

Meta-Covid Era

How Covid-19 impacted the ways of teaching & learning

Avraam Sachpatzidis

Aristotle University of Thessaloniki, Greece

Abstract

The spread of the COVID-19 virus, which has infected over a billion young people in more than 200 countries, has decimated educational institutions around the world. More than 94% of the world's children have been affected by school closures, according to the United Nations Development Programme. Almost every part of our lives has been affected by this. Traditional educational practices have been severely disrupted as a result of social alienation and migration restrictions. Once the lock down is lifted, standard operating procedures must be implemented to reopen schools. Schools have been closed to 94% of the world's children according to the United Nations Development Programme (UNDP). This has had a profound effect on almost every aspect of our lives. Traditional educational practices have been severely disrupted as a result of social alienation and restrictions on migration. In order for schools to reopen when the lock down is lifted, standard operating procedures must be established. In this paper, the methodology followed was a literature review. Our main concern was to identify the teaching strategies for adapting students to distance education and their active participation in it. Finally, the conclusions, we concluded that in many developing countries there is a lack of availability and affordability of the Internet due to lack of bandwidth, fewer connection sites and expensive data packages. Policy change is required to improve things. In terms of quality, e-learning has a long way to go. Unfortunately, there was not enough time to ensure the quality of e-learning as well as the online teaching-learning process before the advent of COVID-19. E-learning has proved to be beneficial for teachers and students all over the world despite some drawbacks and its necessity in the era of COVID-19 is more than evident.

Keywords: alternative education, digital education, online programme, pandemic, social isolation

1. Introduction

Pandemic COVID-19 has spread over the globe, infecting practically all countries and territories. Wuhan, China, was the first place where the epidemic was found in December of this year. Public advisories have been issued in countries throughout the world. Washing hands, face masks, a comfortable distance, and avoiding big crowds and gatherings have all been advocated as safeguards for public health. In an effort to slow the spread of sickness and keep it contained, measures such as lockdowns and house quarantines have been put in place. 2020 will be the year. (Sintema). In the second week of March 2020, Bhutan declared that schools and other institutions would be closed and business hours would be restricted. (March 6, 2020, Kuensel) There was a countrywide lockdown beginning on August 1, 2020. Palden's (Palden, 2020) The majority of businesses and educational institutions have reopened, with some offering evening and weekend programs. Over 170,000 Bhutanese kids in classes PP–XII are now affected by the school shutdown. In the long run, this will have a significant impact on student learning for the remainder of the school year and perhaps even beyond that. Many organizations, schools, and universities are phasing out face-to-face education. There must be an urgent need for new teaching and evaluation approaches. The pandemic COVID-19 has provided a chance to lay the framework for digital learning adoption (Dhawan, 2020). An online teaching infrastructure is weak; teachers lack online teaching experience; knowledge gaps are there; an undesirable home-schooling environment is in place; and academic quality is lacking. COVID-19 has a worldwide influence on teaching and learning, according to this article. The COVID-19 epidemic has prompted a study of online and continuous education, and a plan of action has been presented.

2. Continuing Education through Online Pedagogy

Pandemic COVID-19-related lock-downs as well as social exclusion tactics triggered the closure of educational institutions throughout the world. Quality education is being delivered in new and innovative ways via various online platforms. This unprecedented worldwide epidemic has arisen as a panacea thanks to online learning, remote learning, and continuing education. Despite the problems that educators and students confront. For both learners and lecturers who have no other options, the transition from conventional face-to-face learning to online learning may be a daunting one. The educational system and teachers have been obliged to change in order to accommodate the "Education in Emergency" online platform. Because of the outbreak, many schools and other institutions had to close their doors, so students turned to online sites for help (Subedi et al., 2020). Students and faculty members must be assessed for their capacity to adapt to the new changes. When it comes to learning, students who have a fixed perspective have a harder difficulty changing than those who have a development mindset. In online education, there is no such thing as a universally applicable strategy.

There are a plethora of options, each with its own set of prerequisites. Different ways of online teaching are necessary for various courses and age groups (Doucet et al., 2020).

Students with physical disabilities can engage in virtual learning settings despite their limits in mobility through online courses (Basilaia & Kvavadze, 2020). School closures throughout the world due to the COVID-19 outbreak have had an unforeseen impact on kids, their families, and instructors. Educators are working just as hard to guarantee that all children have access to quality education even while governments, first responders, and health authorities struggle to limit the outbreak. At home or even in their living space, many students have experienced psychological and emotional anguish, which has impeded their ability to engage in productive tasks. Online homeschooling best practices are currently being researched (Petrie, 2020). For online education, effective and relevant pedagogy may be influenced by both instructors' and students' experience with technology (ICT). One of the most widely-used online tools for educators is a platform that allows them to design courses and programs for students to improve their skills and knowledge via unified communication and cooperation (Petrie, 2020). They feature workplace chatting, web conferencing, and file storage tools to keep classes structured and simple to work with. File types that can be shared include text, images, audio, and video files (such as MP3s and WAVs). Student's progress can be monitored and evaluated through quizzes and the use of rubrics on their completed work. Pre-class learning materials, such as articles, pre-recorded films, and YouTube links, are delivered via a simple 'flipped classroom' approach. Students are encouraged to communicate with professors and their peers in order to get the most out of their time in the online classroom (Doucet et al., 2020). This strategy aids students in solving problems, developing critical thinking skills, and gaining control of their educational process. Teleconferencing and cloud-based education management solutions like Elias, Moodle, BigBlueButton, as well as Skype are now used in virtual classrooms around the world.

3. Covid-19's Impact on the Education System

State governments around the country began shutting schools and universities in an effort to stop the spreading of the new coronavirus. Temporary measures were put in place in the middle of March in an effort to avert overcrowding. This original one-month school shutdown was steadily prolonged by the administration, and it was not clear when schools would resume. Competitions and entrance tests for multiple universities, university board examinations as well as semester exams, nursery school applications, or university admissions all occur around this time. There is currently no recognized cure for the COVID-19 outbreak. Students in the future, as well as the country's economic and social fabric, would be profoundly affected.

3.1 Covid-19's Impact on Schools

The only method to develop one's abilities is via formal education. Schools are places where children may learn and have fun while growing their social awareness and knowledge to interact socially with their peers. Attendance or presence in school is mostly for the purpose of enhancing a child's talents. Skills and talents may be enhanced even if just for a brief period

of time through education. Skill development will be negatively impacted if a student misses or fails to attend school. The way we study and educate has changed as a result of school closings. Teaching and evaluation approaches were the most impacted by this change in technology. Online teaching approaches have been used by the few private institutions that do provide online programs. It is possible to attend classes online at these institutions. Some low-income schools have been closed and are no longer equipped with e-learning tools. It is affecting pupils' ability to study. The shift in educational approaches is causing a slew of issues for parents.

3.2 Impact of Covid-19 on Higher Education

Students' education has been harmed by university closures. One essential step must be taken to maintain continuity in educational institutions and universities. The online teaching approach is utilized to guarantee that the lesson goes well. Learning management system as well as open-source online educational solutions are used by universities to provide online courses. The pandemic has had an impact on this country's economic future, as well as its higher education system. A growing amount of students are choosing to study overseas because of this. The closure of colleges and universities throughout the world is expected to reduce demand for higher education. Everyone is concerned about the impact of the pandemic on the unemployment rate. Because of the current economic climate, recent graduates fear that their job offers from firms may be withdrawn. Due to the shutdown, educational institutions and colleges have had to change their teaching techniques. The traditional chalk-talk methodology has been replaced with new technologies. Because of the low levels of student involvement, e-learning isn't always the best option for classroom instruction. Both student involvement and the digital divide are currently on the agenda for policymakers' attention. A multi-pronged approach is needed to deal with the long-term issue of education. In order for youth to flourish during this time of crisis, effective instruction and well-rounded practices are required.

3.3 Impact of Covid-19 on Online Classes on Parents

As a result, children are expected to complete their homework at home and are rarely permitted to play outside in order to preserve or prevent missing too many school days. When it comes to education, Bjorklund and Salvanes believe that families are the primary source of information for a child's development (2011). Parents are confused by the new educational methods. For some parents, technology is a foreign concept. Due to the lack of information, they are unable to counsel their ward to pursue online courses. The Internet access of all instructors, students, and parents is a worry. Many problems develop due to insufficient connectivity.

3.4 Impact on Assessments

In addition to disrupting students' education, school and college closures have a detrimental economic impact. Global student assessments were impacted by the lockout. Many

tests and evaluations have been canceled or postponed as a consequence of academic institution closures. We're approaching a new educational era for both students and instructors. Many schools and universities have made the switch from traditional classrooms to online classrooms, and the test system has followed suit, moving away from paper and toward the net. They are employing online assessment tools to do their evaluations. With the use of online evaluation tools, there are several restrictions. Online evaluation tools reveal a wide range of measurement mistakes when comparing to the reference measurement. As Piopiunik et al. (2020) revealed, companies use educational credentials like GPA and degree categorization to rank job applications. As a result, the lockout affects the job placement of recent graduates. This decrease in matching efficiency is leading in greater employment separation rates as well as slower pay growth among newly minted graduates. For both individuals and society at large, Fredriksson and Ihlen (2018) argue that this is extremely expensive.

