

Education priorities in the wake of the COVID-19 pandemic

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Abstract: This paper presents the identification, through consultation of the most up-to-date literature, of those fundamental skills that should be taught in schools and that should be prioritized irrespective of the technological resources available. To address the issue, it will first outline how the Covid-19 pandemic has permanently changed the form and content to be taught in education systems. To this end, a bibliographical synthesis of the approaches in the most up-to-date literature referring to the problem raised was carried out. Most of the research focuses on how to transmit specific content and not on what and why it is relevant to educate and how to achieve it. Finally, a systemic analysis was carried out on why some skills are priorities that are likely to be taught as opposed to others, offering conclusions in this regard.

Keywords: Fundamental knowledge, teaching methodologies, digital tools, teaching-learning, COVID-19.

Prioridades de la educación como consecuencia de la pandemia del COVID-19

Resumen: Este trabajo presenta la identificación, mediante la consulta de la bibliografía más actualizada, de aquellos conocimientos fundamentales que deben ser impartidos en los centros educativos y que deben priorizarse independientemente de los recursos tecnológicos disponibles. Para abordar el tema, primero se expondrá de qué manera la pandemia del Covid-19, ha impactado de maneras disruptivas en la economía y la política y la sociedad, cambiando la forma y el contenido que debe impartirse en los sistemas educativos. Para ello se realizó una síntesis bibliográfica sobre los enfoques en la literatura más actualizada que haga referencia a la problemática planteada. Se evidencia que la mayoría de las investigaciones se inclinan a las formas de transmitir un contenido específico y no en qué y por qué es relevante educar y cómo lograrlo. Por último, se realizó un análisis sistémico sobre por qué son prioridades algunas habilidades que son susceptibles a ser enseñadas en contraposición con otras, ofreciendo conclusiones al respecto.

Palabras Clave: Conocimientos fundamentales, metodologías de enseñanza, herramientas digitales, enseñanza-aprendizaje, COVID-19.



I. INTRODUCTION

The global Covid-19 pandemic has forced large numbers of students at all levels and on all continents to stay at home [1]. According to UNESCO, approximately 156 million students [2] and 68 million teachers are affected in Latin America alone. Underlying these statistics are the approximately 13 million students who did not receive classes of any kind during the time the pandemic has taken in the region. Globally, more than 235 million students are similarly affected [3], exacerbating the inequalities between those who can access distance education and those who cannot. The statistics clearly show that the world, and thus education systems globally in general, were not prepared for an event of the magnitude that has led to the current pandemic [4] The global reaction to the emerging problem of the coronavirus and its direct impact on education was a hasty migration to the available digital platforms [5] [6], which had several consequences:

1. Forced school dropout for those students who did not have the means to connect remotely to digital platforms [7]. While there are a number of structural causes to explain pre-pandemic school dropout, these groups are now joined by those students who are regularly enrolled in school but do not have the material means to access the various online learning portals [8].

2. Students, especially in the first levels of schooling, now depend on the support, time and training of their parents to cope with the assignments of each of the subjects subject to learning [9]. This, depending on the socio-economic conditions of the household, can be an additional element of economic stress within the family.

3. The fragmentation of online learning vehicles has resulted in students using four or more different digital platforms to complete assignments and to view lectures [10].

4. Stress, depression, anxiety, among others, have increased among the student population. Several studies around the world have shown [11] [12] [13], that they are being victims of these ailments.

5. Teaching methodologies through digital channels -although it may seem obvious, it is not- are different from those used in face-to-face systems. Teachers have been forced by an unexpected reality to make drastic and accelerated changes in their teaching-learning models. These transitions are not pleasant for everyone and resistance to change has been evident at all levels; however, the transition is not reversible and teachers are immersed in a process of profound change whose collateral effects are felt in the general decline in student performance and the effectiveness of the knowledge they seek to impart.

6. The states have had to face unprecedented challenges, from the logistics necessary to maintain minimum educational operability, safeguarding the universal right to education, to the creation of new schemes to avoid a generalized debacle in schooling and academic performance that in the future would harm the creation of national wealth. [14].

Although one could enumerate more consequences on the education system of the countries, it is clear that the complexity of the moment requires not only a situational analysis but also timely proposals that help to direct the material and human efforts in terms of the fundamental objective, which is none other than that the students learn the skills that are taught to them. In this line of thought, once the total closure of schools had been adopted, the countries generally followed three lines of action. These were as follows [15]:

1. Distance teaching-learning modalities with or without technology.

2. Mobilization of teaching staff to environments where there is a school population at higher risk of dropping out of school.

