

## INFORMATION AND COMMUNICATION SYSTEM: CHALLENGES FOR BRAZILIAN PUBLIC UNIVERSITIES IN THE FACE OF THE COVID-19 PANDEMIC

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### *Telêmaco Pompei*

Doctoral student at the institution:

“Universidade Fernando Pessoa” – Porto,  
Portugal

Master in Administration. Faculdades  
Integradas de Pedro Leopoldo,

Professor at the institution: “Instituto Federal  
de Educação, Ciência e Tecnologia Sudeste” –  
Campus Muriaé-MG

<https://Orcid.org/0000-0003-4509-5405>

<https://lattes.cnpq.br/3696277454498833>

### *Luís Manuel Borges Gouveia*

Professor at the institution: “Universidade  
Fernando Pessoa” – Porto, Portugal

<https://Orcid.org/0000-0002-2079-3234>

<http://homepage.ufp.pt/lmbg/>

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**Abstract:** The COVID-19 pandemic has negatively impacted all sectors of society around the world with significant challenges, in particular for Brazilian public universities with regard to the use of information and communication systems. There was a need to cancel face-to-face classes and institutions had to adapt quickly to offer emergency remote teaching to ensure the continuity of academic activities. In this context, the objective of this article was to reflect on the challenges imposed by the COVID-19 pandemic, on Brazilian education as a whole, with a focus on universities of the public network, and the use of Information Systems and Technology and of communication. For that, we used the bibliographical research with articles and publications extracted online, with a qualitative approach, using the following isolated or associated keywords in Portuguese and English: Pandemia, COVID-19, Challenges, Perspectives, Universities. Information and communication technology is an essential tool in the teaching-learning process at Universities, especially nowadays, when we need to face the pandemic, but with quality in education, in view of the need to overcome all challenges, since taxes and those that are surely yet to come.

**Keywords:** Education. Pandemic. Information and communication system.

## INTRODUCTION

The whole world was surprised by a pandemic, unprecedented, by COVID-19, imposing challenges in all sectors of society (health, education, economy, socio-cultural), with alarming expansion worldwide, including in Brazil, where it established itself a worrying scenario, according to the released numbers of infected and deaths.

The challenges affect all sectors in the world, notably education, breaking with traditional face-to-face teaching models, from basic

education to higher education. No different, Brazil followed this trend.

The impacts have been of exponential proportions with the suspension of the academic calendar in all public and private schools, forcing them to create strategies for teaching and learning to continue, even if online – at a distance, what can we do? call it “emergency remote education.” Such measures are protective actions, one of which is social isolation in order to prevent and/or reduce the spread of the virus.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020a), in Latin America, more than 95% of students are out of school temporarily due to the COVID-19 pandemic. And, in the world approximately 91% for the same reason (Unesco, 2020a, b).

However, schools in general face major challenges, because with this modality implemented (online) due to social isolation, notably many students do not have access to ‘new’ technologies, especially those from the public network, since we know that the vast majority of these schools are not adequately equipped for this type of teaching-learning.

This article has the following question: What are the limitations and challenges to be faced by public Universities regarding the insertion and use of the information and communication system in teaching-learning?

In view of the above, the objective of this article was to reflect on the challenges imposed by the COVID-19 pandemic, on Brazilian education as a whole, with a focus on Universities of the public network, and the use of Information. For that, we used bibliographical research, based on the search for online publications, in databases such as Scielo and other sources.

## THEORETICAL REFERENCE

The world has changed so quickly and

surprisingly in every sense of human life, due to this COVID-19 pandemic, affecting life in general. Education was significantly affected at all levels.

Discussions about higher education in Brazil have intensified in recent decades, especially with regard to the growing demand for training. We emphasize that Brazil arrived at the 21st century with one of the lowest rates of access to higher education, with an index below 12%, mainly in the 18-24 age group, in relation to other Latin American countries (Bolivia (20.6%), Chile (20.6%), Argentina (40%)) (BRENNAND & BRENNAND, 2012).

With the re-democratization of Brazil in the 1980s, as a consequence of the promulgation of the Constitution of the Federative Republic of Brazil, in 1988, called "Citizen Constitution", with the fundamental rights determined and guaranteed therein, one of them the right to education, several devices inherent to education were consolidated (BRAZIL, 1988).