4. Online and Offline Education

Because of the disastrous Covid-19 epidemic and the imposition of countrywide lockdowns in several countries, universities throughout the world have changed from traditional classroom-based to online learning and teaching. Many professors and students still favored the old-fashioned method, but adapting to online learning posed a new problem. Many individuals are unsure if online education is superior to traditional classroom instruction. A very small number of investigations have sought to solve this riddle (Flores and Gago, 2020; Mariia and Strzelecki, 2020; Wargadinata et al., 2020; Wendelboe et al., 2020; Zhang et al., 2020). Thus, students continue to choose classroom instruction over distance education. Low-income nations like Nepal, according to Dawadi et al. (2020), risk increasing inequities as a result of wide socioeconomic and educational/literacy gaps among its citizens. Poor and rich pupils alike will be disadvantaged by the adoption of COVID-19 in terms of access to online education and support (Dawadi et al., 2020). Wahid et al. (2020) propose that students in the sciences, notably biology, chemistry, physics, as well as mathematics, should avoid online learning since it is practically hard to perform experiments online. Radha et al. report that despite the growing popularity of online learning, most students still prefer traditional classroom education (2020). In-person instruction is more genuine than online instruction because it allows students to engage in conversation, contemplation, and discussion with their fellow students and their professors (Radha et al., 2020). Remote learning may be a viable alternative to classroom education, but it has produced a number of challenges for both students and academics.

5. Teaching and Learning Challenges

Users, both educators, and students, commonly encounter glitches while referring to or utilizing these resources because there are so many platforms as well as online educational tools accessible. Many scholars have highlighted the following issues: Many of the most common obstacles in the field of e-learning are related to the issues of accessibility, cost,

flexibility, learning methods, and educational policy (Murgatroid, 2020). Many nations are unable to connect to a dependable Internet connection or use digital devices because of these issues. Internet-based schooling increases screen time even if it is out of reach for many poor children in developing nations. Because of this, more and more students are relying on offline exercises as well as self-exploratory learning. A further problem is that there isn't enough parental supervision, which is especially problematic for young learners that have both parents working. Physical learning spaces that allow students to study in a variety of ways present challenges. In contrast, the vulnerable members of society, which includes pupils with learning problems, confront difficulties in learning since they require more monitoring and direction. Students from low-income households who are academically bright may not be able to afford online education. For both end-of-year and internal test preparation sessions, students' academic performance is likely to suffer from fewer student contact hours and a lack of instructor interaction (Sintema, 2020). Educators, pupils, and families are all exposed to a tremendous deal of trials and errors, ambiguity, and misunderstanding as a result of digital student evaluations. Exams are administered in a variety of ways, based on the convenience as well as the skill of the instructors, and the compatibility of students. Due to the vast student population, numerous schools, as well as institutions, have not yet implemented sufficient plagiarism prevention procedures. Internal evaluations and tests have been disrupted, but A levels have been canceled for the whole cohort in the United Kingdom." Exams may be postponed or canceled depending on the length of the lockdown (United Nations, 2020). The COVID-19 epidemic and nationwide lockdown have forced the postponement of several state-level board examinations, recruitment tests, university-level exams, as well as entrance examinations across the world. BITSAT 2020, NATA 2020, CLAT 2020, MAT 2020, and ATMA 2020 are among the other examinations that have been postponed or rescheduled. Since the current political climate has necessitated adjustments in educational institutions around the United States, There is also a chance that some of the students will profit from the diversions provided. A high school diploma is needed for all tenth-grade pupils in Norway, for example. French researchers found that the 1968 suspension of normal testing processes in France due to the riots of the students, had a long-term influence on the labor market for those who were impacted (Maurin & McNally, 2008). For children, coming to school is not only a source of enjoyment, but it also serves as a vehicle for the development of important social skills and a foundation for future learning. Students who often miss class have financial, social, and even psychic repercussions. Student enrollment in online courses is increasing, making them more exposed to cyberbullying and the other dangers that come with relying heavily on the internet. Teens' exposure to potentially harmful and violent content has risen as a result of their increasingly unstructured and unsupervised online time. Increasingly, families are turning to technology and the internet to keep their children engaged, amused, and in touch with the outside world as a result of school closures and strict confinement measures. Nevertheless, not all kids have the insight, skills, and resources necessary to stay safe online. As a result, a majority of Bhutan's online students originate from rural areas and their parents are illiterate farmers. Helping out with agricultural activities including farming, livestock care, and housekeeping is a common pastime for students. In fact, some students requested that the test

be shifted to the afternoon in order to accommodate their fieldwork obligations in the mornings. According to several pupils, they were required to take care of and drive to the hospital for ailing parents, grandparents, or other family members. When students go home from school, it's hard to stay on top of their studies. For parents with young kids, it is desirable to encourage their kids to repeat the next academic year. Most pupils lack access to the Internet, as well as cellphones and televisions. Many people have lost their jobs as a result of the closure of businesses and offices. The cost of the data package (costs) is considerable when compared to typical wages, and keeping constant Internet connectivity is an expensive endeavor for farmers.