3. Comprehensive health and welfare care for students.

Although the above measures adopted by states can be generalized for many countries as an objective reality, this paper addresses the necessary actions for the Latin American reality. These actions focus on what would be the fun-

damental knowledge that regardless of the methodologies to be used, form the basis of the learning that each student must master, in contrast to the general tendency to maintain pre-pandemic knowledge but varying the teaching and learning methodologies. To this end, the work consists of four distinct parts: an introduction to the problem studied, which is presented above, another section in which the theoretical criteria that underpinned the research are developed, then the methodology followed in this work is presented, and finally, the results and conclusions reached are offered.

II. DEVELOPMENT

The global crisis caused by the COVID-19 pandemic has changed the world's educational landscape. Latin America has not been exempt from the multiple consequences that this situation has had on its education systems. The measures are taken in general, and not far removed from those adopted by many countries in the world in the field of education, were: the closure of schools and the accelerated, massive, and therefore improvised migration to online education [15]. School closures, despite those who claim that they are not a good measure to stop the spread of the virus [16], were adopted to support a general social distancing. Undoubtedly the measures of social distancing and confinement are taking a heavy toll on the entire region, which, according to data collected on the consequences of the pandemic, will have more than 200 million poor people by the end of 2020 [17], indirectly reflecting the challenges the region faces in providing education and health during the current difficulties.

Education through online tools requires resources that not all families and students in the region can afford. Asynchronous distance education, which does not use technological tools and uses the human and technological resources of educational institutions to bring them closer to the most vulnerable communities, requires the will and resources of the state so that, together with effective methodologies, these groups can be served. Reviewing current scientific documentation and the dissemination media of international organizations such as ECLAC, UNESCO, and others, we can observe the methodological positions adopted by states, ranging from fully online education, education with mobilization of human and technological resources and those who opt for asynchronous distance education without digital technological resources [15]. It was observed that all four actions or a set of actions were used to meet the educational needs of learners in different countries.

A. Online education: synchronous education

One of the challenges of education in the pandemic and with schools closed, was to maintain contact between students and teachers, either synchronously, i.e. live classes between students and teachers, or asynchronously with or without technology [18]. It, therefore, became essential to choose the means that would enable this purpose. This is where virtual meeting platforms come in to play their role in achieving synchronous interactions.

Before the COVID-19 pandemic, some platforms allowed video conferencing in real-time or live, which means that a group of people could connect through the internet with other people located hundreds or thousands of kilometers away at the same time, to share points of view, business tasks, seminars, among many others; this type of platform would later enable synchronous distance education. Among the platforms in this segment were Cisco Systems' video-conferencing system, WEBEX, which allows meetings of up to 24 hours [19]. There was also Hangouts On Air, a platform developed by Google that allowed direct conferencing, where up to 8 people could connect at the same time. Both had the possibility, for the duration of the event or conference, of live chat, screen sharing, and other features [20]. We can also mention Skype, an application acquired by Microsoft, in which video calls could be made between an exhibitor and four interlocutors with similar features to those already described for other platforms. It should be said that all of them were designed for collaborative business environments.

With the emergence of COVID-19 on the world stage, existing platforms had to adapt to the demands now coming from the education sector, some were better able to adapt than others to facilitate mass virtual meetings. In this scenario, Zoom, Microsoft, and Google were able to position their products more effectively. Virtual meeting platforms such as Zoom, Google Meets, and Microsoft Teams were able to attract the largest number of users [21] [22] [23] with 300, 115, 44 million people connected daily.

With these tools, students were able to maintain communication with their teachers as long as both teachers and students had access to the necessary digital resources, such as the internet, computers, tablets, or smartphones.

ECLAC in its 2020 report showed that only four countries in Latin America used this type of resource [15], from which it could be concluded that access to these resources was not available to a high percentage of students, due to multiple factors, among them could be included the speed or bandwidth required for these encounters and the avai-

lability of connections of this type.

B. Online education: asynchronous education

The objectives of asynchronous online education are:

1. To deliver content that is in line with the curriculum.
2. To allow the learner to create his or her teaching and learning schemes at a pace that best suits him or her.
3. Provide teacher and parent guides as well as digital resources such as textbooks, workbooks, etc.

