Network Education and Blended Learning: Cyber University concept and Higher Education post COVID-19 Pandemic

Educação em Rede e Ensino Híbrido: o conceito de Ciber Universidade e Educação Superior no pós pandemia da COVID-19

Educación en red y educación híbrida: el concepto de ciberuniversidad y educación superior en la pospandémica de COVID-19

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Abstract
Educational processes, over the past few years, are changing due to the various changes that society has been going through, driven by the insertion of the internet in daily life. The present study presents an essay on the perspectives for Higher Education from the pedagogical practices developed during the period of the COVID-19 pandemic. Concepts such as Network Education and Hybrid Education bring to light the reflection on the physical and virtual place of the university, involving economic issues that would make higher education courses cheaper in a virtual modality. Based on an exploratory research, outlined in a bibliographic way, the validity of the thesis about a paradigm shift for Higher Education, built under a hybrid model, was investigated. It is concluded that experiencing the university, from a social point of view, is very relevant, in addition to the accumulation of knowledge without articulation with everyday life, and that Hybrid Teaching is a methodological alternative in the establishment of the Network Education process, effective from Active Methodologies.

Keywords: Cyber university; Network education; Blended learning; Higher education.

Resumo
Os processos educativos, ao longo dos últimos anos, estão se transformando em função de diversas mudanças pelas quais a sociedade vem atravessando, impulsionadas pela inserção da internet no cotidiano. O presente estudo apresenta um ensaio sobre as perspectivas para a
Educação Superior a partir das práticas pedagógicas desenvolvidas no período da pandemia de COVID-19. Conceitos como Educação em Rede e Ensino Híbrido trazem à luz a reflexão sobre o lugar físico e virtual da universidade, envolvendo questões econômicas às quais tornariam os cursos superiores mais baratos em uma modalidade virtual. Baseados em uma pesquisa exploratória, delineada de forma bibliográfica, averiguou-se a validade da tese sobre uma mudança de paradigma para a Educação Superior, construída sob um modelo híbrido. Conclui-se que experimentar a universidade, do ponto de vista social, é muito relevante, para além do acúmulo de conhecimentos sem articulação com o cotidiano, e que o Ensino Híbrido se coloca como alternativa metodológica no estabelecimento do processo de Educação em Rede, efetivado a partir de Metodologias Ativas.

Palavras-chave: Cyber universidade; Educação em rede; Ensino híbrido; Educação superior.

Resumen
Los procesos educativos, en los últimos años, están cambiando debido a los diversos cambios por los que atraviesa la sociedad, impulsada por la inserción de internet en la vida cotidiana. El presente estudio presenta un ensayo sobre las perspectivas de la Educación Superior desde las prácticas pedagógicas desarrolladas durante el período de la pandemia COVID-19. Conceptos como Educación en Red y Educación Híbrida sacan a la luz la reflexión sobre el lugar físico y virtual de la universidad, involucrando cuestiones económicas que abaratarían los cursos de educación superior en una modalidad virtual. A partir de una investigación exploratoria, esbozada de manera bibliográfica, se verificó la validez de la tesis sobre un cambio de paradigma para la Educación Superior, construida bajo un modelo híbrido. Se concluye que vivir la universidad, desde el punto de vista social, es muy relevante, además de la acumulación de conocimientos sin articulación con la vida cotidiana, y que la Docencia Híbrida es una alternativa metodológica en el establecimiento del proceso de Educación en Red, realizado de Metodologías Activas.

Palabras-clave: Cyber universidad; Educación en eed; Enseñanza híbrida; Educación superior.

1. Introduction

This study begins with the reflections of Manuel Castells (2019), from the concept of Network Society, on the role of universities in this process of construction and dissemination of knowledge. For the author, "In fact, contrary to the supposed social isolation suggested by
the image of the ivory tower, universities are the main agents of dissemination of social innovations because generation after generation of young people pass through there, there they know new ways of thinking, administration, acting and communication and get used to them.” When we observe the changes in the way of university knowledge is constructed and management during the COVID-19 pandemic, it is evident that educational innovations are appropriated through the university.

