extensão: iniciativas e respostas das universidades brasileiras para o enfrentamento da COVID-19. *Revista Tecnologia e Sociedade*, 16(43), p. 116-137. Retrieved from <https://periodicos.utfpr.edu.br/rts/article/view/12401>
- Guimarães, E. (10 July, 2020). *Campanha recolhe computadores para doar a estudantes sem recursos*. Retrieved from https://www.em.com.br/app/noticia/gerais/2020/07/10/interna_gerais,1164702/campanha-recolhe-computadores-para-doar-a-estudantes-sem-recursos.shtml
- Lauretti, P. (8, April, 2020) *Alunos conectados: começa entrega de chips e equipamentos de informática*. Retrieved from <https://www.unicamp.br/unicamp/noticias/2020/04/08/alunos-conectados-comeca-entrega-de-chips-e-equipamentos-de-informatica>
- Lima, R. C. (2020). Distanciamento e isolamento sociais pela Covid-19 no Brasil: Impactos na saúde mental. *Physis: Revista de Saúde Coletiva*, 30, e300214. <https://doi.org/10.1590/s0103-73312020300214>
- Maia, B. R., & Dias, P. C. (2020). Ansiedade, depressão e estresse em estudantes universitários: O impacto da COVID-19. *Estudos de Psicologia (Campinas)*, 37. <https://doi.org/10.1590/1982-0275202037e200067>
- Ministério da Educação – MEC. *Corona Vírus - Monitoramento nas Instituições de Ensino – MEC*. Retrieved from: <http://portal.mec.gov.br/coronavirus/>
- Neri, M. C. (2019). *A escalada da desigualdade*. Qual foi o Impacto da Crise sobre a Distribuição de Renda e a Pobreza? (2019). Rio de Janeiro, RJ: FGV. Social, 34p. Retrieved from <https://cps.fgv.br/slide/escalada-da-desigualdade-qual-foi-o-impacto-da-crise-sobre-distribuicao-de-renda-e-pobreza>

- Oliveira, W., Jungstedt, L., Audibert, P., & Meirelles, B. (2020). *43% da população brasileira mora em municípios sem estrutura recomendada de respiradores ou leitos de UTI*. FGV DAPP. Retrieved from http://dapp.fgv.br/43-da-populacao-brasileira-mora-em-municipios-sem-estrutura-recomendada-de-respiradores-ou-leitos-de-uti/?utm_source=portal-fgv&utm_medium=fgvnoticias&utm_campaign=fgvnoticias-2020-04-24
- Ornell, F., Schuch, J. B., Sordi, A. O., & Kessler, F. H. P. (2020). Pandemia de medo e COVID-19: Impacto na saúde mental e possíveis estratégias. *Revista Debates in Psychiatry*. <http://dx.doi.org/10.25118/2236-918X-10-2-2>
- Paixão, A. (14 May, 2020). Só 6 das 69 universidades federais adotaram ensino a distância após paralisação por causa da Covid-19. Retrieved from <https://g1.globo.com/educacao/noticia/2020/05/14/so-6-das-69-universidades-federais-adotaram-ensino-a-distancia-apos-paralisacao-por-cao-da-covid-19.ghtml>
- Palhares, I. (31 March, 2020). 60% das universidades federais rejeitam ensino a distância durante quarentena. *Folha de São Paulo*. Retrieved from <https://www1.folha.uol.com.br/educacao/2020/03/60-universidades-federais-rejeitam-ensino-a-distancia-durante-quarentena.shtml>
- Pires, R. R. C. (2020). Os Efeitos sobre grupos sociais e territórios vulnerabilizados das medidas de enfrentamento à crise sanitária da Covid-19: Propostas para o aperfeiçoamento da ação pública. Retrieved from <http://repositorio.ipea.gov.br/handle/11058/9839>
- Said, T. (17 July, 2020) *Estudantes da USP se organizam para combater os efeitos da pandemia*. Retrieved from <https://jornal.usp.br/universidade/estudantes-da-usp-se-organizam-para-combater-os-efeitos-da-pandemia/>
- Saraiva, I. Z., Oliveira, N. S. M. N., & Morejon, C. F. M. (2020a). Impactos das Políticas de Quarentena da Pandemia Covid-19, Sars-Cov-2, sobre a CT&I Brasileira: Prospectando cenários pós-crise epidêmica. *Cadernos de Prospecção*, 13(2 COVID-19), 378. <http://dx.doi.org/10.9771/cp.v13i2%20COVID-19.36066>
- Schmidt, B., Crepaldi, M. A., Bolze, S. D. A., Neiva-Silva, L., & Demenech, L. M. (2020). Saúde mental e intervenções psicológicas diante da pandemia do novo coronavírus (COVID-19). *Estudos de Psicologia* (Campinas), 37, e200063. <https://doi.org/10.1590/1982-0275202037e200063>
- Senhoras, E. M. (2020). Coronavírus e Educação: Análise dos Impactos Assimétricos. *Boletim de Conjuntura (BOCA)*, 2(5), 128–136. Retrieved from <https://zenodo.org/record/3828085#.XzIj6ehKg2w>
- UNESCO. (30 July, 2020). *UNESCO COVID-19 education response: how many students are at risk of not returning to school? Advocacy paper*. UNESCO: Paris. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000373992>
- UNESCO IESALC (9 April, 2020). *COVID-19 and higher education: today and tomorrow. Impact analysis, policy responses and recommendations*. Retrieved from <http://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf>