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VI Encontro Internacional  
de Formação na Docência

6th International Conference  
on Teacher Education

**inct**<sup>e</sup>22  
international  
conference on  
teacher education



**INCERTEZAS E DESAFIOS**  
NA INVESTIGAÇÃO  
EM EDUCAÇÃO

**UNCERTAINTIES AND CHALLENGES**  
IN EDUCATIONAL RESEARCH



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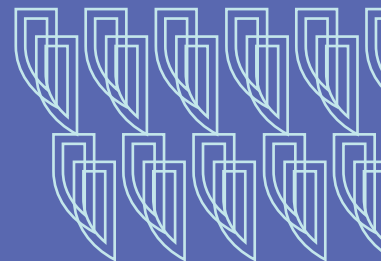
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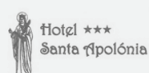
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## INCTE'22

É indiscutível que a situação pandémica, numa inusitada cobertura mundial, condicionou, condiciona e condicionará múltiplas dimensões das nossas vidas nos tempos (mais ou menos) próximos. Esta situação tem exigido esforços redobrados a todos os setores da sociedade para enfrentar circunstâncias ainda mais incertas, complexas e, certamente, desafiantes.

O INCTE, Encontro Internacional de Formação na Docência, tem vindo a mobilizar a comunidade científica e profissional para dar respostas adequadas aos sucessivos desafios a ultrapassar. Por isso, cá estamos de novo (de forma presencial ou de forma virtual) para retomar as nossas partilhas, discussões e reflexões, seguramente necessárias e importantes nestes momentos tão exigentes.

O INCTE'22, já na sua 6.ª edição, como Encontro com afirmação nacional e internacional, está empenhado, mais uma vez, na prossecução dos seus principais objetivos:

- Problematizar, no quadro do processo de Bolonha, as estruturas curriculares da formação de educadores e professores;
- Debater propostas didáticas inovadoras no âmbito da formação para a docência;
- Refletir sobre as práticas formativas nos diversos contextos;
- Analisar o contributo da formação na dinamização das instituições;
- Aprofundar a comunicação entre os diferentes intervenientes na formação numa perspetiva de educação para o desenvolvimento;
- Debater práticas de formação no ensino superior.

Além disso, o INCTE continua a centrar a edição deste ano na temática da investigação em educação, no sentido de realçar o papel do educador ou professor investigador nas suas vertentes praxiológica e epistemológica. Reafirmamos, assim, que o INCTE'22, subordinado ao tema Incertezas e desafios na investigação em educação, incorpora uma visão de investigação em educação multidimensional, multimetódica e plurivocal, numa perspetiva de compromisso e responsabilidade compartilhada de todos, investigadores educacionais, educadores e professores. Sintam-se muito bem-vindos em Bragança, presencial ou virtualmente.

A Comissão Organizadora do INCTE'22.



## INCTE'22

It is unquestionable that the pandemic situation, in an unusual worldwide coverage, has conditioned, conditions and will condition multiple dimensions of our lives in the (more or less) near future. This situation has demanded redoubled efforts from all sectors of society to face even more uncertain, complex and, certainly, challenging circumstances.

INCTE, International Conference on Teacher Education, has been mobilising the scientific and professional community to give adequate answers to the succeeding challenges to be overcome. So, here we are again (in person or virtually) to recommence our shares, discussions and reflections, surely necessary and important in these demanding times.

INCTE'22, already in its 6th edition, as an already renowned Conference, is committed, once again, in the pursuit of its main objectives:

- To problematise, in the framework of the Bologna process, the curricular structures of the training of educators and teachers;
- To debate innovative didactic proposals in the context of training for teaching;
- Reflect on training practices in different contexts;
- Analyse the contribution of training in invigorating institutions;
- To deepen the communication between the different actors in training in a perspective of education for development;
- Discuss training practices in higher education.

Moreover, INCTE continues to focus this year's edition on the theme of research in education, to highlight the role of the educator or teacher-researcher in its praxeological and epistemological aspects. Thus, we reiterate that INCTE'22, under the theme "Uncertainties and challenges in educational research", incorporates a multidimensional, multimethodological and plurivocal vision of educational research, under the banner of commitment and shared responsibility of all, educational researchers, educators and teachers. You are very welcome in Bragança, in person or virtually.

The Organising Committee of INCTE'22.



## Objetivos e Eixos Temáticos

### O INCTE'22, VI Encontro Internacional Formação na Docência, apresenta os seguintes objetivos:

- # Problematizar, no quadro do processo de Bolonha, as estruturas curriculares da formação de educadores e professores;
- # Debater propostas didáticas inovadoras no âmbito da formação para a docência;
- # Refletir sobre as práticas formativas nos diversos contextos;
- # Analisar o contributo da formação na dinamização das instituições;
- # Aprofundar a comunicação entre os diferentes intervenientes na formação numa perspetiva de educação para o desenvolvimento;
- # Debater práticas de formação no ensino superior.

### O Encontro está estruturado em cinco grandes eixos temáticos:

#### Eixo Temático 1

##### **Currículo e formação de educadores e professores**

Este eixo temático integra as questões do currículo, da inovação curricular e as novas perspetivas curriculares, no âmbito da formação inicial ou continuada de educadores e professores, incluindo a discussão de modelos e processos curriculares de diferente natureza e de trabalhos ou propostas de formação de educadores e professores, nos diversos contextos.

#### Eixo Temático 2

##### **Didática e formação de educadores e professores**

Este eixo temático integra aspetos dos diferentes saberes disciplinares em contexto escolar abrangendo a reflexão sobre os contributos da didática na formação de educadores e professores para uma construção progressiva de formas de compreender e agir conscientemente em situações educativas.

#### Eixo Temático 3

##### **Práticas educativas e supervisão pedagógica**

Este eixo temático integra o desenvolvimento de práticas de formação de educadores e professores nas escolas, compreendendo a problematização dos papéis a desempenhar pelos diversos intervenientes, numa perspetiva de trabalho colaborativo e da construção de uma identidade profissional consciente, empenhada e responsável.

#### Eixo Temático 4

##### **Formação docente e educação para o desenvolvimento**

Este eixo temático integra aspetos formativos do ensino e da aprendizagem relacionados com a promoção de uma cidadania global responsável, abrangendo a discussão de projetos e práticas educativas potenciadoras de uma educação para o desenvolvimento.

#### Eixo Temático 5

##### **Práticas pedagógicas no ensino superior**

Este eixo temático integra as questões relacionadas com os desafios pedagógicos que enfrenta o ensino superior na atualidade, abrangendo a discussão, partilha e disseminação de experiências pedagógicas vividas neste nível de ensino.



## Objectives and Research Topics

**NCTE'22, 6th International Conference on Teacher Education, focuses on the following objectives:**

- # To discuss, within the framework of the Bologna process, the curriculum structures of educators and teachers training;
- # To discuss innovative didactical proposals within the framework of training for teaching;
- # To reflect on training practices in different contexts;
- # To analyze the contribution of training in the dynamization of the institutions;
- # To gather a deep insight about the communication between the various actors in training in a perspective of education for development;
- # To discuss educational practices in higher education.

**The Conference covers five main research topics:**

### Research Topic 1

#### Curriculum and training of educators and teachers

This research topic integrates issues of curriculum, curricular innovation and new curricular perspective, in the context of the initial or continuous training of educators and teachers, including the discussion of curriculum models and processes of different nature and of works or proposals for the training of educators and teachers, in different contexts.

### Research Topic 2

#### Teaching and training of educators and teachers

This research topic integrates aspects of different disciplinary knowledge in school context, covering the reflection on the contributions of teaching in the training of educators and teachers for a gradual construction of ways to understand and act consciously in educational situations.

### Research Topic 3

#### Educational practices and pedagogical supervision

This research topic integrates the development of training practices of educators and teachers in schools, comprising the problematization of the roles to be played by the various actors, in a perspective of collaborative work and the construction of a mindful, committed and responsible professional identity.

### Research Topic 4

#### Teacher education and development education

This research topic integrates formative aspects of teaching and learning related to the promotion of a responsible global citizenship, including the discussion of possible projects and educational practices of education for development.

### Research Topic 5

#### Pedagogical practices in higher education

This research topic integrates issues pertaining to the pedagogical challenges that higher education currently faces, comprising discussion, sharing and dissemination of pedagogical experiences undertaken at this level of education.



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## Education during COVID-19 pandemic: from disruption to recovery

### Educação durante a situação pandémica COVID-19: da perturbação à recuperação

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#### Abstract

Education in its broad sense is an essential human right, but more than that, it plays the enabling right that gives legal power and capacity for the realization of all human rights. When the education systems collapse, peace, and productive societies, especially in basic education cannot be sustained. Education, due to the COVID-19 pandemic, experienced great disruption, creating the largest disruption of the educational systems, affecting nearly 1.6 billion learners through nationwide school closures among 190 countries. This paper explores to what extent COVID-19 disrupts education by analysing the Global reports, and the global educational organizations' statistics such as UNESCO, UNICEF, and ICESCO and their visions about the COVID-19 pandemic. Moreover, this study explores the transformation of education during COVID-19 as a disruption period, and after the pandemic as its recovery period by shedding a light on what academic researchers predicted in their papers. Regarding this unexpected situation, this study intends to focus on the literature methodology to draw a clear image with numerical analysis and descriptive reviews of the changes that COVID-19 caused in the field of education. This paper comes to realise a profound loss of learning during the pandemic, and to give the essential measures that should apply to protect education and recover it.

**Keywords:** education, COVID-19, education disruption, education recovery.

#### Resumo

A educação, no seu sentido lato, é um direito humano essencial, mas, mais do que isso, desempenha o direito de habilitação que confere poder jurídico e capacidade para a realização de todos os direitos humanos. Em caso de colapso dos sistemas educativos, a paz e as sociedades produtivas, especialmente, no âmbito da educação básica, podem ficar comprometidas. A educação durante o presente foi assolada por uma grande perturbação devido à pandemia COVID-19, que afetou o universo em geral; criou a maior disrupção dos sistemas educativos, afetando cerca de 1,6 mil milhões de alunos através de encerramentos de escolas em todo o país entre 190 países. O nosso trabalho traça e identifica até que ponto a COVID-19 perturba a educação analisando os relatórios globais, e as estatísticas das organizações educativas globais, como a UNESCO, a UNICEF e o ICESCO, e as suas visões sobre a pandemia COVID-19. Além disso, este estudo explora a transformação da educação durante a COVID-19 como um período de rutura, e após a

pandemia como o seu período de recuperação, trazendo à tona o que os investigadores académicos previram nos seus trabalhos. Relativamente a este novo tema, o nosso estudo pretende focar-se na metodologia interpretativa para desenhar uma imagem clara com análise numérica e revisões descritivas das mudanças que a COVID-19 causou no campo da educação. Através do nosso estudo, concluímos que houve uma profunda perda de aprendizagem durante a pandemia, apresentando medidas que devem ser aplicadas para proteger a educação e recuperá-la.

**Palavras-chave:** educação, COVID-19, perturbação na educação, recuperação de educação.

## 1 Introduction

Education is one of the essential aspects of life; it shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. Logically and clearly that only an educated person could make decisions at the right time, we strongly believe that human existence without education is like infertile land. For centuries, the world has never experienced a pandemic such as Covid-19 which has caused unprecedented crises in all areas; it comes with drastic changes in humans' lives and their livelihoods in a short period of time (Sansa, 2020). Hence, Le Grange (2021) mentioned that The World Bank Education Global Practice (2020) asserted that the first case of this virus was identified in China, Wuhan. It spread rapidly over the world and affected all the countries in different aspects of life such as the health system which faced a huge amount of tension, this included deaths, economic recession, lockdown restrictions, and education disruption due to the closing of the higher learning institutions. At its peak, UNESCO Organization (2020) reported that nearly 1.6 billion learners in more than 190 countries or 94% of the world's student population were extremely impacted by educational institution closure. With the abruptness of this situation, educators and administrations who were unprepared for this drastic transition that happened in a very short time were forced to build emergency remote learning systems.

The teaching process shifted from traditional and face-to-face learning to online. This meant that teachers needed to depend on technology to continue with the school year and the curriculum (Mahaye, 2020). In response to this disruption in the sphere of education, researchers tracked the impact of the covid-19 pandemic on the future of education (Donnelly & Patrinos, 2021). Furthermore, the Islamic World Educational, Scientific and Cultural Organization (ICESCO) continues to emphasize the importance of anticipating and discussing the challenges posed by Covid-19 and the urgent need to expand the establishment of joint projects to confront the effects of the pandemic, such as ICESCO Director General, Dr Salim Al Malik, who hosted Pakistani politician Yousaf Raza Gillani through a webinar held on Wednesday, April 7, 2021, titled "Reconceiving post-Covid-19 Islamic World" where Mr. Gillani in his speech pointed out that the Covid-19 pandemic is the biggest challenge that the world has witnessed since the end of the Second World War, moreover, not only is it a health crisis, it is also impacting economic life, and society of People around the world ( Gillani, 2021). Regarding this, the important research questions of this article are: what are the deepest transformations that education witnessed during the Covid-19 pandemic as a disruption period? And what are the barriers that education faced during covid-19? Moreover, the focal aim of the study is to investigate

the extent to which Covid-19 impacted education and how it resulted in a deepening loss of learning during the pandemic period. Through this range, this investigation intends to show the above objects by focusing on the literature review to draw a clear image with numerical analysis and descriptive reviews of the changes that Covid-19 caused in the field of education. Consequently, we work to map and make a bibliometric analysis of published papers of investigation associated with scientific research and education. In other words, we will systemize the scientific literature produced between 2020 and 2021 on the string of Education during the Covid-19 pandemic.

## **2 Review of related literature**

Regarding the issue of Coronavirus, this study comes to map the scientific literature vision in the context of Covid-19, and to analyse its content through the empirical studies on the effects of this pandemic on the scientific research and education field in general.