According to Müller and Souza (2020), "an efficient model of education always relates to the vision of society. The concept of Network Society (Castells, 2019) places a network education model as a priority." However, how is Network Education defined? For authors, “Network Education is a process of socialization and development for autonomy that aims at social integration and involves the acquisition of knowledge, skills and values. Education is a broad process, aimed at social inclusion and integration. Network education in deeply related to a complex and network society.”

Considering that access to cyberspace is a reality in the school life of young students, the work of Carius (2020a) discusses the use of these new forms of relationship with knowledge and appropriation through the Whatsapp. It is possible to notice that the tool provides interactions between the groups of students involved in the learning processes, modifying the construction of collective knowledge, driven by this relationship in the virtual environment.

The movement for so-called Active Methodologies in Brazilian Higher Education courses leads us to the reflection that the conception of knowledge in the university was incorporating the longings of today's society, engendered by the synchrony between academic training and the labor market. This perception is reflected in the changes of the National Curriculum Guidelines for Medical and Engineering courses, which present active methodologies as tools for the development of skills and competencies in students of these courses, aiming at training for society and the labor market.

With the closure of universities worldwide, triggered by the COVID-19 pandemic, remote classes bring to the discussion the vision that is, as a society, of the university environment. By exchanging the classes attended by the meetings on Google Meet, Microsoft Teams or Zoom, the university experience is individualized, which now adds new actors in the process as the technological instruments: computer, mobile phone, television and, mainly, internet access in all its specificities.

Carius (2020b) observes, before the COVID-19 pandemic, a clear movement of migration of undergraduate students to distance courses in Brazil. In 2019, enrollment in
distance learning Higher Education courses surpassed enrollment in face-to-face courses. In fact, something new comes up for debate, in addition to health protocols.

The so-called blended learning, discussed in the pre-pandemic period as an innovative alternative to the teaching-learning process, especially in the university, has, in the period of the pandemic, a period of experimentation. It is possible to insure, from this experience, positive and negative perceptions about the classes mediated by technology. This is therefore the research object of this study.

The research question that this study intends to answer is: "Is it possible to identify, from the experiences in Higher Education with technology-mediated education during the COVID-19 pandemic period, a paradigm shift for universities, contextualized in this society strongly defined by networked relationships?" The general objective of this study is to evaluate the consequences of this prolonged period of university closure, worldwide, for the conception of universities and for the form of higher education courses in the post-pandemic moment of COVID-19. The specific objectives are to evaluate the legitimation of blended learning as a preferred model for higher education institutions, as an alternative to increase profits, especially in private institutions. In parallel, it is suggested that public universities deteriorate in this perspective, since hybrid teaching privileges actors with better electronic equipment and wide internet access, excluding a significant portion of the population that does not have access to the equipment or the internet.

Exploratory research is used as methodology, due to the unprecedented nature of the study through a bibliographic review of authors who research information and communication technology in the educational environment, considering the view of these researchers on the impact of the broad use of information and communication technologies in the educational environment, especially in the university.

2. Cyber university: the university as a cyberplace

The concept of cyberspace, defined by several authors, can be described as the “informational space of networks, made up of bits and bytes, zeros and ones (0/1), but which, from the inside of computers to screens, reaches us in the form of known languages: verbal, virtual, sound and all their mixtures. So cyberspace is nothing but a metaphorical way of naming the internet, the network of networks.” (Mill, 2018, p. 236). Manuel Castells (2019) and Pierre Lévy (1999) present similar definitions for this concept.

Barry Wellman (2001) conceptualizes cyberplace as a counterpoint to the physical
place. For the author, in addition to cyberspace, cyberplace is the virtual place in which bonds of friendships, preferences, identities and customs are formed. Wellman (2001) argues that the advancement of internet access everywhere reinforced the approach of people in different physical places, but who have affinities, making it possible, then, to build a common place in the virtual space.

With the closure of universities as a strategy to face the COVID-19 pandemic, classes in virtual environments were offered, synchronously or asynchronously, in order to guarantee access to education for students, on a global scale. In this sense, the university started to be represented, in its entirety, in cyberspace. Until now, the concept of cyber university was intended exclusively for totally virtual universities, to which, before the pandemic, they already offered completely online courses. However, in this work, the concept of cyber university is advocated as the representation, in cyberspace, of universities that originally offered face-to-face courses before the COVID-19 pandemic.

