(NON-)MEANINGFUL LEARNING IN TIMES OF PANDEMIC FROM THE PERSPECTIVE OF SOCIAL JUSTICE: THE DICHOTOMY BETWEEN TEACHING AND TEACHING JUST FOR TEACHING

APRENDIZAGEM (NÃO-)SIGNIFICATIVA EM TEMPOS DE PANDEMIA SOB A ÓTICA DA JUSTIÇA SOCIAL: A DICOTOMIA ENTRE ENSINAR E ENSINAR APENAS POR ENSINAR

APRENDIZAJES (NO-)SIGNIFICATIVOS EN TIEMPOS DE PANDEMIA DESDE LA PERSPECTIVA DE LA JUSTICIA SOCIAL: LA DICOTOMÍA ENTRE ENSEÑAR Y ENSEÑAR SOLO POR ENSEÑAR

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ABSTRACT: The outbreak of COVID-19 and the worldwide public health emergency triggered by its emergence have severely disrupted the global order, posing huge health, economic and social challenges. In response to this outbreak, we summarize a comprehensive data set to analyze the current situation related to education and the implications for inequality in access to quality education and basic study conditions, such as obstacles to full access to Information and Communication Technologies by students of different socioeconomic backgrounds. Psychosocial, socioeconomic, and mental health factors must be considered all-together when designing and implementing any educational intervention or teaching and learning methodology, especially in emergency situations. Understanding, from the perspective of social justice, the antagonistic faces of teaching and their implications for learning means answering whether we are, in fact, teaching (meaningfully) or teaching just for teaching (non-meaningfully).

KEYWORDS: Equal education. Educational opportunities. Access to education. Remote teaching. COVID-19.

RESUMO: O surto de COVID-19 e a emergência de saúde pública mundial desencadeada por seu surgimento perturbaram gravemente a ordem global, acarretando enormes desafios sanitários, econômicos e sociais. Em resposta a essa pandemia, resumimos um conjunto abrangente de dados para analisar a recente situação relacionada à educação e as implicações para a desigualdade no acesso à educação de qualidade e condições básicas de estudo, como obstáculos ao pleno acesso às Tecnologias de Informação e Comunicação por alunos de diferentes níveis socioeconômicos. Fatores psicossociais, socioeconômicos e de saúde mental devem ser considerados em conjunto na concepção e implementação de qualquer tipo de intervenção educativa ou metodologia de ensino e de aprendizagem, especialmente em situações emergenciais. Compreender, sob a ótica da justiça social, as faces antagônicas do ensino e suas implicações para a aprendizagem significa responder se estamos, de fato, ensinando (de forma significativa) ou ensinando apenas por ensinar (de forma não significativa).

PALAVRAS-CHAVE: Educação igualitária. Oportunidades educacionais. Acesso à educação. Ensino remoto. COVID-19.

RESUMEN: El brote de COVID-19 y la emergencia de salud pública mundial desencadenada por su aparición han alterado gravemente el orden mundial, planteando enormes desafíos sanitarios, económicos y sociales. En respuesta a este brote, hemos resumido un conjunto de datos completo para analizar la situación reciente relacionada con la educación y las implicaciones para la desigualdad en el acceso a una educación de calidad y las condiciones básicas de estudio, como las barreras para el pleno acceso a las Tecnologías de la Información y Comunicación por parte de estudiantes de diferentes niveles socioeconómicos. Los factores socioeconómicos, psicosociales y de salud mental deben ser considerados conjuntamente en el diseño e implementación de cualquier tipo de intervención educativa o metodología de enseñanza y aprendizaje, especialmente en situaciones de emergencia. Comprender, desde la perspectiva de la justicia social, las caras antagónicas de la enseñanza y sus implicaciones para el aprendizaje significa responder si estamos, de hecho, enseñando (de manera significativa) o enseñando por enseñar (de manera no significativa).

PALABRAS CLAVE: Educación igualitaria. Oportunidades educativas. Acceso a la educación. Enseñanza remota. COVID-19.

Introduction

The Coronavirus disease (COVID-19), caused by SARS-CoV-2, which has progressed rapidly with tragic consequences, resulting in thousands of deaths worldwide, was recognized by the World Health Organization (WHO) as a pandemic on March 11, 2020 (WHO, 2020a, 2020b, 2020c).

Educating in times of COVID-19 pandemic has quickly proved a challenging task. The bases of traditional face-to-face teaching courses became impractical amid the outbreak of coronavirus, considering the recommendations for social distancing measures and the consequent shutdown of schools, colleges, and universities (**Figure 1**) to avoid the unrestrained person-to-person spread of the virus in these social environments (EUROSURVEILLANCE, 2020; OECD, 2020a; ROSER *et al.,* 2020; UN, 2020a).

Figure 1 – Evolution of school closures in 2020 during the COVID-19 pandemic.
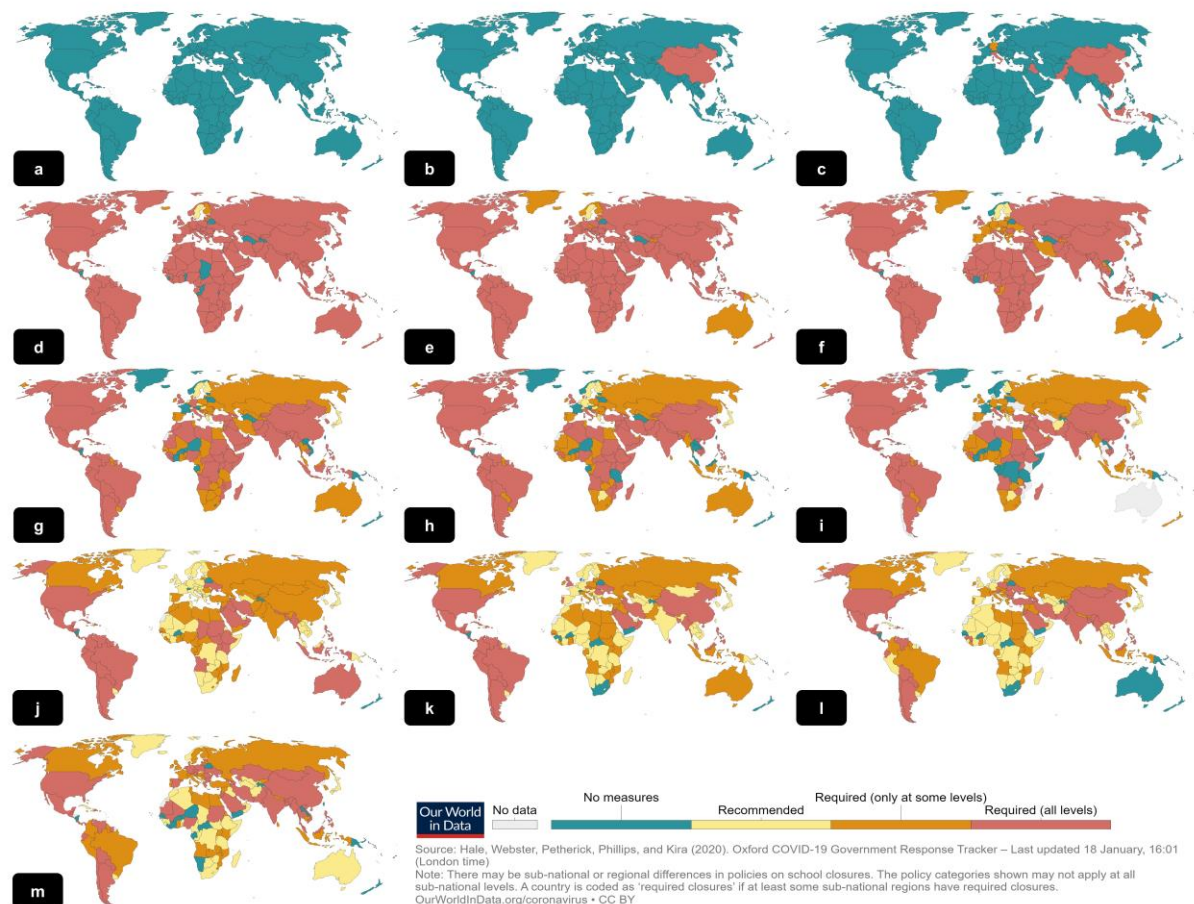
Note: **(a)** January 21st, **(b)** January 27, **(c)** February 27, **(d)** March 27; **(e)** April 27, **(f)** May 27, **(g)** June 27, **(h)** July 27, **(i)** August 27, **(j)** September 27, **(k)** October 27, **(l)** November 27 and **(m)** December 27.
Source: Adapted from Roser *et al.* (2020)

In seeking to manage the programmatic impacts of COVID-19, most instructional institutions (e.g., primary-elementary schools, secondary-high schools, and universities) are betting their cards on a modality called Emergency Remote Teaching (ERT).