### **2.1 General review of Covid-19**

On February 11, 2020, the World Health Organization (WHO) officially announced the name of the virus as COVID-19. An abbreviation of “CO” stands for corona, “VI” stands for the virus, and “D” stands for disease. The first case was reported in Wuhan, China in December 2019, meanwhile, the WHO declared Covid-19 a pandemic due to the speed and scale of spread in the whole world. As a protective measure against Covid-19, the staff of the WHO was obliged to suggest maintaining social distancing as the first protective measure; the lockdown started in every country around the world in order to separate the infected people and reduce the rapid spread of Covid. On another side, this lockdown, according to UNESCO’s report, had affected more than 90% of the total student population across the planet (Jena, 2020). The outbreak of the Covid-19 pandemic has created a big disruption in the entire education sector, it has drastically changed the lifestyles with billions of people and students being forced to stay at home for safety, learn, and work from home. Education institutions shut down for more than one year and more than 1.3 billion students were out of the school premises (UNESCO, 2021). The speed and the scale of the pandemic caused an exacerbated learning crisis in different areas in the world, especially in those areas like MENA countries (20 MENA countries/territories (according to the UNICEF and the World Bank categorisation) including Algeria, Djibouti, Tunisia, Morocco, Libya, Egypt, Sudan, Palestinian territories, Lebanon, Syria, Jordan, Iraq, Gulf area (Kuwait, Bahrain, Saudi Arabia, Qatar, UAE), Oman, Yemen, Iran), where accessing learning was already a big challenge for many, and where the entire generation of children had been affected by this unprecedented disruption (UNESCO, 2021). Clinical research and scientists suggested that social distance is one of the essential measures to curb the spread of Covid-19 (Fowler et al., 2020). This meant that school premises were strongly disrupted during the lockdown period, therefore, the staff of the educational institutions is moving to online learning, which shifted the teaching and learning from a traditional way into the online context, depending on technology to continue with the school year and the curriculum (Mahaye, 2020).

## 2.2 Covid-19 impacts on the education sector: learning loss

School closures during the first wave of the COVID-19 pandemic raised concerns about how students were learning out of school. According to the United Nations (UN), about 95% of the world's school population has been affected by the virus (United Nation, 2020). Education institutions during the Covid-19 pandemic suggested a possible learning model which is based on learning through the network systems (i.e.: learning through websites, applications, and social media groups) to keep the teaching-learning process going forward (Sintema, 2020). To add more, it is a kind of learning design depending on the “constructivist approach” that is possibly done by using online social networks such as WhatsApp, Facebook Messenger, Video sharing, social networking sites, and google document that help students submit their works (Saekhow, 2015). In this range, we can find those who supported the idea of distance-learning. Such learning from home fosters students' independence in the learning process and gives them the chance to decide and to be responsible for their education input, moreover, this allows students to engage themselves in the learning process and to play an active role in learning (Suyanto, A. H, 2005). On the one hand, some authors (Gautam, 2020; Spaul & Van der Berg, 2020, as cited in (Thabang Mamburu, 2022) assert that one of the barriers that online learning carries is the retardation and slowing of the learners' development, as “online learning cannot offer human interaction” (Thabang Mamburu, 2022). This means limited contact of students during the lockdown period can have a negative impact on them leading to situations or emotional states such as substance abuse, fear, depression, loneliness, child abuse and domestic violence. All these have shown that students are at higher risk of psychological distress, including depression. Furthermore, another threat that students face during the lockdown periods is being exposed to mental health distress (Fegert et al., 2020). School closure, distance teaching and social distancing have been affecting children and adolescents' health, learning and safety, therefore, the pandemic has reduced the time spent in learning and student's motivation to learning. Confined at home due to COVID-19, they may feel stressed and anxious, and this may negatively affect their ability to concentrate on schoolwork (Delmastro & Zamariola, 2020).

## 3 Methodology

Carrying out a literature review (LR) means adopting stages and procedures that must be transparent in all of them to produce a result that can be completely understood as an added critical value (Mentzer & Kahn, 1995). This method is based on transparency in data collection and definition of the criteria for selecting the documents that fit the topic (Hadengue et al., 2017). However, to achieve the acquired transparency, it is essential to follow the steps defined by Tranfield, Denyer, and Smartas, as cited in (Rodrigues et al., 2020). which are: definition of the objective, protocols to be followed, research in the databases of literature, definitions of inclusion and quality eligibility criteria, data extraction, synthesis of the extracted data and its analysis and discussion (figure 1). It is important also to mention that our study used for the review was searched in the main databases and index services: Web of Science, Scopus, ScienceDirect, IEEEExplore, and Google Scholar, which are widely recognized by the scientific community, but only the search of Web of Science (WOS)' results were taken through the investigation. It should also be noted that WOS includes thousands of academic publications, affiliations, and citations, with high scientific recognition in the academic sphere. Besides all of this, we will trace the most global reports, and the global educational organizations' statistics such

as UNESCO, UNICEF, and ICESCO to map a clear image of the disruption of education that has been witnessed in this era. From the above mentioned, figure 1 identifies the steps that we followed during the investigation, according to Tranfield, Denyer and Smart (2003):