Most education systems in Latin American and Caribbean countries, despite having digitized books in virtual libraries and educational portals with access to online resources for both teachers and students, were not designed for the demands of fully remote education [24]. Therefore, the crisis had to be dealt with on the fly by planning strategies that would prevent the deterioration of learning in general and school dropout. One of the best-prepared countries was Uruguay, which took advantage of everything developed in the Ceibal Plan, which is a platform that allows the management of learning at all levels of the Uruguayan education system [9] to keep the nation's education system operational, despite the challenges in the more isolated areas with less access to connectivity. Other countries such as Peru, Colombia, Costa Rica, Mexico, and others have virtual libraries organized by subject and grade level that can be downloaded; however, the alignment with the curriculum of each grade level varies considerably among them. Overall, according to ECLAC, asynchronous online distance learning was adopted by 18 countries in Latin America and the Caribbean [15]. This means that teachers relied on educational resources available on the Internet to respond to the educational needs of students. These resources could be state education systems, such as the Ceibal case in Uruguay mentioned above, or open, such as the resources of the Khan Academy, which makes available to anyone who wants to access its platform, information, and practices covering subjects such as mathematics, computer science, economics, and others. Asynchronous online education is called second-generation asynchronous education.

C. First-generation asynchronous distance education

As mentioned in previous sections, the strategies adopted by Latin American and Caribbean countries were similar to those adopted by most countries around the globe. We have already mentioned the use of synchronous virtual classrooms, which was by far the least popular of the available strategies. Others, such as second-generation asynchronous online classes and classes delivered by first-generation technologies such as print, radio, and television, were the most popular. The combination of the two, together with the displacement of both human and technological resources to communities, represented the bulk of the strategies implemented in the region.

Countries such as Argentina, Venezuela, Haiti, Barbados, Chile, and others [24] have relied heavily on these technologies to maintain the continuity of education, mainly due to the existing limitations of internet connection for large sectors of the population. Argentina and Mexico are among the countries that have a significant offer in these media, while Ecuador and Peru have integrated television programs in the native languages of these countries, both by subject and by level or grade.

The main function of this strategy is that students who do not have technological resources such as computers or the internet can maintain the connection with the curricular program of their respective grades, executing the assignments with the support of their parents or guardians. This represents an important level of commitment on the part of the state to maintain the corresponding follow-up of the students concerning the progress expected of them.

D. Assisted education: movement of human and technological educational resources

In this modality, the human and technological personnel available in the countries' educational systems are displaced to attend to the educational needs of those populations that lack even the resources of first-generation technologies. Many countries in the region still have rural and urban communities where the lack of health, road, and educational infrastructure is evident. It is these sectors that have been served by the displacement of educators and pedagogical materials to prevent school dropout. According to ECLAC data [15], the challenges faced by states in attending to these communities are complex, and even before the pandemic, there were already serious complications.

E. Analysis of the regional education situation

According to what has been observed, the concern of the states revolves around the continuity of educational work by the most expeditious means at their disposal and, taking into account that no state was prepared to face a scenario such as the one that COVID-19 has forced the planet to confront, it is natural that the early stages of the crisis were marked by haste and improvisation. However, after the time that has elapsed, it is necessary to assume that a methodological strategy is required that prioritizes what we will call the fundamental knowledge that must be prioritized over others that can be learned in a state after the current moment. We have seen the strategies that have been carried out by the states to only maintain the educational continuity of the programs that existed before the pandemic, but which are now questionable in the face of the reality that is observed today. The methodology of this work focuses on a bibliographic study of the research carried out during a year while the COVID-19 pandemic was unfolding, observing that there is no development of what knowledge should have been prioritized over others given the extraordinary circumstances of the moment.

III.METHODOLOGY.

The most recent bibliography available in the Scopus, Scielo, Latindex, and Redalyc indexing databases was used as scientific-academic support for the preparation of this paper. The search was focused on those works that showed methodological approaches whose objectives were to avoid the loss of quality in teaching and that proposed how to approach a set of critical learning according to the level of schooling. Support was also sought from documents and reports from multilateral organizations such as the UN, UNESCO, ECLAC, and IDB, among others, to learn about the political and socio-economic dimension and their recommendations to countries on this issue (fig. 1).

In the first instance, 130 articles on the subject were compiled, 25 of which were selected as being closest to the focus of the proposed work; the remaining 105 did not contemplate a focused practice on the subject, and were focused on teaching methodologies rather than teaching priorities. From them, we extracted the main methodological processes proposed by the authors. The reports of the multilateral organizations were then integrated and contextualized with the academic proposals developed in the selected articles. By analyzing the scientific and academic approaches to education in Latin America and the Caribbean, as well as the actions employed by states in that direction throughout the current COVID-19 pandemic, the following results were obtained.