> Education systems around the world are facing an unprecedented challenge in the wake of massive school closures mandated as part of public health efforts to contain the spread of COVID-19. Governmental agencies are working with international organizations, private sector partners and civil society to deliver education remotely through a mix of technologies in order to ensure continuity of curriculum-based study and learning for all (UNESCO, 2020).

In that modality, teaching is said to be *remote* because it implies the geographic distance of the parties directly (teachers and students) and indirectly (school community) involved in the teaching and learning processes; in other words, face-to-face interactions give way to virtual ones. Moreover, it is also termed *emergency* because, given the critical circumstances, there was no time to build specific didactic-pedagogical planning for adapting a variety of courses to the distance learning configuration.

However, maintaining an ERT system for an extended period of time – as is happening around the world in the face of the advancing health crisis – will be responsible both for further exacerbating inequality in access to quality education and for contributing to the enlargement of the school dropout rate, since access to Information and Communication Technologies (ICTs) is neither universal nor socioeconomically egalitarian – as we will show more thoroughly in the following sections.

A broader question than *how* to teach (through ERT, online learning, blended learning) – and one that perhaps needs to be answered before even thinking about *how* – is to understand the meaning of teaching. *What* is the point of teaching? *Why* and for *what* to teach? Furthermore, *why* and *what* to teach for in this moment of global crisis?

Understanding that meaningful teaching ultimately aims to achieve meaningful learning is also recognizing the existence of a complex system of behavioral interactions between those who teach and those who learn rooted in (and intrinsically dependent on) the social, economic, political, and cultural aspects in which a given community is inserted.

In fact, meaningful teaching ultimately aims to achieve meaningful learning. Nevertheless, how do we ensure that learning is truly meaningful when teaching online (i.e., remotely), especially when working in an emergency education system, such as ERT?

In this sense, the most sensible question to ask – and that we seek, later on, to answer in a way that opens up an ignored reality (focusing on the student's reality) – is whether everyone

involved in the teaching and learning processes has access to basic study conditions, such as full access to ICTs and an enabling environment conducive to teaching and to learning.

Both teaching and learning will not succeed if there are no favorable enabling conditions for the teaching and learning processes to be fully structured. Therefore, ensuring access to such enabling conditions is one of the main keys to meaningful learning, especially in times of pandemic.

Thus, in order to address the "enabling conditions-meaningful learning" connection centered on an analysis and discussion of the global situation regarding learning conditions in times of crisis, we sought to synthesize a representative multi-country data set to analyze the conditions of access to education and the implications for inequality in access to quality education and basic study conditions.

ERT *versus* Online Education

Through this section, we seek to present a concise literature overview dealing with what is known about *Emergency Remote Teaching* (ERT) as well as the distinction between *Online Education* and ERT. It is important to emphasize that all this introductory discussion will be fundamental for us to understand, later on, how the maintenance of long-lasting ERT can contribute both for increasing inequality in access to quality education and for contributing to the enlargement in the school dropout rate.

As already mentioned, in seeking to manage the programmatic impacts of COVID-19, most instructional institutions at all levels of education have adopted – temporarily – ERT as the main alternative so that school activities are not interrupted due to the health crisis: face-to-face interactions give way to virtual ones.

In contrast to encounters that are developed from the beginning to be online, ERT is a short-term adjustment of educational delivery (e.g., face-to-face, hybrid, or blended teaching courses) to some other instructional delivery setting relying on completely remote teaching methods due to crisis situations, which will persist for as long as the crisis or emergency is in progress (HODGES *et al.,* 2020).

In the ERT system, face-to-face teaching had to be suddenly transposed to remote teaching (assuming geographical distance between teachers-students-school community) without systematic planning (given the critical circumstances, there was no time to build specific didactic-pedagogical planning for adapting a variety of courses to the emergency

remote teaching/ learning configuration); therefore, the purpose of ERT is not to structure a robust educational ecosystem, but to offer temporary access to previously planned curriculum content.

From the didactical point of view, planning is foreseeing the contents to be worked on and arranging the teaching and learning activities and experiences considered best for any achievement of the identified goals, considering the students' truth, interests, and needs. It is an active and dynamic process involving mental operations (e.g., looking at, analyzing, selecting, defining, structuring, and organizing), which implies reflecting, creating, predicting, and acting (HAYDT, 2011).

Thus, it is fair and prudent to point out that ERT is not Online Education (i.e., online teaching and learning); the latter is a product of pedagogical models or educational constructs, relying on well-designed instructional and learning strategies and using different online teaching and learning technologies and instruments (HARASIM, 2017; HODGES *et al.,* 2020; MEANS; BAKIA; MURPHY, 2014). The meticulous design process, as well as careful consideration of various design requirements, affect the level of instruction that is offered, and it is precisely this planning that is missing in the vast majority of cases arising from these unexpected and unscheduled changes due to crises or emergency situations (HODGES *et al*., 2020).

As presented by Harasim (2017, p. 116-118), we can identify at least three different models of education that are nowadays offered online, such as *Online Collaborative Learning*, *Online Distance Education,* and *Online Courseware*.

Since this is not the main purpose of this discussion, we will not go into an in-depth analysis of the merits of each of those online learning models, nor will we judge either their theoretical bases and epistemological positions or their divergences or convergences. However, we will present an overview based on Harasim's treatment of the previously mentioned models (**Figure 2**) so that our discussion is better grounded.

However, as mentioned earlier, access to ICTs is neither universal nor socioeconomically egalitarian, so extending the ERT system may increase education inequality and even the dropout rate.

Furthermore, teachers' lack of ICTs knowledge is one of the barriers to remote education, which prevents them from teaching students how to make better use of the tools needed for ERT, especially students with unique needs. At home, parents have to teach students how to use ICTs, but in many circumstances, they are unaware of using several technologies.

This lack of knowledge and necessary support frightens the student, making his interest in the school decline once he faces difficulties using the tools or does not have full or even partial access to them (CUCCO; GAVOSTO; ROMANO, 2021).

Figure 2 – Main features of online learning models.

	ONLINE COLLABORATIVE LEARNING [aka Collaborativism]	**ONLINE DISTANCE EDUCATION**	**ONLINE COURSEWARE**
	acronym **OCL**	*acronym* **ODE**	*acronym* **OC**
online content	Internet-mediated discourse with text-based discussion	Internet-mediated delivery with text-based assignments	Internet-mediated presentation (content+quiz) with video-based lectures
development	Group learning with instructor-led	Individual learning with tutor support	Individualized learning with computer assessment
teaching-learning environment	Asynchronous and place independence	Asynchronous and place independence	Asynchronous and place independence
key attributes	focus on the role of the teacher with substantial attention on student discourse and collaboration	a correspondence model of course delivery based on self-study and individual communication with a tutor	individualized learning managed by software, increasingly using AI, without instructor or peer interaction

blended pedagogical model	
acronym	**BPM**

key attributes	incorporation of collaborativist pedagogy in online learning converges into a more conversational paradigm; the self-study instructional aspect is combined with group discourse component.

Source: Adapted from Harasim (2017)

Even before the pandemic of COVID-19, the implementation of ICTs was not very successful, led by a utopian vision distant from the classroom reality. The insertion of technology generated more doubts than solutions with poorly trained teachers using them. Teachers learn different strategies during ICTs training for integrating ICT; however,

employing these strategies in the classroom is more challenging than learning as appropriate (DLAMINI; MBATHA, 2018).

In Dlamini & Mbatha's (2018) case study conducted in South Africa, inadequate professional development of teachers' ICT was evident, making ICT integration in the classroom ineffective. Therefore, teachers should be provided with efficient, effective, and accessible professional development programs to enable lifelong learning.

The research with secondary mathematics Indonesian teachers revealed insufficient knowledge about ICTs and their use in education (MAILIZAR; FAN, 2020). The teachers' experience with computers was superior to the knowledge of portable devices. The finding also suggested that the teachers' knowledge of general software was more significant than their knowledge of mathematical software. Regarding the teachers' knowledge of ICTs uses in teaching, the study reported that teachers' ICT-Pedagogical Content Knowledge was inferior to teachers' ICT-Pedagogical Knowledge and ICT-Content Knowledge.

In Algeria, teachers' ICT skills are limited to basic know-how, such as Windows-based software, e-mail, and the Internet for personal use. Therefore, they have no experience using ICTs for teaching or classroom applications (GHERBI, 2015).

Our approach, in this brief reflection, was built with a focus on the socioeconomic reality in which students are inserted in a given community; therefore, we summarized an actual and comprehensive data set to analyze the current global situation related to education and the implications for inequality in access to quality education and basic study conditions.

Methodology

Our argument was structured through qualitative research with bibliographic approach method; this systematic allowed us to analyze, evaluate and interpret relevant studies to the research questions. At first, we seek to build a theoretical framework capable of helping to understand the antagonistic faces of teaching and its implications to meaningful learning, addressing the dichotomy between *teaching* (i.e., meaningfully) and *teaching just for teaching* (i.e., non-meaningfully).