Later, in 1996, the Law of Guidelines and Bases of National Education n° 9394 (LDBEN) was sanctioned, regulating all Brazilian education, a norm that allowed a new formatting of national education, including changes in higher education, which allowed the increase number of private universities (Brazil, 1996).

The expansion of private Universities in Brazil was made possible by the aforementioned Law and also by the political architecture at the center of federal power. However, if on the one hand, such expansion and flexibility of these institutions was possible, remembering that the greatest concentration of these institutions is in the South and Southeast regions, and access to them, on the other hand, there was, in a way, the neglect of training of quality that, in fact, facilitated individual and social changes (BARTHOLO, 2019).

And, it seems to us that such negligence is more pronounced nowadays, due to the

(negative) impacts caused by the pandemic, because, with the suspension of classes, closed schools, universities students – like others – taking online classes, a questioning arises – does everyone have the necessary and indispensable access to technologies? Do those furthest from urban centers have the least knowledge of information and communication systems, internet that enables such access?

According to Massi (2015), "the simple concept of Information and Communication Technologies seems to point to more effective changes, since technology is now used as a source and means of producing information and as a new form of communication" (p. 1).

It would be a new language in teaching-learning, in education relations, "with memory/visual, written and oral records, new structures of multimodal statements, new formats of communication and social interaction, which imply new forms of understanding and cognitive development" (MASSI, 2015, p. 1). And, the author also says, that, in addition, "the massive insertion of technologies in the modes of production requires a new education (MASSI, 2015, p. 1).

In this scenario, the information and communication system would become an instrument that would replace old face-to-face classroom resources, such as the blackboard, printed texts and notebooks. It would become – as it has been in this pandemic period – videoconference, with slide show – shared among all students. And all of this, perhaps the most important thing in this process, must make sense in the lives of not only students, but also teachers.

Brazilian public Universities, as we know, lack infrastructure modernization on many campuses and, currently, education – at all levels – is fragmented, even left to its own devices. It is the State's responsibility to instrumentalize the Universities, prepare

professors, qualify them, to face these challenges, now imposed, as a result of this pandemic and, for the near future.

It was stated that:

[...] It was invested insufficient resources in educational infrastructure, pays teachers with low wages and conditions the training of students to market interests [...] the lack of media infrastructure at school makes it difficult for students and teachers to enter society information. The new technologies are already contemplated in the Curriculum for education. It is up to public managers to insert them, with greater efficiency, in the public school network" (DIOGINIS et al., 2015, p. 1156).

All this is perceived, both by students and teachers. In many public Universities, few students have access to technological resources. And, it is important to point out that accessibility depends on the implantation and implementation of a computer network, with internet access, a computer room (telematics network - computer and telecommunication), that is, adequately equipped, which serves as many students as possible, audiovisual equipment, among others.

One of the great challenges announced by the Ministry of Education (MEC) is to direct the present and potential benefits of ICTs to all Brazilians, to avoid the deepening of social inequalities and the digital divide (INEP, 2011), which before the pandemic It was a proposal from the Ministry of Education and Culture.

According to INEP (2022), the last School Census, points out that connectivity, after the pandemic, in most elementary and high schools in the public network (federal, state and municipal), has internet, equipment used in teaching learning (INEP, 2022). But the reality, from primary and secondary education and universities in Brazil, shows that inequality is far from being cured or at least minimized.

Rosana Heringer, a professor at "Universidade Federal do Rio de Janeiro" (UFRJ), in her article "The impact of Covid on public universities", focusing on UFRJ, carried out a survey among undergraduate students at her university with the aim of investigating the involvement of them in remote teaching. The results showed that inequality between "students has become more evident during the pandemic and that this may result in an alert to the need for greater institutional involvement in order to engage students in the current challenge." (HERINGER, 2022).