Figure 1: Stages of the Literature Review

These databases were selected as they comprehensively cover the broad overview about the topic Covid-19 pandemic. The methodological procedures are presented as: Results for Education during Covid 19 pandemic (All Fields after we limited our research into the sphere of Education Scientific Disciplines and Education Educational Research), 2020 and 2021 (Publication Years), Highly Cited Papers and Articles (Document Types), Education Scientific Disciplines and Education Educational Research (Selected-Web of Science Categories), Surgery or Health Care Sciences Services (Exclude – Web of Science Categories), Hospitality Leisure Sport Tourism and Sport Sciences (Exclude – Web of Science Categories), Public Environmental Occupational Health (Exclude – Web of Science Categories), Medicine General Internal (Exclude – Web of Science Categories), Nursing (Exclude - Web of Science Categories), Psychiatry (Exclude – Web of Science Categories), psychology Multidisciplinary (Exclude – Web of Science Categories), Multidisciplinary Sciences (Exclude – Web of Science Categories), Environmental Sciences (Exclude – Web of Science Categories). Figure 2 shows the results in the different disciplines that mentioned Covid-19 as a focal point.

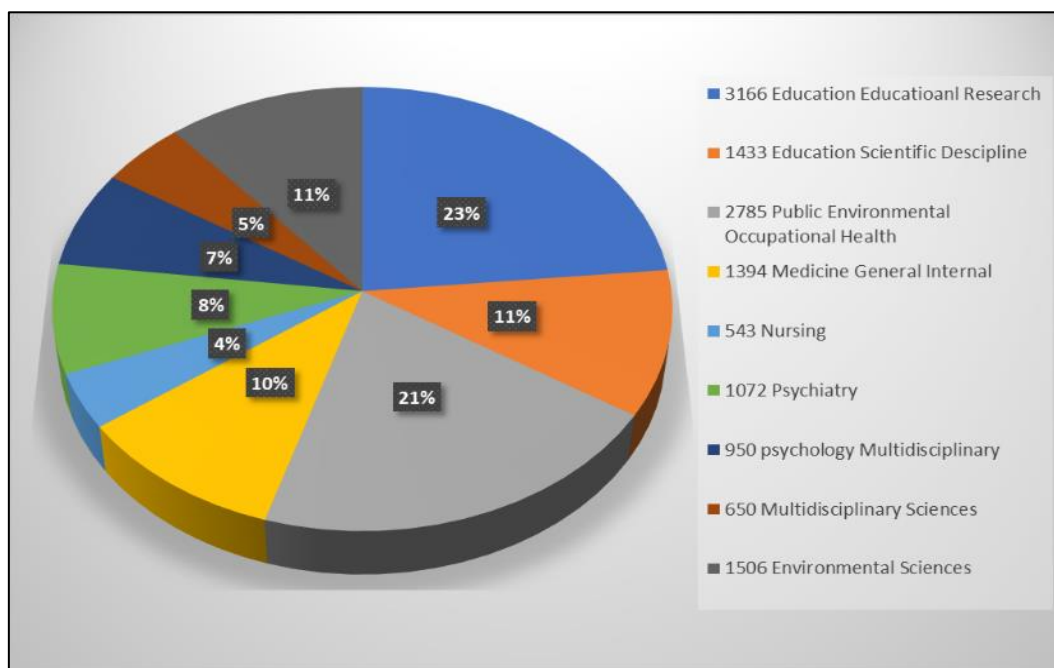


Figure 2: Web of Science results on Covid-19 as a focal point

In this range, the methodology procedures show the careful way in which the final database was obtained after we limited the research into the sphere of Education Scientific Disciplines and Education Educational Research between 2020 and 2021 years of publication. 449 results were obtained. Repeated search results, results that don't fit the topic, and papers that don't contain full texts in English were excluded. After eliminating the search to avoid repeated papers, the total number of papers was 39 references.

#### 4 Results and discussion

Overall, descriptive data are about all the study papers that were included in the investigation. This analysis aimed to identify the objectives and the documents that are indeed related to the effect of Covid-19 on Education field and to what extent this pandemic caused losses on education in general.