For this purpose, we raised the following guiding research questions: **(i)** *what* is the meaning of teaching?; **(ii)** *why* to teach?; **(iii)** *what* to teach for?; and **(iv)** *why* and *what* to teach for in this moment of global crisis?. Then, we seek to answer them based on a movement of (re)interpretation-resignifying the thoughts of prestigious authorities in the educational field

that deal with the teaching and learning processes, as Paulo Freire (FREIRE, 2000a, 2000b; FREIRE; MACEDO; ARAÚJO FREIRE, 2005), José C. Libâneo (LIBÂNEO, 2001), David P. Ausubel (AUSUBEL, 2000), Carl R. Rogers (ROGERS, 1961), Cipriano C. Luckesi (LUCKESI, 1994), and João L. Gasparin (GASPARIN, 1994). Teaching is impacted by the particular context in which we live, and therefore, we cannot deal with meaningful or non-meaningful teaching without correlating it with social, economic, political, and cultural aspects. In fact, meaningful teaching ultimately aims to achieve meaningful learning; but how do we ensure that learning is truly meaningful when teaching online (i.e., remotely), especially when working in an emergency education system, such as ERT? The difficulty lies in certifying that everyone involved in the teaching and learning processes has full access to and familiarity with ICTs.

Therefore, in a second stage, we summarized an actual and comprehensive data set to analyze the current global situation related to education and the implications for inequality in access to quality education and basic study conditions, such as obstacles to full access to ICTs by students of different socioeconomic backgrounds. In the selection of such a data set, we sought to answer five critical key questions that guided the development of this reflection: **(i)** do the students have and use in a common and familiar way any electronic devices such as smartphones, tablets, personal computers, notebooks?; **(ii)** are those electronic devices for personal use or shared among members of the household?; **(iii)** do those electronic devices have unlimited broadband Internet access or just mobile data (3G, 4G)?; **(iv)** do students have a reserved place for their academic activities or do they share a common space with other household members?; and **(v)** do students need to share their time with or to be partially or fully responsible for activities other than academic activities, such as housework, work-related activities aimed at maintaining or compensating for the loss of household income, sitter-related activities while parents, guardians or members of the household are absent for professional or personal reasons?

It is challenging to locate an up-to-date database that compiles socioeconomic information from students of different age groups, school stages, and countries. In an attempt to build an outlook, we took into account some of the results from the seventh round of the *Programme for International Student Assessment* (PISA) applied in 2018 for 79 education systems involving over 600,000 15-year-old students (OECD, 2019, 2020b). Despite not reflecting the totality and diversity of education systems, the representative multi-country data illustrate the scenario we are trying to highlight in this discussion.

PISA acts as a worldwide thermometer capable of providing information on quality, efficiency, and equity in learning outcomes between the subscribing countries; thus, it works both by supporting difficult decisions with qualitative and quantitative evidence and by exposing fields where policy and practice were deficient, seeking to be an active voice for the reform of the educational supply system (OECD, 2019).

In addition to PISA results: a broader set of data related to accessing a computer from home is presented by the Organization for Economic Cooperation and Development (OECD) in its most recent indicator on the % of all households having access to computers from home (OECD, 2020c). Also, a more general view of the global situation related to access to an Internet connection and inequality in access to the Internet among several income groups could be examined using, respectively, the most recent OECD indicator on the % of all households having Internet access (OECD, 2020d) and the *UN World social report 2020*: *inequality in a rapidly changing world* (UN, 2020b). Just having access to an Internet link does not imply or guarantee connection quality and therefore, questions about the quality of the online experience like coverage (UN, 2020b), video/speed metrics (OPENSIGNAL, 2018, 2019), and demand for broadband networks (OECD, 2020e; SANDVINE, 2020) were also investigated; for description purposes, *OpenSignal* is a global independent mobile analytics company analyzing consumers' true experience on world's mobile networks, and *Sandvine* is a leading authority on the internet phenomena dominating global networks. To support the discussion on access to a quiet place to study, we consider data from the UN report on patterns and trends in family size and composition (UN, 2019).

In an attempt to answer the last research question raised, we seek to analyze the impacts caused by the COVID-19 pandemic on students' dedication to academic activities, both to help with domestic chores and to maintain or to compensate for the household income; such an analysis was carried out based on the OECD policy brief entitled *COVID-19: Protecting people and Societies* (OECD, 2020f) and other works that made it possible to associate psychosocial effects (BROOKS *et al.,* 2020; PFEFFERBAUM; NORTH, 2020) with an abrupt decrease in socioeconomic status (KAWOHL; NORDT, 2020; MUCCI *et al.,* 2016; NORDT *et al.,* 2015).

Findings

Through the summary diagram represented by **Figure 3**, we seek to present a global view of this work's main findings. We believe that by separating out the findings from the discussion, we will be better able to communicate both what was found and then why it is important to the guiding questions.

The dimension of teaching goes far beyond the pure transmission of knowledge; likewise, for learning to be meaningful, it must be much more than a mere accretion of knowledge or accumulation of facts. We aim for students to learn significantly, transforming their curiosity into cognitive effort and moving from confused and fragmented knowledge to organized knowledge. By teaching meaningfully, we expect the student to learn. And that, learning meaningfully, he can transform the purely systematized knowledge in order to modify (either constructing or reconstructing) his values, conduct, and attitudes, resignifying his way of being and becoming: meaningful teaching ultimately aims to achieve meaningful learning. However, how do we ensure that learning is truly meaningful when teaching online (i.e., remotely), especially when working in an emergency education system, such as ERT? This question is intrinsically impacted by the particular context in which we live; therefore, we cannot deal with meaningful or non-meaningful teaching/learning without correlating it with social, economic, political, and cultural aspects. Indeed, one of the key issues lies in certifying that everyone involved in the teaching and learning processes has full access to and familiarity with ICTs.

Figure 3 – Summary diagram of the main findings.
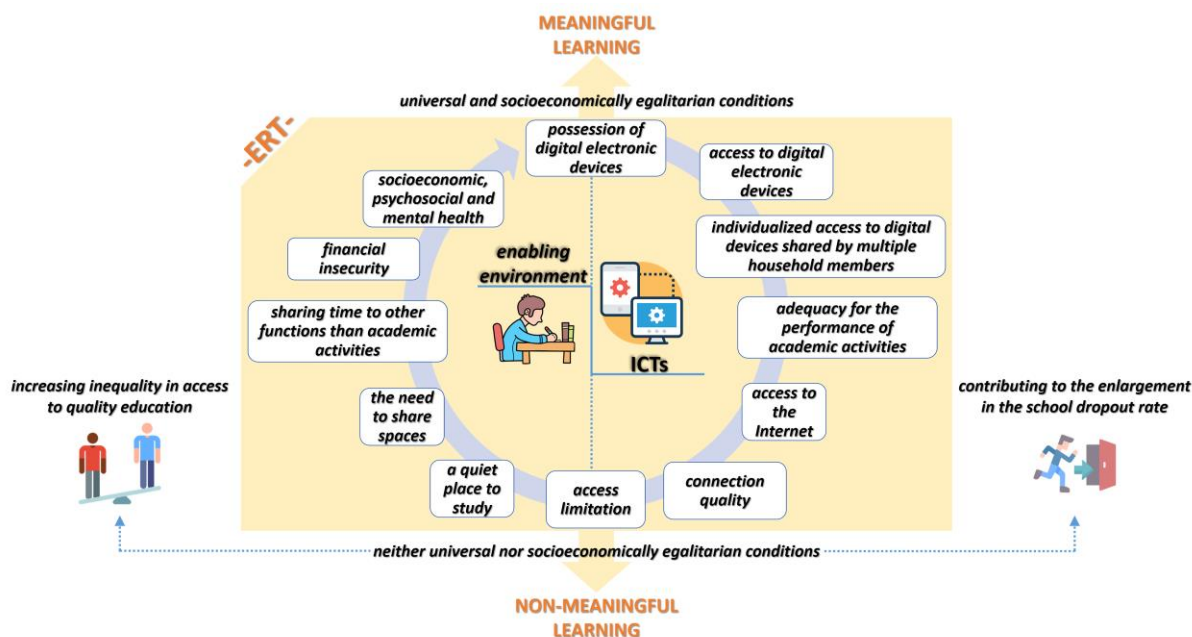
Source: Prepared by the author