The relationships between teachers and students, which occur mediated by technological tools, is only possible for them that interactions between human and non-human actors occur. In fact, without an internet signal, without the correct functioning of all the electronic devices necessary to establish the relationships between humans, classes, lectures, guidelines, scientific weeks, do not occur. In this sense, the actor-network theory, conceived by Bruno Latour and Michel Callon (2013), is defended as necessary for the establishment of this network of human and non-human actors, from which the cyber university is generated.

Therefore, based on considerations about the Sociology of Translation by Latour and Callon, a set of human (students, teachers, managers and employees) and non-human (computers, notebooks, cell phones, television, routers, internet providers, internet signal, electric light, among others) is defined as cyber university, like this new format of knowledge construction, without reference to a specific physical space but able to aggregate people in different geographical locations as a common good.

From the definition of cyber university, it is observed that the university, as an expression of its identity, involving human and non-human actors, designates a place in cyberspace. Thus, this concept is similar to the concept of Welmann (2001) for cyberplace. This “place” of discussion and appropriation of knowledge, of research conception and development of ideas, when transferred in its entirety to cyberspace, brings up reflections on the physical importance of the university.

From the concept for the first phase of the internet by Lemos (2013), as the phase of
uploading information and virtualization to cyberspace, it is observed that the pandemic period accelerated the process of uploading universities to the virtual space, leading to question the real functionalities of a physical space. In this sense, higher education courses which the experience of practical activities, often developed in laboratories, are necessary for the construction of students' knowledge, are not represented, in their entirety, in this upload process, requiring a dialogical relationship between the cyber university and the physical university. Therefore, the concept of teaching in hybrid mode or blended learning is arrived at.

The discussion of the university as a virtual place also refers to concepts and meanings prior to the pandemic, such as the concept of Network Education by Müller and Souza (2020). In fact, cyberspace expands the possibilities of relationships between all those involved, whether human or non-human actors. As society is networked, according to Castells (2019), several processes at a global level take place in a network such as communication, economics, social relations and, of course, education. Therefore, the cyber university is involved in this network and based on a deep upload process, the university is definitely placed in the virtual space as one of the gears of this educational network.

Behind this migration, the interest of large corporations linked to technology is notorious for persisting in the virtual model, overlapping the physical. Streaming services, live meetings and content platforms, among others, grew a lot during the period of COVID-19, allowing for profit increases in several situations. The adoption of these services in public institutions that did not have them or the opening of a single class of a certain discipline to a number of students who are unsustainable in person are some of the examples that technology has favored the expansion of profits in the university environment. According to Selwyn (2020) “there is already an influx of new faces coming into EdTech investment. If nothing else, the transformation of Zoom into a staple school platform has revived hopes that there are big profits to be made in the education technology space.”

Considering the extraordinary character of the university upload and its legitimation in the virtual space, it is argued that the cyber university is established as one of the possible spaces for the formation and production of knowledge, but not as the only possibility. The academic experience, in addition to discussions by Zoom, is a multifaceted construction. Therefore, the blended learning as a synchrony between classroom and non-classroom activities, emerges in this scenario. Face-to-face meetings as spaces and times for discussions that are not limited to themes only, but reflect the social dynamics in which one lives, is one of the possibilities to which meaning is attributed when being together in the physical
3. Research Methodology

The phenomenon of Higher Education totally online, globally, is unprecedented and, to a certain extent, unthinkable before the pandemic of COVID-19. In view of this fact, we sought to shed light on some questions on the theme through an exploratory research, considering works on the subject of university, cyberspace, distance learning and COVID-19. For Gil (1999, p.43) "Exploratory research has the main purpose of developing, clarifying and modifying concepts and ideas, with a view to formulating more precise problems or researchable hypotheses for further studies." The research was designed based on a bibliographic review, carried out through Google Scholar considering the key terms: University AND COVID-19; Higher Education AND COVID-19 and Distance Learning AND COVID-19. From this review, five papers published after the start of the pandemic on the topic were listed. The main advantage of bibliographic research is the possibility of covering a wide range of phenomena much wider than that which the researcher could research directly (Gil, 1999, p.65). Taking this advantage as a premise for choosing a bibliographic search, the present study was delineated from the five articles chosen.