However, despite the fact that the majority of students (especially those from low-income households) prefer face-to-face video lectures, some students have complained that video classes use more data (Simamora, 2020). It is difficult for teachers to know who and what to trust. According to some, pre-recorded videos might be advantageous, but this would limit the number of people who could participate in the video. A system that meets all of the needs and preferences of students is tough to design.

Colleges all throughout the country have shifted to online instruction in the wake of Covid-19 and the shutdown. Various challenges have arisen in the higher education industry as a result of this. While many institutions and colleges have made the switch from traditional classrooms to online ones, others have struggled. Despite considerable accomplishments, particularly for schools with well-established online learning and teaching platforms. Literature suggests that the abrupt shift to online learning presents a number of difficulties for students and faculty alike, including a lack of basic needs and requirements, a lack of connectivity, and a lack of physical area and environment that isn't conducive to learning, among other things.

◆ Difficulties in Academic Adjustment

Academics play a crucial role in online learning at their various universities, serving as guides and mentors for students. Since most academics could not adjust in time because of a sudden epidemic of COVID-19, online learning was abruptly introduced (Wang et al., 2020). According to additional data, studies show that some professors lack the necessary IT abilities and have a poor understanding of online education (Chen et al., 2020). Consequently, they are unable to assist students in their online education. Organizing online courses, carrying out planned internet teaching, selecting an online teaching platform, and monitoring the effect as well as the quality of online learning are just a few of the challenges that may arise, all of which may affect how satisfied students are with the online learning experience (Chen et al., 2020). Additionally, academics were concerned about their capacity to maintain the same degree of connection with students in an electronic platform compared to a more traditional face-to-face format (Ratten, 2020). According to Bryson and Andres (2020), re-creating the classroom environment in an online platform is unachievable and may actually worsen student learning results. As a result of the sudden change to online learning, academics are most likely ignorant of the many online resources at their disposal. As a result, they are unable to effectively instruct others (Donitsa-Schmidt & Ramot, 2020). Due to issues such as system outages, it may be difficult to deliver a course online (Chen et al., 2020). Even when it comes to exams, grading students online is a difficult problem for scholars and faculty members (Sahu, 2020). For beginner academics, online training may be much more difficult if they lack self-control and

enthusiasm (Bao, 2020). The Commission on Higher Education (CHED) briefly suspended online education after three days, signifying that the Philippines is not yet ready to employ this technique of online learning (Toquero, 2020). Consequently, it has been suggested that an efficient online teaching and learning system requires careful preparation and considerable expenditure (Demuyakor, 2020). During a crisis like the Covid-19 epidemic, it's virtually hard to properly plan and invest in online learning.

◆ Students' difficulties to adjust

As well as students, teachers had a tough time making the switch from traditional classroom-based education to distance learning. Research conducted by Ronnie et al. (2020) indicated that students struggled to adapt to online learning since they had duties at home and there was insufficient communication among them and their professors. In general, students lacked preparation for online learning in its entirety. In spite of the fact that students' inclinations to study online were influenced by social and instructor concerns, many students reported difficulties in accessing online learning systems (Rapanta et al., 2020). As a result, the majority of students are unable to get help or access to advanced online learning tools when they encounter technical difficulties while enrolled in an online course. Access to computers and tablets, and data for internet connections, were viewed by several students as impediments to online courses (Moawad 2020). Low-income students in underdeveloped nations are often denied access to online education systems. 30.6 percent of students in West Bengal, India, were unable to participate in e-learning because they were unable to access online learning platforms, according to research (Kapasia et al., 2020). There is evidence to suggest that online learning widens previously existing socioeconomic and educational/literacy disparities for some pupils, according to Dawadi et al. (2020). Online learning and teaching requires a high-speed and dependable internet connection, as some students are unsatisfied with present systems (Chen et al., 2020). As a result, some students have faced more serious issues, such as difficulty accessing online learning tools. Online education has necessitated that both students and academics to be online at all times. In some cases, teaching and learning may suffer as a result. During the Covid-19 pandemic shutdown, network issues were found to be the largest hindrance to e-learning and e-teaching (Dawadi, 2020). Ronnie and colleagues (2020) discovered that the availability of fast and consistent internet connections was more essential than device ownership and technical expertise in their study on online learning difficulties. Due to the difficulties of obtaining a reliable internet connection, most students avoid online learning. Documented as a severe issue in the literature (Naciri, 2020). According to Demuyakor (2020), Ghanaian overseas students in China's shortage of internet data is to blame for this drawback of online learning. Some students said they couldn't learn online because they didn't have the proper hardware and software (Crawford et al., 2020). Student Representative Councils (SRC) from several universities have urged that all students be provided with digital learning devices (smartphones, tablets, and laptop computers) and internet connectivity in order to ensure that all students have equal access to online learning. (Kwabena & Boateng, 2020). The home network of some students made it impossible for them to use online resources, even if they had access to digital learning equipment and the internet

(Wargadinata et al., 2020). Poor network connectivity is more widespread in developing countries because of a lack of ICT and telecommunications infrastructure (Aboagye et al., 2020). A lack of "network speed and stability" is making it difficult for teachers to access online learning resources, according to Chang and Fang (2020). Online teaching and learning can only be successful if students have access to smartphones, tablets, and laptops, as well as reliable network infrastructure, according to the literature.