Summarizing an actual and comprehensive data set to analyze the current global situation related to education and the implications for inequality in access to quality education and basic study conditions, we verified alarming obstacles to full access to ICTs by students of different socioeconomic backgrounds. As an overview, we can list: **(i)** in many countries, besides the access to a computer for schoolwork being scarce, it is also irregularly distributed according to students' socioeconomic profile; **(ii)** in times when access to digital electronic devices is neither universal nor socioeconomically egalitarian, the health crisis triggered by the COVID-19 pandemic further constrained individualized access to such digital devices shared by multiple household members; **(iii)** the existence or possession of electronic devices other than computers (such as tablets and smartphones) does not safeguard their adequacy for the performance of the different academic activities and tasks that a student is submitted to – in terms of data processing capacity or by setbacks generated; **(iv)** a wide disparity is revealed in access to the Internet among countries of several income groups, being neither universal nor equitable; **(v)** just having access to an Internet link does not imply or guarantee connection quality; this is an issue in which also the geography matters in many countries; **(vi)** since connectivity is not created in the same way and not every digital electronic devices are able to deliver the same quality in online experiences for all the users, many households face some kind of access limitation when using equipment because many residents are sharing the available devices; **(vii)** in many countries, socioeconomic status matters as students from less

advantaged backgrounds are systematically more likely not to have a quiet place to study compared to those from more favored profiles; **(viii)** confinement and movement restrictions, prolonged worldwide school closure and the adoption of telework are some of the factors that contribute to less social mobility and, consequently, imply the need to share spaces between people living in the same household; **(ix)** due to the COVID-19 health crisis, many students have started to perform functions other than those dedicated to studies and academic activities in general, both to help with domestic shores and to maintain or to compensate for the household income; sharing time to other functions than academic activities, in addition to financial insecurity, will cause a direct impact and hinder any attempt to maintain any kind of teaching and learning process; and **(x)** socioeconomic, psychosocial and mental health factors must be considered all-together when designing and implementing any type of educational intervention, especially in emergency situations, since such actions can contribute to educational inequality, as well as being responsible for perpetuating economic inequality; we must ensure that our actions are not responsible both for increasing inequality in access to quality education and for contributing to the enlargement in the school dropout rate.

Theoretical framework

Our discussion begins with constructing a theoretical framework to better understand the antagonistic faces of teaching and its implications for meaningful learning, addressing the dichotomy between *teaching* (i.e., meaningfully) and *teaching just for teaching* (i.e., non-meaningfully). This discussion is essential so that, as the text progresses, we can understand that both *teaching* and *learning* are intrinsically impacted by the particular context in which we live and that, therefore, we cannot deal with meaningful or non-meaningful teaching/learning without correlating it with social, economic, political and cultural aspects.

One of the biggest challenges that involve the act of teaching lies in understanding at the core of what it is to understand that teaching is not and may never be a unilateral action.

Making learn (i.e., teaching) and learning itself are two distinct but complementary, interconnected, and inseparable actions by which the acquisition of knowledge proceeds; there is no acquisition of knowledge either through teaching or learning solely, since teaching and learning are, at the same time, interchangeable and indivisible faces of the same whole (GASPARIN, 1994, p. 70–72).

Teaching is always a *two-lane road* in which the teacher, when teaching the student, becomes the one who was initially taught; this fascinating wheel is a gear that does not allow the dissociation of parts: those who teach always learn, and those who learn also teach.

> What I mean is that teaching and learning take place in such a way that those who teach learn, on the one hand, because they recognize previously learned knowledge and, on the other, because by observing how the novice student's curiosity works to apprehend what is taught (without which one cannot learn), they help themselves to uncover uncertainties, rights, and wrongs (FREIRE; MACEDO; ARAÚJO FREIRE, 2005, p. 31).

And whoever teaches something to someone wants that something to be assimilated by the interlocutor with whom one is related. However, the mere accumulation of facts does not guarantee that what has been taught starts to integrate, in which it is being taught, higher-level cognitive structures or even any modification of these previously established cognitive levels.

This intentional provocation allows us to go so far as to question *why* to teach. However, it is essential to emphasize that this reflection is not intended to explore the origins of the act of teaching. Instead, it modestly limits itself to reframing – or more precisely, trying to simplify as much as possible – the understanding of *why* to teach since the discussion of *why* to teach is much broader and does not end with learning; it is also a social discussion about the role of educational practice:

> [...] Education comprises the set of processes, influences, structures, and actions that intervene in the human development of individuals and groups in their active relationship with the natural and social environment in a given context of relationships between groups and social classes, aiming at the formation of human beings. Education is, therefore, a human practice, a social practice, which modifies human beings in their physical, mental, spiritual, and cultural states, which gives a configuration to our individual and group human existence (LIBÂNEO, 2001, p. 157, our translation).

Therefore, *teaching* is to prepare the student in a plural way (i.e., culturally, socially, technically, scientifically, and politically) for the society in which he lives. However, sticking to an overly simplistic way, the teacher is the agent who wants to teach something so that his interlocutor – as a thinking person – can learn what was taught: teaching is done so learning can happen.

> [...] learning is a creative adventure. Something much richer than the simple repetition of a lesson or of something already given. For us, **to learn is to construct, to reconstruct, to observe with a view to changing** – none of which can be done without being open to risk, to the adventure of the spirit (FREIRE, 2000, p. 67, emphasis added).

Thus, teaching should not be seen as a simple transmission of knowledge but as a way to reconstruct it, aiming to transform purely systematized knowledge into the appropriation of an elaborated culture. Furthermore, for the student to be able to formulate his culture and reorganize the spontaneous culture he has with the appropriation of the elaborated culture, it is necessary for the mediation of the educator (LUCKESI, 1994, p. 118).

When teaching, the teacher acts as an active assistant in the teaching and learning processes, helping the student cultivate the assimilation of substantial knowledge, skills, and values with his own intellectual resources.

The teaching and learning processes must be seen as a means of gradual and continuous development, which necessarily aims to achieve realistic goals. Learning is not mechanical and cannot be treated as such; the student needs to be able to assimilate what was presented to him in a comfortable way (e.g., inserted in a predominantly non-directive teaching environment to value students' intellectual freedom), without this process becoming a mere act of reading and memorizing, or worse, there is the appropriation of scientific language without its proper understanding, what we call the *parrot effect*: one that mimics what has been taught but does not criticize its content (AUSUBEL, 2000; BHATTACHARYA, 2022; MAYER, 2002).

Such a *parrot effect* is enhanced by *teaching just for teaching*. And *teaching just for teaching*, in fact, does not really teach. Or rather, it even teaches but does not *teach* to *learn*; it teaches by the simple act of teaching. This mechanical learning, in a Freirean view of banking education, does not seek the student's awareness:

> [...] the more the emptiness left by those dreams becomes filled with technique, until the moment comes when education becomes reduced to that. **Then, education becomes pure training, it becomes pure transfer of content, it is almost like the training of animals, it is a mere exercise in adaptation to the world** (FREIRE, 2000b, p. 101, emphasis added, our translation).

Answering our last question – *why and what to teach for in this moment of global crisis?* – is not a simple, direct task. We need to work on our ability to put ourselves in someone else's shoes and try to understand their reality: it is an exercise in empathy.

Nevertheless, *empathy* is a subjective personal aptitude, and because it is subjective, not everyone places it at the same level of significance. Thus, the most coherent thing is not to take it as the basis of our discussion but to grasp it only as a facilitating skill.

However, *quality teaching* is not as subjective as *empathy*, so let us focus on this term. As educators, we understand that teaching will only be of quality if the student learns; indeed,

we aim for students to learn significantly, meaningfully – this is precisely the reason *why* we teach –, transforming their curiosity into cognitive effort and moving from confused and fragmented knowledge to organized knowledge.

And for learning to be meaningful, it has to be much more than a mere accretion of knowledge or accumulation of facts; in this way, by penetrating the core of our existence, significant learning can modify our conception and worldview, implying positive differences in the individual's behavior (ROGERS, 1961, p. 280).

As Ausubel (2000, p. VI) brings up, knowledge is meaningful by definition. It involves a dynamic cognitive psychological process, being the result of the interaction between culturally significant ideas, relevant anchoring ideas in the cognitive structure of a particular student (by its idiosyncratic nature), and his set of mental representations, constructed both to learn significantly and to acquire and retain knowledge produced in a given moment and context.

By teaching meaningfully, we expect the student to learn. And that, learning meaningfully in the light of a continuous process of translation and back-translation of the spontaneous culture that the student has, he can transform the purely systematized knowledge in order to modify (either constructing or reconstructing) his values, conduct, and attitudes, resignifying his way of being and becoming – and so now, we believe that we managed to put into words the sense of *what* to teach for.

Analysis and discussion of the global situation regarding learning conditions in times of crisis

We then come to the central point of our brief discussion: in times of COVID-19 pandemic, would we be *teaching* (i.e., meaningfully) or *teaching just for teaching* (i.e., non-meaningfully)?

In an attempt to answer such a provocation, we seek – in this second moment of our discussion – to summarize an actual and comprehensive data set to analyze the current global situation related to education and the implications for inequality in access to quality education and basic study conditions; in fact, both teaching and learning will never be meaningful if there are no **favorable enabling conditions** for the teaching and learning processes to be fully structured. Therefore, ensuring access to such enabling conditions is one of the main keys to meaningful learning, especially in times of pandemic.