According to Zucarelli and Gouveia (2020, p. 45), "it is necessary to guarantee the expansion of remote teaching with quality and without reducing educational opportunities." Some actions aimed at the digital inclusion of students, UFRJ, presented and has developed some programs to face this challenge, among many others, already existing and mainly during and after the pandemic, such as: Digital inclusion program - SIM CARD plus modem, serving twelve thousand undergraduate and one thousand graduate students; mold support and equipment support, serving around six thousand undergraduate students and four hundred and fifty graduate students. Also, the temporary emergency assistance program, contemplating approximately three thousand students, from this university.

Still according to the same authors, the pandemic period made it possible to learn even more about the existing inequality among students, making it more evident (ZUCARELLI & GOUVEIA, 2022). These situations and difficulties, faced by students from various Universities, during the pandemic, have not ceased, that is, they still exist. Maybe to a lesser extent, but they're not over.

All this must be taken into account and, take advantage of the moment to use data, information and situations faced, not only by

students, but also by professors, as an alert regarding the inequalities and diversities that exist among students at Universities.

Not by chance, it is worth remembering that the modality of teaching, distance education (EAD) has been practiced and consolidated in Brazil since the regulation of the Law of Guidelines and Bases of National Education (LDBEN), Law n° 9.394, of 20 of December 1996.

According to data released by INEP (2019), from the last Higher Education Census,

[...] for the first time in history, the offer of vacancies in EaD was greater than in face-to-face teaching. There were 7.1 million places offered in the distance modality, while 6.3 million were accounted for on-site courses. The number of new students has also increased and today, of the total number of new students, 40% enroll in distance graduation courses. There are more than 2 million students, representing 24% of the total number of undergraduate students in the country (ZUCARELLI & GOUVEIA, 2020, p. 2).

However, even with this increase in EAD, one cannot forget that it was due to the COVID-19 pandemic and, it seems, will continue. The problem focuses on three aspects of fundamental importance, which are perhaps the greatest challenges to be faced by Universities, notably public ones, in the years that follow post-pandemic.

The first refers to quality education, which has been, even before the pandemic, one of the greatest challenges for Brazilian education, at all levels. The second is the training of teachers in relation to the use of new technologies, clarity in the content made available on the platforms of the Universities, and the third is the lack of financial resources, investments in infrastructure, equipment and instrumentation for the Universities.

Not unlike these aspects considered emergency, even before the pandemic,

obviously aggravated by COVID-19, effective public policies, with actions to be developed, in this sense, that is, aimed mainly at low-income students enrolled in Universities public, must be implanted and implemented aiming at positive results in Brazilian education.

In recent years, virtually all sectors have become very fragile, especially with regard to the public sector, undoubtedly reflecting on the private sector. No different, and perhaps one of the most compromised areas in the pandemic period, was education, with the exception of health. Its reflexes are being felt and, perhaps for a long time to come, will be felt at all levels of Brazilian education.

The changes in the world scenario as a result of the pandemic were so significant that education needs to be rethought and not simply 'adjusted', since that there is no return to the old teaching-learning processes and/or modalities. A reformulation is needed in the entire context of education, at all levels, notably public higher education.

The training and qualification of future professionals is linked to new technologies, which, incidentally, are no longer so new, as they are already in place, existing and defined. From now on, improvements are being made to the existing ones and the school cannot, and must not, remain apart from this process.

## FINAL CONSIDERATIONS

The State's attention must be focused not only on the economy, which is known to be of extreme importance for the country's development, but, not least on education, properly equipped and instrumented, because without it, there is no Country, there is no Nation that can overcome challenges such as the one we are experiencing today. It is, a path of no return, the use of the information and communication system.

Information and communication technologies (ICT) have and will always be

linked to all means of societies around the world, whether in the public sector or in the private sector, including education in this scenario.

Saying that the distance learning modality (EAD) is new would certainly be wrong, since it is already being used, consolidated since LDBEN, 1996. What was new, however, was this modality as an emergency teaching in due to the pandemic, due to the unpreparedness of most teachers in using available technologies,

since face-to-face classes were conventional. On the other hand, many students without internet access and device to follow classes.

However, since the exception (remote classes) has become the rule in most universities, the challenges are set: equipping and equipping the Universities, training teachers, offering conditions and means of accessibility to students, especially low-income ones, aiming at a quality education.

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