##### 4.1 Tracking the status of school closures and learners affected due to covid-19

“One year of education disruption” is what was written in one of the reports of the UNICEF organization that was under the title “Covid-19 and school closures”. This report noted that schools globally have been closed for more than 168 million children for almost a full year. With every day that moves onward, the children around the world will fall further behind and the most vulnerable and over sensitive will pay the heaviest price (Garen Avanesian et al., 2021). One of the unique findings presented in the paper provides an overview of school closures from March 2020 to February 2021 in more than 200 countries and territories around the world relying on the deepening analysis of the UNESCO tracker of schools' closure and the UNESCO Institute for Statistics (UIS) database on Students Population in all countries (UNESCO, 2021). Schools are essential for children's learning, health, safety, and well-being. School closures have a profound effect on those children that are most vulnerable, they have been strongly deprived of

many goods such as, deprived of their one nutritious meal a day, and, deprived of children's safety on those rely on schools to protect them, especially those who are living in a violent and unsafe environment or dysfunctional families (Sebastian, 2020). It was also highlighted that countries around the world revealed huge gaps in education financing in that period, according to a recent World Bank report that shows that education budgets after the onset of the Covid-19 pandemic declined in 65 per cent of low and lower-middle-income countries compared to only 33 per cent of higher and upper middle-income countries (Al-Samarrai, Samer, Cerdan-Infantes, 2021). School closures highlighted the need to not only observe children's learning loss but also the special need to provide teachers with the training and support they required to integrate into new techniques of teaching. Moreover, as schools reopen around the world, governments must work on promoting the well-being of every student when they return into schools because the effect of this disruption is still visible nowadays. Governments must also provide comprehensive services including, good health conditions and keeping children nourishes, besides mental health and measures of protection (UNESCO, 2021). Figure 3 identifies the analytic above.

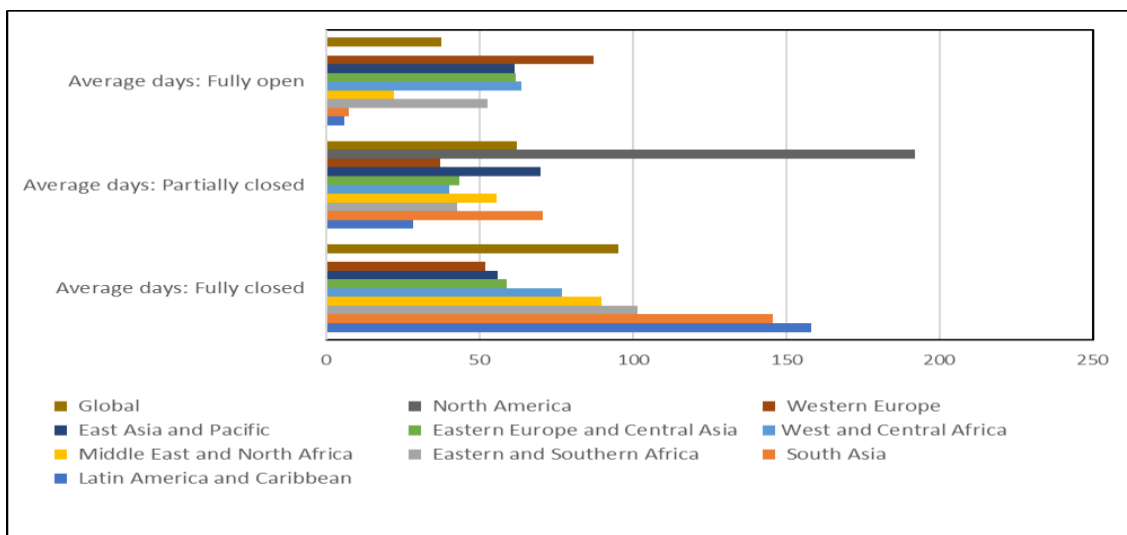


Figure 3: Time-series of school closure status from March 2020 to February 2021

Figure 3 uses UNESCO's definition of school closures. Schools are considered 'fully closed' when the closures affect most or all the schoolchildren enrolled at pre-primary, primary, lower, and upper secondary levels. 'Partial closures' refer to situations in which schools are either closed in some of a country's administrative units, for some grade levels or are operating with limited capacity. 'Fully open' means that classes are held in person for all schoolchildren and at all grade levels. The number of days of school closures indicates the number of days students did not receive in-person classroom instruction. Different regions were affected disproportionately in terms of the magnitude of school closures. The highest average number of days when in-person classroom instruction was disrupted is seen in Latin America and the Caribbean region, followed by South Asia, and Eastern and Southern Africa regions. Conversely, countries in North America closed schools only partially.

Moreover, figure 4 comes to identify the number of learners affected in each region around the world due to covid-19, by using UIS databases. The analysis covers learners

from pre-primary, primary, lower secondary, to upper secondary levels. Globally, 214 million pre-primaries to upper secondary school education students in 23 countries around the world missed at least three-quarters of classroom schedule time. Figur, which contains two figures, noted the number of learners (by million), gender (Girls and Boys), and the time that has been missed by per cent.