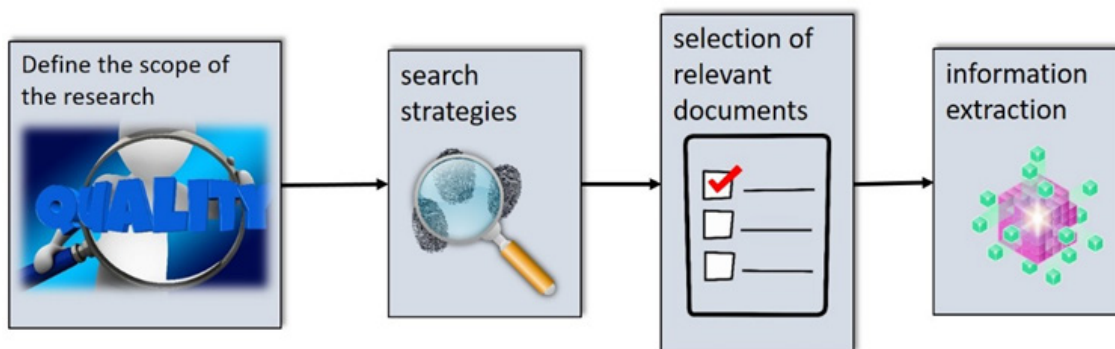


Fig. 1. Literature review descriptors [25].

IV.RESULTS

Twenty-five research articles dealing with the challenges faced by education systems in Latin American and Caribbean countries were selected. Reports written by multilateral organizations such as UNESCO, ECLAC, and the IDB were added to the research corpus, which statistically reflects the actions taken by the different countries to respond to the educational challenges caused by the COVID-19 pandemic. After reading all the selected information, the following results were obtained:

1.The actions taken by most countries to maintain the continuity of education were a combination of the following resources: providing digital content through online libraries (second-generation technologies), use of social media, and printed material. Use of print, radio, and television (first-generation technologies) for asynchronous delivery. This selection was the majority in the region. Those countries that used virtual meeting platforms or learning platforms

(synchronous education) were the fewest, with only 7 out of an average of 26 countries using these resources to deliver education to their students. [24].

2. There is no significant differentiation between the educational strategies implemented in the region (those mentioned above), the grade to which the pupil belongs, and the subject being taught. This implies that very similar methodologies are used whether the pupil needs to learn language or mathematics and whether he/she is in the last grade of secondary school or the first grade of primary school.

3. The education policies implemented remain contingency actions for the duration of the pandemic so that in many countries there are no tactics to structure strategies that not only prevent the weakening of the education system before the pandemic but also promote new approaches that allow for its sustained recovery over time and enable it to advance to new levels of educational competitiveness.

4. A significant percentage of articles focus on distance education through the use of Information and Communication Technologies (ICTs). Despite highlighting the difficulties faced by many families and entire communities in the region that do not have access to the internet, computers, or smartphones, there is no clear and methodical strategy to address these populations.

5. Of all the articles and reports analyzed, only the ECLAC report and two articles [15] [26] [27] refer to the need to prioritize certain content over others and to change teaching-learning methodologies because the current reality makes it clear that there are competencies and learning that have proven to be vital and should be reinforced.

6. In none of the articles analyzed is there any important reflection on which skills and knowledge were shown to be fundamental in the logical-mathematical area, or the area of language according to the level of the student's course, or in other subjects. On the other hand, it is mentioned that it is important to involve human competencies such as solidarity, self-learning, management of emotions, sense of social belonging, health care, among others, in a more organic way [15].

7. There is an almost unanimous consensus on the need for teacher training in the use of digital tools, in the management of contingencies, in the creation of quality pedagogical content adaptable to various models of educational transfer. [5].

V. CONCLUSIONS

The following conclusions were drawn from the analysis of academic articles, reports by multilateral agencies and the results obtained:

1. There is a set of fundamental lessons, and it is these that must be prioritized in extraordinary situations such as those produced by the COVID-19 pandemic.

2. Fundamental learning has three aspects: logical, communicational, and moral-ethical. Priority should be given to learning mathematics and the fundamental principles of computing, fluent language skills, and knowledge and practice of values such as solidarity, self-learning, resilience, a sense of local social belonging, health care, etc.

3. Learning should be oriented according to level and subject. It is necessary to focus the curriculum on the knowledge and competencies described above and to relegate those that become peripheral to after the current conditions have been overcome.

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