Considering such works, a descriptive analysis of the research object of this study was carried out, highlighting similarities and differences between the perspectives of analysis of each author, from the perspective of Bardin (2011).

4. Results

In order to validate the bibliographic study for which this work is intended, we opted for the use of Content Analysis, built from concepts developed by Bardin (2011), considering the categorization proposed by the author.

“Categorization is an operation to classify the constituent elements of a set by differentiation and then by regrouping according to gender (analogy), with previously defined criteria. The categories are rubrics or classes, which bring together a group of elements (registration units, in the case of content analysis) under a generic title, a grouping carried out due to the common characteristics of these elements.” (Bardin, 2011, p.147)

One of the possible analyzes to be made, based on the content, is what is called thematic analysis. For Bardin (2011, p.135), “doing a thematic analysis consists of
discovering 'the nuclei of meaning' that make up communication and whose frequency of appearance, can mean something for the chosen analytical objective.”

From the five chosen texts, they were separated by themes, considering a previous reading of these, without paying attention to details. Figure 1 presents a flowchart indicating the topics under analysis obtained from reading the five chosen works.

**Figure 1** - Themes highlighted in the Content Analysis for the texts listed from the bibliographic review.

The categorization by themes, according to Bardin (2011), and proposed by Figure 1, lists the main themes addressed by the texts selected in the literature review.

Table 1 summarizes the texts, according to the themes addressed by them.
Table 1 – Texts separated by themes, according the categorization in Figure 1.

<table>
<thead>
<tr>
<th>Inequality of access</th>
<th>Market view of the use of technologies</th>
<th>Need for technological insertion in the pedagogical routine</th>
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Source: The author (2020).

Table 1 presents the separate texts according to the themes highlighted.

Dhawan's text (2020) deals with the transition of educational processes to an online form, based on experiences developed in India. The author points out that, in the face of natural disasters such as earthquakes, tsunamis or hurricanes, alternative forms of access to school have already been tried, even if restricted to the affected places. The unprecedented character of the current experience is revealed by the fact that, globally, educational institutions closed at the same time. Issues such as the flexibility of online education or the fact that it is much cheaper than face-to-face education make this modality, in a way, interesting. The economic issue, by the way, is discussed with greater emphasis on the work of Selwyn and Jandric (2020). For the authors, the global diffusion of the Zoom platform,
almost absolutely, indicates the interest of large financial groups in maintaining a model, especially university, in cyberspace. The authors believe that the pandemic started a university upload process, in the view of Lemos (2013), with no return, considering that money directs the interests of actions, including governmental ones.

Despite considering that there is no other alternative to mitigate the problem of access to universities and schools during the pandemic without using technological tools, Dhawan (2020) presents an optimistic view on the topic, highlighting the growth of different platforms capable of promote interactions between students and teachers in this period. However, the author warns that it is necessary to train, both teachers and students, for this new moment, so that they can fully enjoy the existing functionalities, including aspects such as inequality of access between the actors involved. The term Panicgogy, brought to light by the author, clearly presents the uncertainties and difficulties experienced by both teachers and students and their families, in the face of such a sudden change in pedagogical practices in times of pandemic. The author concludes that the virus accelerated, as an enzyme, the online education process, indicating that Zoom inaugurate a new way of mediating pedagogical practices in view of its functionalities, clearly against the perspectives on the same application given by Selwyn and Jandric (2020).

In a more pessimistic perspective, the work of Adnan and Anwar (2020) conducts a survey with Pakistani students regarding the migration to online education, under the cut of Higher Education. The main problems pointed out by the authors refer to the little adaptation of the contents linked in the platforms for smartphones, making many students not have access, effectively, to remote education. The absence of interaction between students and their instructors is also brought up with a negative perspective. However, the most striking criticism of the implemented model refers to the abandonment, in all proposals, of the conventional aspect of socialization in the classroom, taking into account the relevance of discussing, in real time, problems, ideas, knowledge and information.