◆ Unconducive physical space and environment

During the lockdown, several students who were attempting to learn online ran into issues owing to a lack of a physical learning environment. For the most part, low-income families do not have a separate study area where their children may concentrate on their schoolwork without interruptions (Ronnie et al., 2020). Poor network connectivity is more widespread in developing countries because of a lack of ICT and telecommunications infrastructure (Aboagye et al., 2020). A lack of "network speed and stability" is making it difficult for teachers to obtain online learning resources, according to Chang and Fang (2020). Student productivity diminishes if they are unable to focus on their coursework due to the lack of a favorable learning environment. Schools and educational institutions must take into account the problems of kids whose parents are unaccepting or who live in inhospitable settings, Daniel (2020) argues. Since Covid-19, there has been a trend in online education that has overlooked the realities of a learning environment that is not favorable.

◆ Mental health

Covid-19-related mental health difficulties and the sudden change from classroom to online courses are also discussed in the literature. Major life transitions and concern about the future can lead to a variety of mental health problems, including stress, anxiety, as well as depression (Ronnie et al., 2020). Students' emotional and social well-being is disrupted by learning loss or dropout rates, and other, more difficult-to-quantify issues induced by covid-19 (Dorn, 2020). Stress and worry, as well as depression, are more common among students whose family's revenue and livelihood plan have been significantly impacted by Covid-19's restrictions (Cao et al., 2020). But Zolotov et al. (2020) found that those who were suffering from anxiety and other mental health concerns turned to drugs for relief, even though Covid-19 has been demonstrated to cause these disorders in Israeli university students. During these difficult times, it has a negative impact on learning. 24.9% of Chinese students have voiced concern about the COVID-19 epidemic (Pragholapati, 2020). The presence of a COVID-19-infected family or friend was commonly linked to feelings of anxiety (Pragholapati, 2020).

◆ Lack of basic needs

Students' capacity to actively participate in online courses while at home is hampered by a lack of basic requirements such as food, housing, clean drinking water, energy, medical care, and security (Ronnie et al., 2020). Funders may not be able to produce meal vouchers for supported students, therefore the food given to students living on campus may not be accessible at home (Sahu, 2020). During a lockdown, some pupils may be unable to concentrate due to a

lack of sufficient shelter. Researchers found that students who were not living with parents (whether they were staying with relatives, renting a property, or were paying guests) had money problems (26.5 percent), food problems (51 percent), and health problems (50 percent) (22.5 percent). Despite the fact that the effects of these difficulties on students' learning have yet to be assessed, it is clear that they hampered their capacity to study effectively online.

◆ Instructional and teaching materials

Professors and students alike were concerned about the lack of online teaching and learning resources. In other cases, Kerres (2020) claims, some colleges do not have completely working online communication tools, such as limited student access to online library contents. These concerns will very probably have an impact on the way educational content is offered over the internet. Internet access and digital gadgets have also been blamed for stifling online learning. Because of the increased load on parents who must provide laptops and other IT gear for their students to read at home, academicians may find it challenging to work from home owing to the absence of infrastructure and resources that would allow for quick online teaching (Sahu, 2020). Students in distant rural locations may struggle to stay connected to online learning equipment like laptops because of a lack of power (Sarwar et al., 2020). In order to make the change to online education, not all schools and institutions have the necessary resources (Crawford et al., 2020).

◆ Covid-19 and academic outcomes

Students' academic performance has not been widely researched by Covid-19. Most likely as a result of the scarcity of data available at the time of the Covid-19 period. As academic findings emerge, more research are expected to be conducted on this topic. It was found in Gonzalez et al. (2020) that following their incarceration in Covid-19, students had worse test scores than before. According to the findings of the study, student online exam outcomes climbed significantly over last year (Gonzalez et al., 2020). After the imprisonment of Covid-19, there is a substantial improvement in the results of on-line tests (there were no significant changes before the confinement) (Gonzalez et al., 2020). There was an increase in student performance regardless of how the assessment format was changed, indicating that the new assessment technique was not to blame (Gonzalez et al., 2020). The Covid-19 epidemic is predicted to result in worse grades and a higher dropout rate among students, despite the fact that Gonzalez et al. studies found no connection between Covid-19 confinement and academic performance (Dorn et al., 2020).

◆ Opportunities of Covid-19.