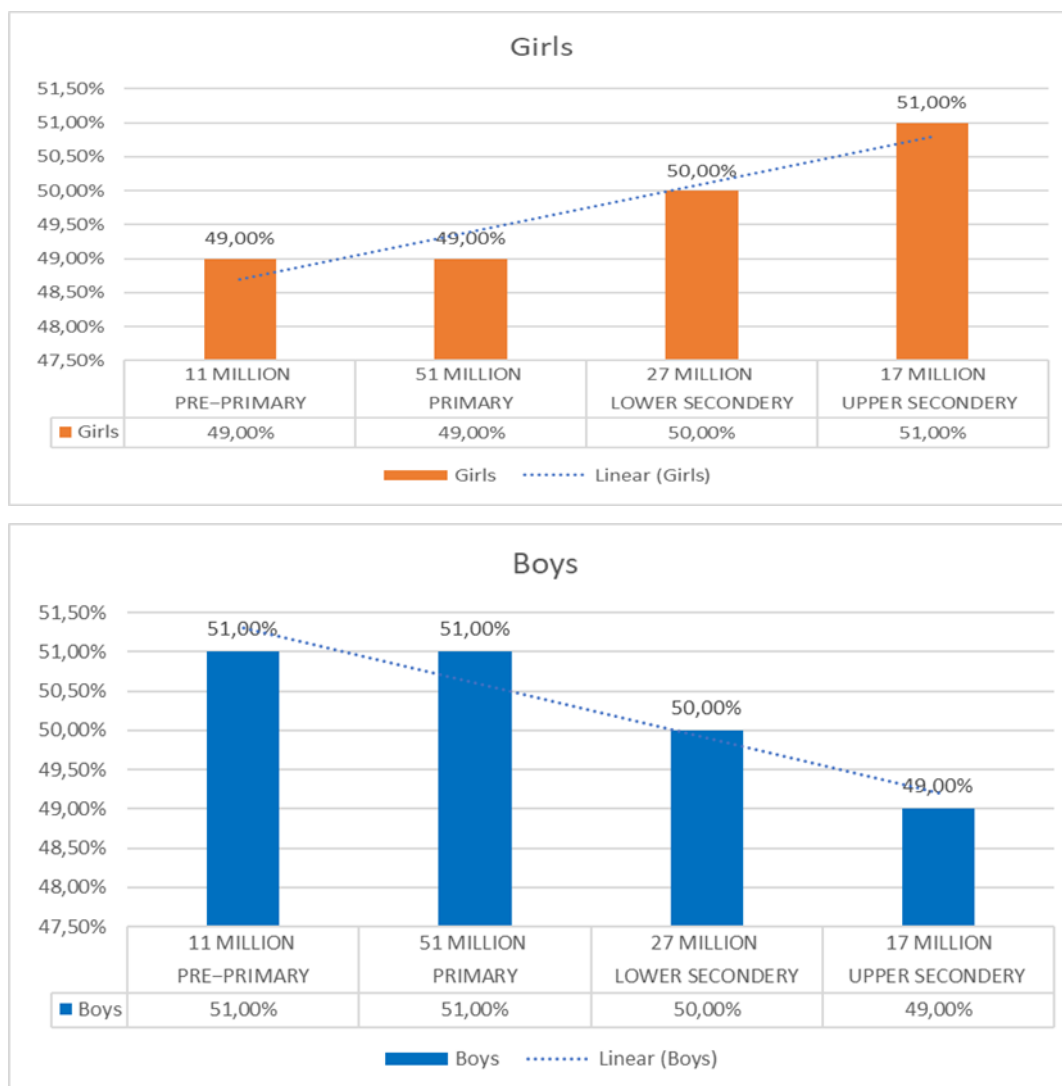


Figure 4: Students who have missed at least three-quarters of Classroom instruction time since March 2020.

Figure 4 shows that primary school learners represent most of the world's school learners, automatically they constitute a majority who missed at least three-quarters of classroom time, almost 105 million children, followed by lower secondary school by 53 million. So, according to what was mentioned in the UNESCO report (2020) among these 214 million learners, 78 per cent missed almost all in-person classroom schedule time, which means 168 million students in 14 countries were more affected by the pandemic and missed all in-person classroom time since March 2020 such as Brazil (44,3 million), Bangladesh (36,8 million), Mexico (33,2 million), and Philippines (24,9 million) students. In general, the Covid-19 pandemic affects the results of the 'education input' and 'education output', as we are going to analyse next.