Adnan and Anwar (2020) point out that many universities in Pakistan offered quality distance education, with students and instructors adapted and prepared for the current model. However, this fact was not enough to resolve the problems of placing all teachers and students in the same modality, in view of the need to prepare teachers who originally worked in the face-to-face modality for this new moment. The authors conducted a field research with undergraduate and graduate students who are experiencing the experience of progressing in their courses, remotely. It stands out, from these data, that only 10.3% of the inquired students feel more motivated with the studies in this format, while 71.4% are considered that the
online form is more demotivating than motivating. 50.8% of students reported that it was not possible to effectively complete their courses remotely, while 18.3% reported that this is possible. From these data, it can be concluded that, for most of the students surveyed, the social perspective of education must be preserved and the way for this achievement to be possible goes through the realization of in-person and synchronous activities.

Tesar (2020) addresses, like Selwyn and Jandric (2020), the process of accelerating changes in Higher Education, arguing that this process has been under construction in recent years, for several reasons: the democratic character of education when it is achieved students who are unable to attend face-to-face courses for personal, geographic or economic reasons and because courses offered at a distance are cheaper when compared to face-to-face courses. The author poses the question: "will it be possible to put the genie in the lamp again?", referring to the use of Zoom in various academic practices such as research, classes and seminars. It is observed, however, that a possible democratization of access to Higher Education does not materialize simply with the change from face-to-face teaching to distance learning. The author presents the experience of American public universities that demonstrated, in this closing period, that the students who maintained access to classes and the education system were those who traditionally have access to quality education, excluding students than blacks, women and those with economic difficulties. Finally, the author questions the economic reasons behind the insistence on the remote teaching model for Higher Education, verifying that this model prioritizes the use of full virtual classrooms, with a number of students above the physical dependencies, in general. This fact makes this model more economically interesting.

Finally, the work of Murphy (2020) discusses the issue of the safety of students enrolled in higher education institutions, under the aspect of closing campuses. For the author, there is a health emergency which measures of social distance are necessary. However, how educational institutions have used this discourse to encourage distance learning measures as a security tool in pandemic times is not so legitimate. Murphy (2020), as well as Dhawan (2020), also argue that other health emergencies or those arising from social disasters have used distance learning as an emergency. The unprecedented character, in the case of COVID-19, is the fact that it is global. The Zoom tool also appears, in the author's descriptions, as a fundamental element for the mediation of classes with university students. The author's statement deserves to be highlighted: “Face-to-face schooling is constructed as a specific threat from which the communities must be protected, and emergency eLearning is the security measure proposed to protect the community” (Murphy, p.499). In fact, it is worth
reflecting on the author's observation regarding the change from traditional security promoted in the school community environment to the virtual environment. It cannot be said clearly that this transfer is valid.

As with the work of Selwyn and Jandric (2020) and Tesar (2020), there is a concern with the permanence of emergency distance learning measures with the objective of increasing profits, both for companies related to the educational market and for the governments themselves to decrease education spending. The author even mentions a Canadian experience, which aims to implement distance learning in public secondary schools in order to reduce expenses. Although, for Murphy (2020), higher education in the distance modality can have a perverse side, increasing inequalities between groups traditionally excluded from university courses in general, on the other hand, it can improve access to groups that normally have greater difficulties in follow synchronous higher education courses due to their geographic location or economic reasons. For the author, blended learning will prevail in many cases, combining face-to-face experiences driven by active learning methodologies, in which socialization among individuals, in face-to-face activities, is of paramount importance.

5. Discussion

From the bibliographic review presented in the previous section, it was intended to understand three concepts prior to the COVID-19 pandemic, from the perspective of all the modifications inherent to the emergency implantation of remote education in Higher Education, globally: Network Education, Blended Learning and Cyber University. It is a fact that the globalized world, mediated by networks with social links, is present in the educational field and that, when observing the experiences of Higher Education online in other regions, the character of Network Education is present. The experience brought by Adnan and Anwar (2020) on Pakistani undergraduate and graduate students, corroborating the reports of Indian students indicated by Dhawan (2020) demonstrates that the Brazilian reality for higher students is not so different. Networking is much more than reproducing similar experiences on a global scale. It is observed that, in this first moment, the concern of higher education institutions was to upload their materials and courses to maintain the link with the students. However, over the months, it appears that the simple changes from physical space to cyberspace do not configure the formation of university as a cyberplace, or Cyber University, considering the definition in Section 2. The data presented by Adnan and Anwar (2020)
reveal students' frustrations with the current university format, arguing that the social relationships established in the university's physical space contribute to the general formation of student groups. For Network Education to become a promising and optimistic reality for Higher Education students, there is a need to break economic barriers related to communication infrastructure, in addition to the necessary training of teachers and students for this new form of knowledge production and training. Therefore, it advocates a new way of conceiving education across networks, regardless of the online or face-to-face format.