The impact of Covid-19 on student academic performance has not been fully researched. The lack of data on academic success during the Covid-19 period is most likely to blame. There are likely to be more research on this topic as more scholarly results are published. Before and after their imprisonment in Covid-19, students were studied by Gonzalez et al. (2020). Online exam outcomes for students climbed significantly over previous year, according to the findings of a recent study (Gonzalez et al., 2020). While on-line testing before

to Covid-19's confinement show no significant changes, following confinement there is a substantial improvement (Gonzalez et al., 2020). As long as the evaluation format remained same, students performed better, indicating that the new assessment technique is not to blame for the rise in student achievement (Gonzalez et al., 2020). As a result, educational institutions must find new and innovative ways to offer teaching without compromising the quality of that learning (Ratten, 2020). Thus, new challenges in online teaching and learning will offer the way for sector-wide innovative thinking and solutions (Bryson & Andres, 2020). Pupils and faculty personnel' online communication skills are also said to develop as a result of online education and learning. Covid-19's outbreak has also opened up new study possibilities in a brand-new area, as well as greater usage of digital data gathering methods and virtual distribution of research findings. This gave researchers and academics new experiences in the digital realm, which were essential for their capacity development (Gardner, 2020).

6. Teaching and Learning Opportunities

The COVID-19 epidemic has generated multiple chances for those who are preparing and have long-term intentions to deploy an e-learning system, despite significant hurdles in different elements of online learning for educators, schools, institutions, and the government. As a result, instructors and parents have formed a stronger relationship than ever before. There are financial and intellectual responsibilities that homeschooling parents must bear. Additional and specialized help is needed for children with disabilities during this continuing disaster. We're exploring and experimenting with new educational tools such as Telegram and other group messaging apps like WhatsApp and WeChat, along with Google Classroom and other online learning environments like Zoom. Even if face-to-face training is resumed, more research may be done, and these platforms can give students with more resources and mentoring in the meantime. Teacher innovation is needed to overcome the constraints of virtual instruction. Online education approaches are being improved by local educators who are working together. Collaborating with other educators, parents, and kids is a unique opportunity to find creative solutions and learn from each other's mistakes and successes (Doucet et al., 2020). As a result, many educational institutions are making their solutions and resources freely available to aid in creating a more engaging classroom environment. Unlike traditional classroom environments, online learning has allowed professors and students to teach and learn in new ways.

7. Instructional Strategies to Improve Student's Engagement during E-Learning

Walker notes that distance learners, because of their isolation and often because they are at home and still subject to the pressures of everyday life, may need motivation to continue their studies, and this may mean that simply providing online learning materials is not enough. The Open University lists the following types of material it provides to help distance learners to adapt and attend effectively (Walker, 1998):

- The material is specifically designed to be complete on its own or only requires specific supplementary material (e.g. a specific textbook) to complete it.
- The material is specifically designed to make the student actively involved in the learning process.
- The material is created in a way that persuades the student to continue.
- Support is provided so that the student is confident that they are making progress.
- For introductory courses, the material is specifically designed to help the student study at a distance.

Walker discusses how distance education can support the Open University's unquestioned theory of learning and meeting the needs of students (Walker, 1998). If the theory of learning states that students need to acquire a particular set of knowledge and skills, then distance education is better designed as a continuous process of knowledge delivery and skills practice, with examinations to ensure in-depth knowledge and support provision. Distance education designed along these guidelines can fulfil this educational purpose very well, he notes, as has been demonstrated by the Open University, where education in maths, science and technology is in harmony with the theory of learning acquisition. As Walker notes, if the prevailing theory of learning says that students should build their own understanding by connecting the courses they take to their prior knowledge, then distance education is better designed to help students make and test those connections. It is more difficult to design distance learning courses along these guidelines because there is a key element in the learning process, according to the "construction theory" of learning, which states that teachers act as facilitators to help students structure their level of understanding and point out their misconceptions. This is not necessarily the case for distance learning, although the Open University has recently started using a computer-based communication system to support this process. In the School of Technology, the adoption of this learning theory also means changing the way assessment is carried out, as it is now necessary to ensure that students have the appropriate connections to further their understanding of their course, rather than simply testing whether they have acquired the appropriate knowledge and skills (Nelson, 1966).