The desire to continue to teach, and teach currently online despite all the adversities and difficulties arising from the pandemic, is one of the greatest merits of a dedicated educator. It shows a long-range altruistic vision concerned with the future of those who awaken in the teacher the desire to teach: the student.

However, putting this desire into practice implies complex pedagogical issues rooted in meaningful learning and guided by the physical-emotional well-being of those involved in the teaching and learning processes. In addition to pedagogical issues, and no less critical, the socioeconomic conditions of students are centered, which reflect and directly impact meaningful learning.

As previously presented in our discussion, meaningful teaching ultimately aims to achieve meaningful learning. Nevertheless, how do we ensure that learning is truly meaningful when teaching online (i.e., remotely), especially when working in an emergency education system, such as ERT?

As educators, we are aware that the (meaningful) teaching and learning processes are the result of a complex system of behavioral interactions between those who teach and those who learn, preferably inserted in a predominantly non-directive teaching environment to value the students' intellectual freedom, and requires prior planning at different levels (e.g., curriculum and didactic planning).

In this scenario, we must ensure that our actions are not responsible both for increasing inequality in access to quality education and for contributing to the enlargement of the school dropout rate.

And it goes beyond that; we must be careful not to use the pandemic situation as a pretext to justify the losses in the teaching and learning processes: the difficulties are, in fact, inherent to the pandemic, but the educational actions – as the result of a board decision – are those that will reflect the ability (or the inability) to create viable alternatives to minimize the impact on teaching and learning generated by the pandemic.

One of the difficulties lies in certifying that everyone involved in the teaching and learning processes has full access (i.e., unrestricted ability, right, or permission to locate and use any given electronic device for receiving, processing, storing, retrieving, consuming, and disseminating information) and familiarity (i.e., domain in resource handling and efficiency in its use) with Information and Communication Technologies (ICTs).

Thus, a set of critical questions can be elaborated focusing on the socioeconomic reality of students as below. Such questions are categories that organize the presentation of data to

facilitate the analysis and discussion of the global situation regarding learning conditions in times of crisis when using ERT.

Question 1: *Do the students have and use in a common and familiar way any electronic devices such as smartphones, tablets, personal computers, notebooks?*

Countries such as Denmark, Slovenia, Norway, and Poland have access rates to a computer for schoolwork above 90%, considering students from both advantaged and disadvantaged schools. According to OECD (2020b), "a socioeconomically disadvantaged (advantaged) school is a school whose socioeconomic profile (i.e., the average socioeconomic status of the students in the school) is in the bottom (top) quarter of the PISA index of economic, social and cultural status amongst all schools in the relevant country/economy". Dissimilarly, students from countries like Morocco, Dominican Republic, the Philippines, and Indonesia are those who have limited access to a computer in their homes to carry out their academic activities; in these countries, besides the access being scarce (<50%), it is also irregularly distributed according to socioeconomic profile, as students from more advantaged environments are systematically more likely to have access to a computer they can use for schoolwork (**Figure 4**). A quick parallel with Brazil, the situation is similar to the countries with the worst rates of access (<60%) and socioeconomically dependent distribution (just over 30% for students in disadvantaged schools).

Figure 4 – Access to a computer for schoolwork (% of students that have access to a computer they can use for schoolwork, PISA 2018).
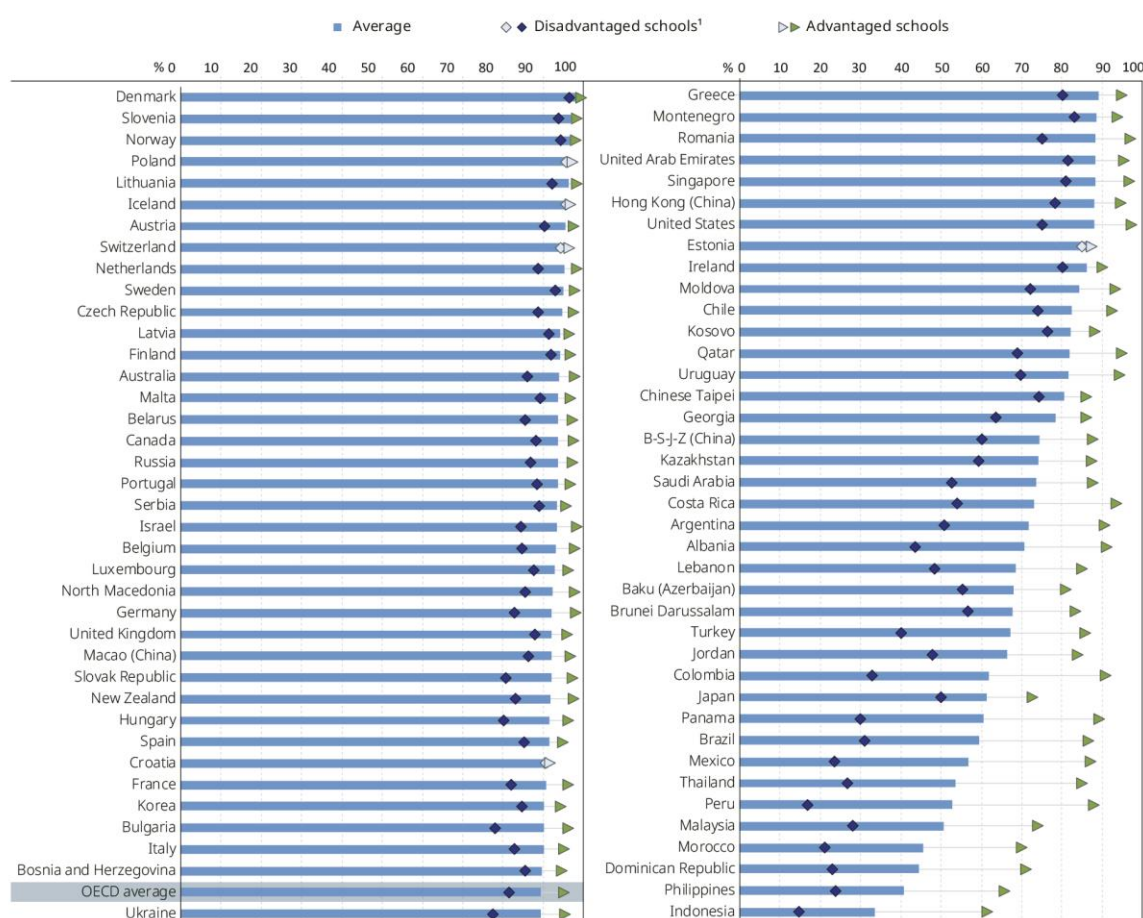
Note: Statistically significant values are shown in darker tones.
1. A socio-economically disadvantaged (advantaged) school is a school whose socio-economic profile (i.e. the average socio-economic status of the students in the school) is in the bottom (top) quarter of the PISA index of economic, social and cultural status amongst all schools in the relevant country/economy.
Countries and economies are ranked in descending order of the average percentage of students that have access to a computer they can use for schoolwork.
Source: OECD, PISA 2018 Database

Source: Retrieved from OECD (2020b, p. 20)

However, it is true that PISA only considers access to a computer for schoolwork purposes, even though there are other electronic devices – such as tablets and smartphones – that, in principle, would be able to allow for those activities.

Nevertheless, the simple existence or possession of the aforementioned electronic devices does not safeguard their adequacy for the performance of the different academic activities and tasks that a student is submitted to – in terms of data processing capacity or by setbacks generated (e.g., by font size, audio quality, and text-typing efficiency).

For instance, **(i)** a student is not expected to be able to effectively write scientific reports – subdivided into typical sessions and following formatting rules – with the insertion of figures, tables, and graphs through a smartphone; **(ii)** it is even less likely that the student will be able to thoroughly analyze, expose and discuss statistical or experimental data through the screen of

a cellphone, even if the device is the latest generation; **(iii)** the limitation is even more remarkable when it comes to installing and using advanced data manipulation programs (for data analysis and graphing, system simulation and calculation management for example) to develop templates for repetitive tasks or to perform batch operations, with or without the need for programming (e.g., OriginPro®, Maple™, MATLAB™, LabVIEW™, AutoCAD®). Even less powerful computers will have difficulty running these complex operations.

It is important to point out that, although many students are familiar with the use of digital electronic devices such as smartphones and notebooks to exchange messages and share experiences on social networks (e.g., Facebook, Instagram, Twitter, WhatsApp, Telegram), to play online on platforms as STEAM® and Blizzard Entertainment®, this does not imply a pre-existing ability (but perhaps a facilitating skill) to working with educational information and communication technologies.

Question 2: *Are those electronic devices for personal use or shared among members of the household?*

The OECD presents a broader set of data related to accessing a computer from home in its most recent indicator (**Figure 5**); for comparison purposes, the latest data available for each country is shown (i.e., 2019 or the latest available).