The issue of Blended Learning, put in a very succinct way by the authors presented in this bibliographic review, tends to be debated in a post-pandemic perspective. The only author who highlights this bias is Murphy (2020). It is undeniable, as Dhawan (2020) argues, that we will inherit technological facilities tested during the closure of universities, which should not be abandoned in a post-Covid-19 moment. This movement of absorbing attitudes and changes in pedagogical practices mediated by technologies point to practices called hybrids and, due to the greater autonomy exercised by higher education students, these tend to legitimize themselves in universities. Higher courses in which laboratory activities are relevant to the training of students demonstrate the need to use the physical spaces of universities, considering that the exchange of experiences in activities of this type reflects the need for socialization and interaction between students, in real time, for the knowledge building. In this sense, Hybrid Education aims to present a balance between activities that can be developed remotely or in person. There is a prevalence of active learning experiences that value the face-to-face meetings between students.

Finally, the concept of Cyber University, in its entirety, does not seem to meet the desires of students, researchers and professors. Economic issues, with the visible low cost of maintaining university infrastructure in cyberspace, tend to extend the permanence of this university model. However, the discontent of students with the current format requires a partial upload from the university, preserving social experiences inherent to the student's education, in addition to their academic duties. Considering this perspective, once again it seems that Blended Learning presents itself as the most viable representation as a model of Higher Education for the post-pandemic moment.

6. Conclusion

The present study intended, based on an exploratory research based on a literature review, to analyze the perspectives of Higher Education for the post pandemic, under three
aspects: Network Education, Blended Learning and Cyber University.

Considering the texts analyzed in the light of the definitions of the three concepts in question, there was a certain standardization of actions by universities, globally, at this emergency moment. Four of the five texts analyzed point to the Zoom platform as a great mediator of contact between teachers, students and researchers, showing that a new form of dissemination and construction of knowledge arises from this type of social interaction. However, in addition to the advantages of maintaining the link with students, teachers and ongoing research despite social distance, a legitimate concern arises in the debate: the market interest in maintaining emergency protocols for remote education beyond the pandemic, especially in Higher Education. The autonomy of undergraduate and graduate students, coupled with the possibility of maintaining classrooms with more students and less infrastructure expenditure, raises a question beyond the protocols of social distance: this experience will be a laboratory for future changes, how Higher Education will take place?

Considering that the internet, in fact, expands the possibilities for Network Education, it is also worth highlighting the legitimate concern of several authors regarding the access of students traditionally excluded from universities. Will the new model being designed be able to provide access for all, considering infrastructure issues and access to equipment and internet? Or is it that the model that is put in place will maintain the inequalities, which Network Education intends to overcome?

It is concluded, therefore, that the concept of Cyber University, in its most radical form, possibly will not materialize so easily, despite the economic appeal to spend less on education. The experience of non-socialization of students does not seem to be a one-way street with full support among the main stakeholders. Face-to-face experiences of exchange of experiences in educational environments, especially in the form of active learning, lead to an intermediate path, which will enhance each face-to-face experience, considering that certain activities can be maintained online. In this sense, Higher Education seems to move towards Blended Learning, with a semi Cyber University, that is, with a partial upload of the experiences lived in a training in the academy. This fact reveals that, despite efforts to build university cyberspace, the notion of cyberplace, defined by Wellman (2005) goes far beyond what is possible to impose. Organic social construction is necessary, in addition to protocols and rules, which guarantee the viability of Cyber University as a Cyberplace.
References


**Percentage of contribution of each author in the manuscript**
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