## 4.2 The Clash between “Education input” and “Education output” due to Covid-19

The sudden shift from face-to-face learning to schooling from home revealed just how much importance schools play in millions of children’s daily life universally. Schools are the safe place for them, and parents faced a tremendously stressful period as their children were obliged to stay at home, and to miss almost 40 hours where they could spend in the educational community. This disrupted also mother’s time of work, some of them left their jobs to take care of their children, all these due to Covid-19 pandemic. In reality, the pandemic of Covid-19 had a drastic influence on both sides of the Educational Input and Output processes: First, **Education Inputs** could be defined as the set of means used in an education system to achieve target objectives, such as the number of teachers, students, teaching materials, and the school financing, so, “Education Input” must be available for the ongoing process of education (Ahya et al., 2021). Input Education is a form that takes two forms: “the human resources” and “non-human resources” inputs, the first form includes teachers, students, and employees, meanwhile, the second form consists of equipment, materials, and funds. One of the effects that Covid-19 caused is the change in these two kinds of education inputs, for instance, in the world of education human resources are strongly based on educators and educational staff. Educators play a key role in the whole education process. They work on guiding and educating students, so, the educator with a great personality could deepen into students’ character and create a good atmosphere for the learning process, but through the emergence of Covid-19 a huge gap was created between educators and their learners. We can summarize it as follows:

**Students:** Covid-19 caused many disruptions in different levels of education, it has also influenced learning in pre-primary school, this can be characterized by the learning through remote form, which has shifted from the traditional education that is based on direct contact with the educators and their learners into learning from home. This remote learning depends heavily on technology tools to keep the education process ongoing. For pre-primary age children without teachers, of course, the results will be different because children in that age need someone who should go deeper into their needs, and who can reinforce their knowledge before entering primary school. The acquisition process for children at that age is at a high level; they could learn to read and write quickly, recognise the sounds and letters of the alphabet, recognise numbers, count, and recognise times and seasons. In this range, I need to point out the students who are suffering from “**Receptive Aphasia**”, also known as “**Wernicke's aphasia**”, which consists of those who lost the ability to use and understand words, so, they strongly need the attachment with their teachers and colleagues to improve their ability to speak fluently and to progress the way of thinking. With the disruption of Covid-19, children were obliged to go into lockdown and keep classes online, which, automatically, will affect their capacities and when they enter elementary school. By that time they will not feel ready because the acquired knowledge in the previous class was uncompleted, all this due to limitation during online classes. In this situation, the teachers, who are considered the climax of the educational triangle, which includes (Teacher, student, and the learning content), are required to add any additional rules such as: focusing on the education targets, working on ensuring the safety of children on both sides, physically and psychologically, provide materials and instruments that can simplify the learning content for children, and teachers always should provide emotional supports for children because the teacher could not reach the child’s mind if he didn’t reach his heart. In such situations, the emotional part is an important issue that teachers should bear in mind. About the output in the context of

education, it can be defined as the total number of students that finally acquire educational success because of the end of the educational inputs that are released by a process of teachers' evaluation of their students' output that has been achieved, for instance, some schools' output in different regions during this pandemic worked on eliminating the 2021 national examination.

The analyses of the articles that were used in the study show large learning losses due to Covid-19. Some of the earliest estimates pointed out that during the Covid-19 pandemic students that suffered from school closures. For instance in Belgium there were 0,9 standard deviations (SD) lower scores in mathematics, more than this, the learning loss appear more clearly and largely in lower-income countries (LICs) and in middle-income countries (MICs) (Maldonado & De Witte, 2022). Three studies by Ardington et al. (2021) identify that in South Africa students of Grade 4 are estimated to have a reading skill loss between 62% and 81% during the whole year of learning. Moreover, the Annual Status of Education Report (ASER) shows a study across five states of India that over 80% of children lost a specific language and mathematical capacities from their previous academic year and showed a decrease in both literacy and numeracy at primary school, it is like Mexico that has been notified to be between 0,34 standard deviation and 0,62 SD in reading and numeracy (Hevia et al., 2022). A Study in Brazil shows an estimate of a huge gap, concerning some students who received in-person classes who learned 75% less and had a 2,5% higher risk of dropout (Lichand et al., 2022). Early evidence from Ethiopia (Kim et al, 2020), India (Banerji, 2020), and Pakistan (Akmal et al., 2020) note a slowdown in the learning progress during Covid-19, besides, the World Bank, UNESCO, and UNECEF (2021) deduced that one year of school closures can map on average to one year of lost learning.

## 5 Conclusion

The widespread Covid-19 pandemic has led to the unprecedented loss in learning and impacts on children's wellbeing. This will have long-term costs for children's education and welfare as well as economic losses that can be estimated to cost trillion dollars through reduced future productivity. Governments across the world have implemented a variety of remote teaching and learning strategies, but the most urgent need was to get all the schools back to full in-person learning. The idea that we can conclude through this investigation is that the disruption caused by the pandemic has created an opportunity and opened new horizons, not only to recover lost learning but also to focus on building a more resilient education system in the future for coming generations. We must bear in mind that we must seize this opportunity well and to take immediate measures to ensure effective teaching and learning in future to be able to respond to any unexpected situation.

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