We can note that in many countries, there is a significant portion of the population still does not have a computer at home, like in Brazil (60.6%), Colombia (58.4%), Mexico (55.7%), Turkey (50.0%), Costa Rica (49.6%) and Chile (39.9%). Even in advanced economies, such as Germany and the United Kingdom, almost 10% of its inhabitants do not have access to at least one personal computer in working order in their home.

Figure 5 – Access to computers from home (total, % of all households, 2019 or latest available).
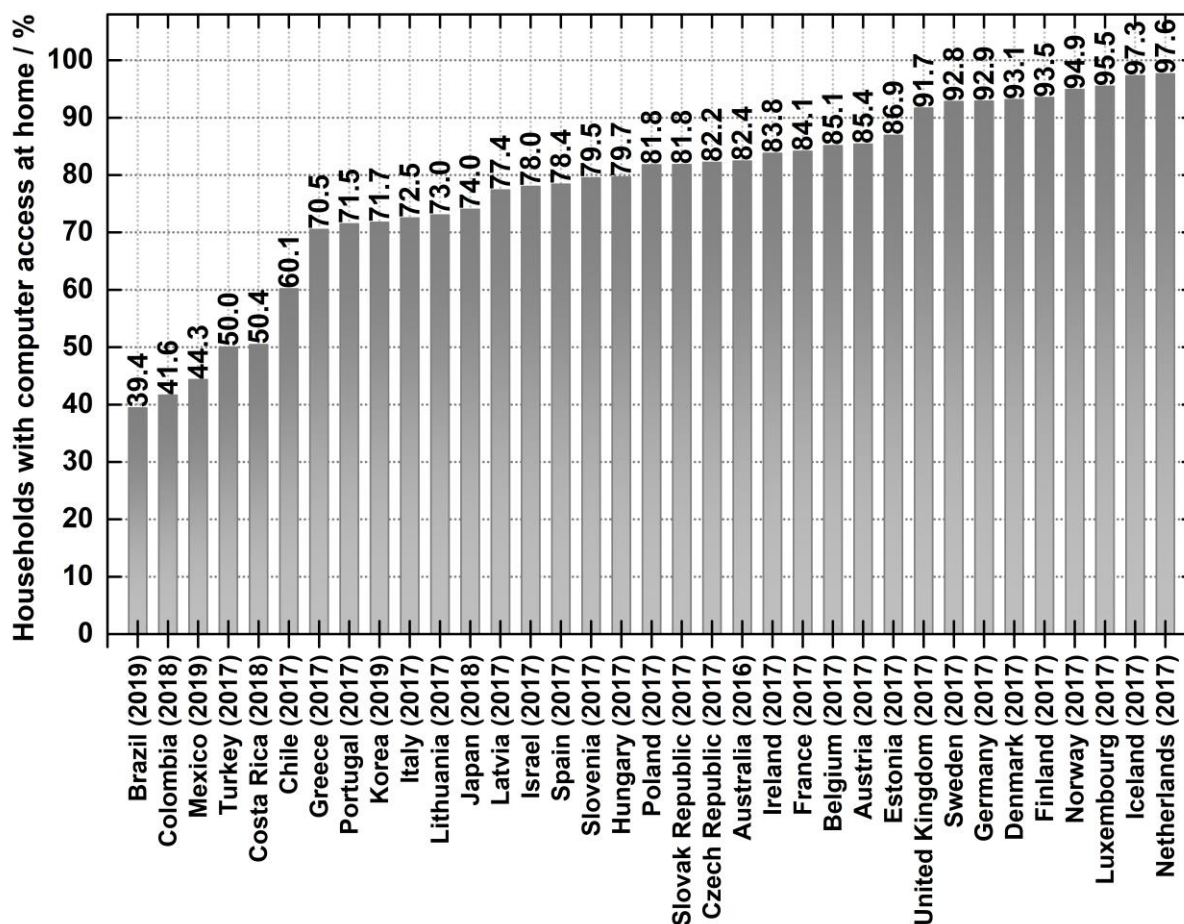
Note: Access to computers from home is defined as the number of households that reported having at least one personal computer in working order in their home. This indicator is measured in percentage of all households.
Source: Database OECD (2020c)

Given this alarming scenario, and especially in countries where access to a computer at home is already scarce, what is the probability that each active resident of a household has a computer (and we will extend this question to other digital electronic devices such as smartphones and tablets) for exclusive personal use? And what is the probability that these devices are in full working order and not technologically obsolete?

In times when access to digital electronic devices is neither universal nor socioeconomically egalitarian, the health crisis triggered by the COVID-19 pandemic further constrained individualized access to such digital devices shared by multiple household members.

Question 3: *Do those electronic devices have unlimited broadband Internet access or just mobile data (3G, 4G)?*

Access to an Internet link (**Figure 6**) is practically universal – over 95% for students both in advantaged or disadvantaged schools – in countries like Denmark, Finland, Estonia, and Iceland. On the other hand, in many other countries like Peru, Morocco, the Philippines, and Indonesia, Internet access is neither universal nor equitable; for example, in Peru, less than 60% of all students have access to an Internet network, with over 90% of students from privileged schools and just over 20% of those from disadvantaged backgrounds have a link to the Internet in their homes. In Brazil, the reality is relatively better compared to the previous countries, but there is still a long way to becoming an equitable distribution: on average, more than 90% of students have some link to the Internet at home (almost the totality of students from advantaged schools and less than 80% of those from disadvantaged schools).

Figure 6 – Access to a link to the Internet (% of students that have access to a link to the Internet, PISA 2018).
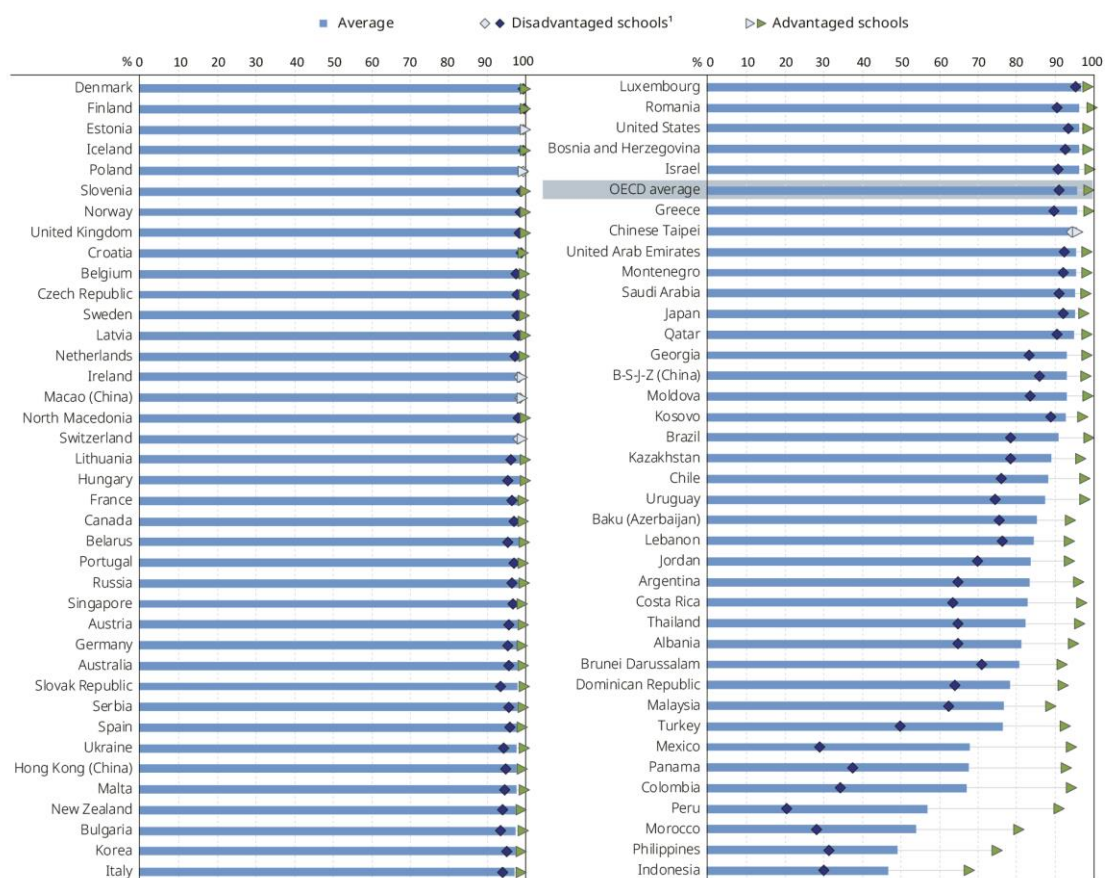
Note: Statistically significant values are shown in darker tones.
1. A socio-economically disadvantaged (advantaged) school is a school whose socio-economic profile (i.e. the average socio-economic status of the students in the school) is in the bottom (top) quarter of the PISA index of economic, social and cultural status amongst all schools in the relevant country/economy.
Countries and economies are ranked in descending order of the average percentage of students that have access to a link to the internet.
Source: OECD, PISA 2018 Database

Source: Retrieved from OECD (2020b, p. 21)

A more general view of the global situation related to access to an Internet connection can be examined using the most recent OECD indicator (**Figure 7**); for comparison purposes, the latest data available for each country is shown (i.e., 2019 or the latest available).

Figure 7 – Internet access (total, % of all households, 2019 or latest available).
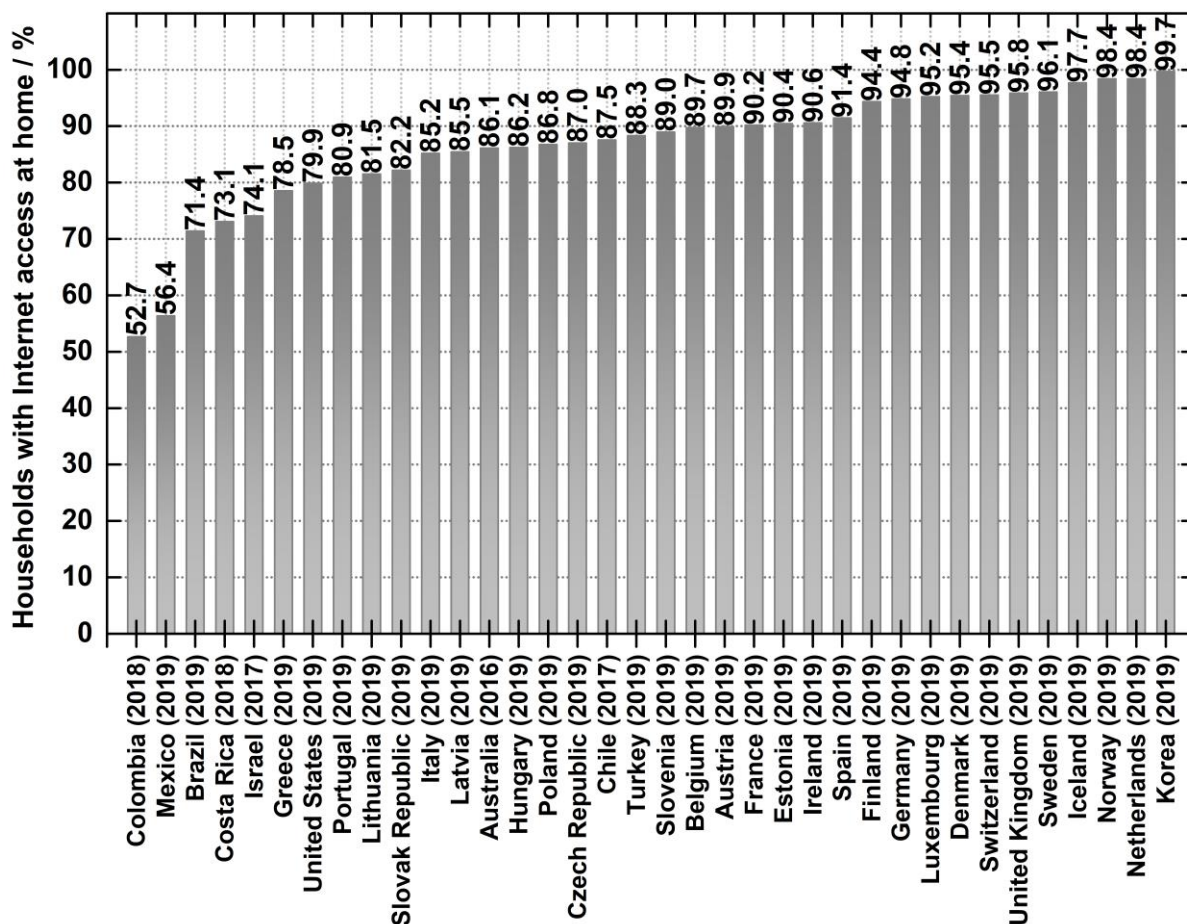
Note: Internet access is defined as the percentage of households who reported that they had access to the Internet. In almost all cases this access is via a personal computer either using a dial-up, ADSL or cable broadband access. This indicator is measured in percentage of all households.
Source: Database OECD (2020d)

In developing economies, including countries such as Colombia, Mexico, and Brazil, access to the Internet is still low-range and covers, on average, only half of their populations; in contrast to such numbers, advanced economies (e.g., Germany and the United Kingdom) tend to have high levels of access to a link to the Internet. In fact, according to the *World social report 2020: inequality in a rapidly changing world,* presented by the United Nations, a wide disparity is revealed in access to the Internet among several income groups: under 20% of the public of least developed countries have the chance to access the Internet, as compared to more than 85% of the entire population in developed countries (UN, 2020b).

However, just having access to an Internet link does not imply or guarantee connection quality; furthermore, this is an issue in which also the geography matters in many countries – especially those in development –, with noticeable significant differences when comparing access to broadband between urban and rural areas (UN, 2020b).

Since connectivity is not created in the same way and not every digital electronic device is able to deliver the same quality in online experiences for all users, many households face some kind of access limitation such as obsolete technology, service crashes or cutoffs, slowness of services or also hindrances when using equipment because many residents are sharing the available devices (RIDEOUT; KATZ, 2016, p. 10).

In this sense, for example, accompanying a synchronous class, a meeting, a debate, or an academic task with video dependency through an electronic device (e.g., smartphone) connected to a mobile 3G/4G network can be somewhat challenging due to video and speed quality.

Overall video experience comparison provided by the 2018 OpenSignal Report entitled *The State of Mobile Video (September 2018)* showed that almost all of the 69 countries included in the analysis earned scores between 40 and 65 [out of 100], falling into *Fair* or *Good* ratings; these data show that the overall typical mobile video experience still leaves much to be desired, mainly inducing issues like long video loading times, stops and stutters mid-stream and connection problems to deal with higher resolution formats (OPENSIGNAL, 2018).

Countries such as the Czech Republic, Hungary, Norway, Belgium, United Arab Emirates, Singapore, the Netherlands, Denmark, Austria, Switzerland, and Slovakia were the ones that, according to the 2018 OpenSignal Report, delivered the best video experiences (picture quality, video loading time and stall rate) to their users, earning them *Very Good* rating (68.52; 67.89; 67.41; 67.20; 67.07; 66.94; 66.58; 65.70; 65.62; 65.14 and 65.12 points out of 100, respectively), but no country achieved the highest video experience rating of *Excellent*; at the other extreme, India, Iran and the Philippines were the countries with the worst scores (38.62; 38.57 and 34.98 points out of 100, respectively) for video experiences characterized by constant stalling during video playback and long video loading times even for low-resolution ones, earning them *Poor* rating.

Another noteworthy result from the OpenSignal Report is the fact that video experience is only a function of download speed in countries where average overall download speed @3G/4G networks are relatively slow (<15 Mbps), which is the case in countries like Kuwait

(14,69[5]; 16,2[6] Mbps), Mexico (13,06[5]; 14,9[6] Mbps), Brazil (12,00[5]; 13,0[6] Mbps), Chile (11,00[5]; 12,0[6] Mbps), Peru (9,27[5]; 11,7[6] Mbps), Philippines (6,03[5]; 7,0[6] Mbps), India (5,63[5]; 6,8[6] Mbps), among others. On higher-speed connections, issues like latency and connection speed consistency are more important for the video experience metrics.

However, the COVID-19 pandemic caused an unprecedented demand for broadband consumer networks, further complicating the scenario outlined previously. The 2020 *Sandvine* report, as its title says, features a "COVID-19 Internet Phenomena Spotlight" and shows a growth of almost 40% in global traffic (measurement period: February 1st to April 19, 2020) (SANDVINE, 2020). Likewise, the OECD report points to a record net increase of up to 60% in total bandwidth handled per country (measurement period: December, 2019 to March, 2020) (OECD, 2020e).

Question 4: *Do students have a reserved place for their academic activities, or do they share a common space with other household members?*

A study environment conducive to learning is directly dependent on the physical environment of the household (e.g., its physical integrity and safety, size and distribution of rooms, organization, and cleanliness) and how the interaction with its residents and neighborhood proceeds, whether inside or around the house. Thus, having a quiet place to study (**Figure 8**) is an indicative of the quality of the study-learning environment: a reserved area where the student can study in silence, free from noise and external distractions (e.g., conversations inside the house, noise from appliances such as a vacuum cleaner, blender, or even television, and noise from external traffic) with a solitary and uninterrupted focus on a given activity in order to prioritize and value the learning of the "I-thinker" in an environment that allows deep concentration to be achieved.
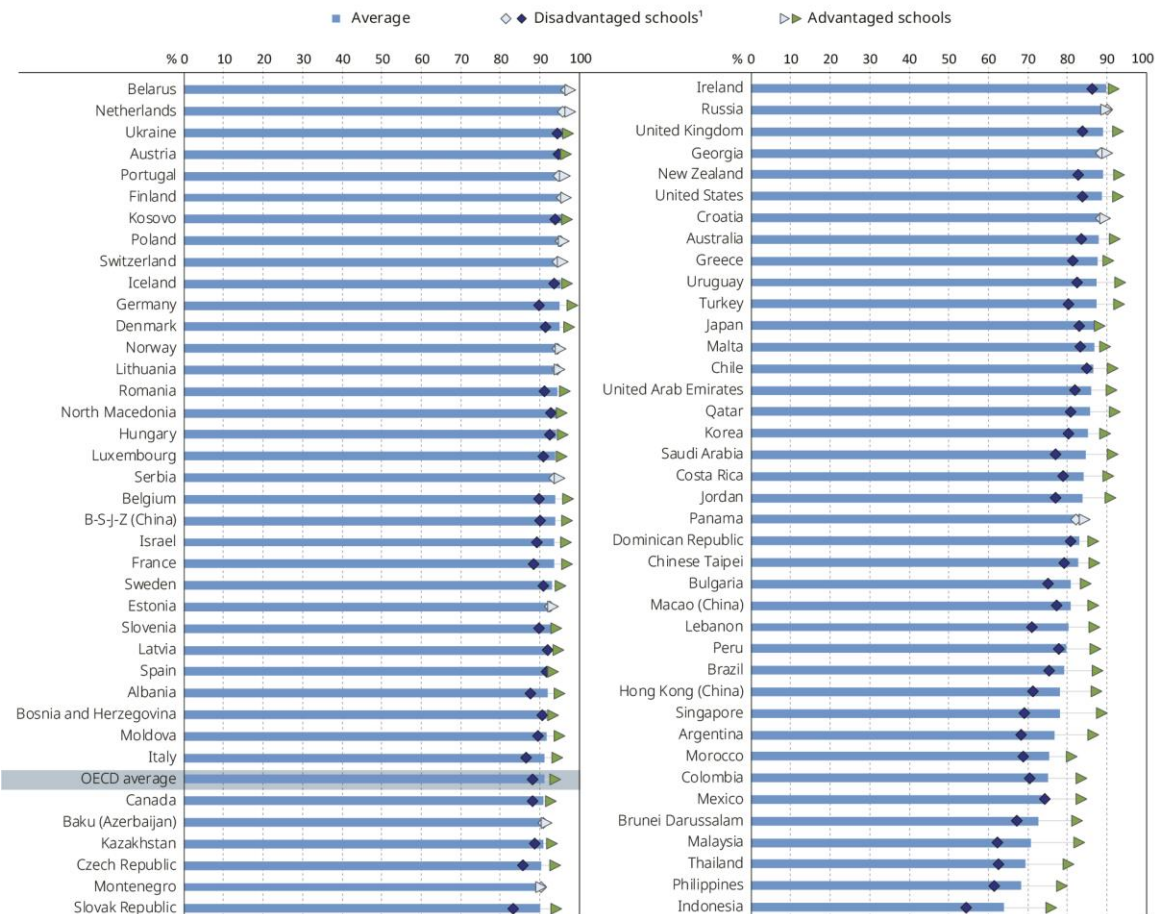
Students from both advantaged and disadvantaged schools in countries like Belarus, the Netherlands, Ukraine, Austria, and Portugal have access to a quiet place to study. But this reality is not extensive for all countries, and, again, it depends on socioeconomic backgrounds. In the Philippines, for example, just under 70% of all students have a quiet place to carry out their academic activities, but when we analyze the socioeconomic background, it appears that almost 80% of students from more favored schools have access to a good place, whereas this figure is only around 60% in less favored schools. In Brazil, socioeconomic status matters as

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[5] OpenSignal (2018).
[6] OpenSignal (2019).

students from less advantaged backgrounds are systematically more likely not to have a quiet place to study (almost 25%) than those from more favored profiles (around 10%).

Figure 8 – Access to a quiet place to study (% of students that have access to a quiet place to study, PISA 2018).

Source: Retrieved from OECD (2020b, p. 19)

In 2019, the Department of Economic and Social Affairs of the United Nations Secretariat, through its Population Division (UN, 2019), produced a document addressing patterns and trends in household size and composition; as an example for the countries mentioned in the previous paragraph, the distribution of households by the number of members, available for 160 countries or areas, pointed out the following sharing profiles: Philippines (1 Person-5%; 2 or 3 People-26%; 4 or 5 People-37%; 6 or more People-32%), Brazil (1P-12%; 2/3P-47%; 4/5P-32%; 6+P-9%), Ukraine (1P-28%; 2/3P-51%; 4/5P-18%; 6+P-3%), Austria (1P-36%; 2/3P-45%; 4/5P-16%; 6+P-2%), Portugal (1P-21%; 2/3P-56%; 4/5P-22%; 6+P-2%),

Belarus (1P-27%; 2/3P-52%; 4/5P-19%; 6+P-2%) and the Netherlands (1P-35%; 2/3P-46%; 4/5P-18%; 6+P-1%).

It is important to keep in mind that, due to the COVID-19 pandemic, such numbers regarding access to a quiet place to study may no longer represent the current housing situation worldwide. Still, those data serve as an alarming indicator – even if pre-pandemic – of inequality in access to basic study conditions in many countries. Confinement and movement restrictions, prolonged worldwide school closure, and the adoption of telework are some of the factors that contribute to less social mobility and, consequently, imply the need to share spaces between people living in the same household.

Question 5: *Do students need to share their time with or to be partially or fully responsible for activities other than academic activities, such as housework, work-related activities aimed at maintaining or compensating for the loss of household income, sitter-related activities while parents, guardians, or members of the household are absent for professional or personal reasons?*

Due to the COVID-19 health crisis, many students have started to perform functions other than those dedicated to studying and academic activities in general, both to help with domestic shores and to maintain or to compensate for the household income. Indeed, a large number of households have to deal with the prospect of falling into poverty due to a drop in their income linked to the health crisis and limited financial buffers. This risk is especially high for the younger generation, people educated below the tertiary level, couples with children, and single-parent families (especially those headed by women), that they may also be facing tremendous financial pressures, difficulties with childcare, and a lack of family support (OECD, 2020f, p. 5).

Sharing time to those other functions (which will consequently result in greater physical and/or mental fatigue), in addition to financial insecurity, will cause a direct impact and hinder any attempt to maintain any kind of teaching and learning process.

To conclude this brief discussion, we must remember that the COVID-19 pandemic has worrying implications for both individual and collective health and, consequently, emotional and social functioning (PFEFFERBAUM; NORTH, 2020, p. 512), such as psychosocial effects like anxiety and depressive disorders. The psychological impact of being in quarantine or isolation for extended periods is globally comprehensive, substantial, and can be long-standing (BROOKS *et al.,* 2020, p. 919). This situation can be even worse when there is household

financial insecurity due to unemployment and a consequent abrupt decrease in socioeconomic status (KAWOHL; NORDT, 2020; MUCCI *et al.,* 2016; NORDT *et al.,* 2015).

Really meaningful learning will only be achieved if, and only if, there are favorable conditions at all levels so that it can be fully established. Thus, socioeconomic, psychosocial, and mental health factors must be considered all-together when designing and implementing any type of educational intervention, especially in emergency situations, since such actions can contribute to educational inequality, as well as being responsible for perpetuating economic inequality.

Final remarks

Educating in the face of the global epidemiological emergency caused by COVID-19 has been a challenging and worrying task rooted in social justice issues. It is a challenge because we need both to reinvent the educational supply system and to reinvent ourselves as educators; and as conscientious educating teachers, we need to self-assess whether or not our educational actions are, in fact, teaching. Thus, are we succeeding in *teaching* (i.e., meaningfully) or *teaching just for teaching* (i.e., non-meaningfully)?

Teaching is not a training of skills or a simple transmission of knowledge; it is a way to transform purely systematized knowledge into the appropriation of an elaborated culture, transform curiosity into cognitive effort, and move from confused and fragmented knowledge to organized knowledge.

This type of teaching is only achievable with meaningful learning as an irrefutable goal in a transformative action that interpenetrates with every portion of the individual's existence. And when this action is structured in a manner consciously centered on learning, there is no space for structuring the *parrot effect*.

In this way, we are able to fulfill our role as educators by establishing structured teaching focused on critical learning that is open to construct, reconstruct, and observe with a view to changing.

However, as educators concerned with meaningful teaching seeking meaningful learning, we need to take into account the reality (whether socioeconomic, physical, or mental health) in which our students find themselves before adopting any teaching and learning methodologies or interventions. Therefore, we must consider the cost-benefit of our endeavor,

as we bear in mind that the cost is high and paid in the same currency: with (non-)meaningful learning.

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