8. Discussion

Nearly one-fourth of the world's students, or 1.725 billion children and teenagers in more than 200 nations, would have been touched by the epidemic by July 2020. (United Nations, 2020). Homeschooling has become an urgent requirement since it allows students to learn at their own pace. For online learning, established pedagogical practices do not work. While online and remote learning are on the rise, teachers who lack a basic understanding of

technology still need to receive additional support and training before they can effectively serve their students. Learning necessitates honest evaluations and timely feedback. In order for online students to benefit from distant learning, they must have access to relevant formative evaluations and timely feedback (Doucet et al., 2020). Educators and the school system have found it difficult to adapt to this new reality. Because to huge class numbers, an absence of online infrastructure as well as professional growth, and an absence of student involvement, it is more challenging in Bhutan to teach online. The term "Maslow before Bloom" is often encountered in educational circles. This must be the goal of online education in the face of the present epidemic. Our students' fundamental requirements are always taken care of before the commencement of an e-learning course. When perpetrators of domestic aggression and child abuse are caught in the act, it puts students' safety and well-being at risk (Ravichandran & Shah, 2020). Since the COVID-19 outbreak, many kids have been forced to attend school at home, a situation that may not be suitable for many pupils' scholastic or economic needs. Research is needed to aid the poorest of the poor.

The COVID-19 pandemic's prolonged vacation has been blamed for school dropouts and early retirement in Bhutan. It would be interesting to see if a study were to be done to see if the pandemic had any effect on dropout rates. These institutions have developed various online resources that may be used for free during this epidemic. Student access to and cost of these online infrastructures is still a major issue. Some students, such those who are deaf or blind or have mobility challenges, will require specialized instruction and assistance. Children with special needs are hindered by caregivers and parents who cannot address their demands at home. That's why we need to spend more time and money figuring out what the best solutions are for these individuals' unique educational requirements (SEN). Teachers have a tough time verifying the legitimacy of the work and the real learning that is going place because all assignments and tests are performed at home. Many parents also help and promote their children's academic development, but the results might be mixed. No relevant criteria have been devised or are effectively employed for grading students; this is an additional subject of inquiry.

8. Conclusions

Research on suitable pedagogy or platforms for different levels of upper secondary, intermediate, and elementary school education in poor countries is still needed, despite numerous studies being undertaken across the world. There is a lack of Internet availability and affordability in many developing nations because of a lack of bandwidth, fewer connection sites, and pricey data bundles. A change in policy is required to make things better. Pedagogy for online teaching and learning is a field that needs further inquiry and analysis. Tools for authentic evaluations and fast feedback have been recognized as a further research requirement. In order to meet the needs of students from various socioeconomic strata, makers of educational software may be able to tailor their products to meet those needs. It is also necessary to take action at the policy level. We must invest in teacher professional development in ICT and effective pedagogy given the current state of the world's education systems. Using user-friendly

technologies to enhance the creative, inventive, and interactive aspects of online education are also being investigated. By doing this, schools might better prepare students and teachers for unpredictable times in the years to come. COVID-19 has shown us that both instructors and students/learners need to be educated in the usage of numerous online educational resources. In the face of this epidemic, several governments throughout the world have put in place a range of measures. There are around 96 nations where broadcasts and other forms of internet media are popular. In terms of quality, e-learning has a long way to go. Unfortunately, there was not enough time to guarantee the quality of the E-learning as well as online teaching-learning procedure before COVID-19 came, since the focus during the worldwide crisis was to save but also continue the education process in whatever format available. According to UNESCO, several nations have received quick help via the COVID-19 site so that learning may continue and disruptions in education can be minimized (UNESCO 2020). E-learning has proven to be a boon to teachers and students throughout the world, despite certain drawbacks. When it comes to today's global financial crisis, the need for e-learning has never been more evident. Since the advent of the virus, the usage of e-learning platforms has kept education going. It's imperative that instructors and students alike continue to make use of online resources like these when classes return as usual following the COVID-19 epidemic.

References

- Aboagye, E., Yawson, J. A., & Appiah, K. N. (2021). COVID-19 and E-learning: The challenges of students in tertiary institutions. *Social Education Research*, 1-8.
- Assunção Flores, M., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: national, institutional and pedagogical responses. *Journal of Education for Teaching*, 46(4), 507-516.
- Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, 5(4), 10
- Bao, W. (2020). COVID- 19 and online teaching in higher education: A case study of Peking University. *Human behavior and emerging technologies*, 2(2), 113-115.
- Baticulon, Ronnie E., Nicole Rose I. Alberto, Maria Beatriz C. Baron, Robert Earl C. Mabulay, Lloyd Gabriel T. Rizada, Jinno Jenkin Sy, Christl Jan S. Tiu, Charlie A. Clarion, and John Carlo B. Reyes. "Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines." *medRxiv* (2020).
- Bjorklund, A and K Salvanes (2011), "Education and Family Background: Mechanisms and Policies", in E Hanushek, S Machin and L Woessmann (eds), *Handbook of the Economics of Education*, Vol. 3.

- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G.J., (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*.
- Bryson, J. R., & Andres, L. (2020). Covid-19 and rapid adoption and improvisation of online teaching: curating resources for extensive versus intensive online learning experiences. *Journal of Geography in Higher Education*, 44(4), 608-623.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*, 287, 112934.
- Chen, T., Peng, L., Yin, X., Rong, J., Yang, J., & Cong, G. (2020, September). Analysis of user satisfaction with online education platforms in China during the COVID-19 pandemic. In *Healthcare* (Vol. 8, No. 3, p. 200). Multidisciplinary Digital Publishing Institute.
- Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., ... & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 1-20.
- Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, 49(1), 91-96.
- Dawadi, S., Giri, R. A., & Simkhada, P. (2020). Impact of COVID-19 on the Education Sector in Nepal: Challenges and Coping Strategies. Online Submission.
- Demuyakor, J. (2020). Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. *Online Journal of Communication and Media Technologies*, 10(3), e202018.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crises. *Journal of Educational Technology*, 49(1), 5–22
- Donitsa-Schmidt, S., & Ramot, R. (2020). Opportunities and challenges: teacher education in Israel in the Covid-19 pandemic. *Journal of Education for Teaching*, 46(4), 586-595.
- Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). COVID-19 and student learning in the United States: The hurt could last a lifetime. McKinsey & Company, 1.

- Doucet, A., Netolicky, D., Timmers, K., & Tuscano, F. J. (2020). Thinking about pedagogy in an unfolding pandemic (An Independent Report on Approaches to Distance Learning during COVID-19 School Closure). Work of Education International and UNESCO.
- Fredriksson, M., & Ihlen, Ø. (2018). Introduction: Public Relations and Social Theory 1. In *Public Relations and Social Theory* (pp. 1-16). Routledge
- Gardner, L. (2020). Covid-19 has forced higher ed to pivot to online learning. Here are 7 takeaways so far. *The Chronicle of Higher Education*, 20(5).
- Gonzalez, T., De La Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PLoS one*, 15(10), e0239490.
- Johnson, S., Bamber, D., Bountziouka, V., Clayton, S., Cragg, L., Gilmore, C., Griffiths, R., Marlow, N., Simms, V., & Wharrad, H.J. (2019). Improving developmental and educational support for children born preterm: evaluation of an e-learning resource for education professionals. *BMJ Open*, 9.
- Kapasias, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., ... & Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and youth services review*, 116, 105194.
- Khalid, M. S., Slættalíð, T., Parveen, M., & Hossain, M. S. (2015). A systematic review and meta-analysis of teachers' development of digital literacy. In *Proceedings of the 1th D4| Learning international Conference Innovations in Digital Learning for Inclusion (D4Learning, 2015)* (pp. 136-144). Aalborg Universitetsforlag.
- Kuensel. (2020, March 6). First confirmed coronavirus case in Bhutan. Kuensel.
- Moawad, R. A. (2020). Online learning during the COVID-19 pandemic and academic stress in university students. *Revista Românească pentru Educație Multidimensională*, 12(1 Sup2), 100-107.
- Murgatroid, S. (2020, March). COVID-19 and Online learning, Alberta, Canada.
- Naciri, A., Baba, M. A., Achbani, A., & Kharbach, A. (2020). Mobile learning in Higher education: Unavoidable alternative during COVID-19. *Aquademia*, 4(1), ep20016.

- Nantwi, William Kwabena, and Barfo Boateng. "COVID-19 AND EDUCATION IN GHANA: A TALE OF CHAOS AND CALM." *African Journal of Emerging Issues* 2, no. 5 (2020): 41-52.
- Nelson, R. R., & Phelps, E. S. (1966). Investment in humans, technological diffusion, and economic growth. *The American economic review*, 56(1/2), 69-75.
- O'Keefe, L., Rafferty, J., Gunder, A., & Vignare, K. (2020). Delivering High-Quality Instruction Online in Response to COVID-19: Faculty Playbook. Online Learning Consortium.
- Palden, T. (2020, August 12). Women test COVID-19 positive after five tests locking down entire country. *Kuensel*, pp. 1–2
- Petrie, C. (2020). Spotlight: Quality education for all during COVID-19 crisis (hundrED Research Report #01). United Nations.
- Piopiunik, M, G Schwerdt, L Simon and L Woessman (2020), "Skills, signals, and employability: An experimental investigation", *European Economic Review* 123: 103374.
- Pragholapati, A. (2020). COVID-19 impact on students.
- Radha, R., K. Mahalakshmi, V. Sathis Kumar, and A. R. Saravanakumar. "E-learning during lockdown of Covid-19 pandemic: a global perspective." *International journal of control and automation* 13, no. 4 (2020): 1088-1099
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education*, 2(3), 923-945.
- Ratten, V. (2020). Coronavirus (Covid-19) and the entrepreneurship education community. *Journal of Enterprising Communities: People and Places in the Global Economy*.
- Ravichandran, P., Shah, A. K., & Ravichandran, P. (2020). Shadow pandemic: Domestic violence and child abuse during the COVID-19 lockdown in India.
- Rizun, M., & Strzelecki, A. (2020). Students' acceptance of the Covid-19 impact on shifting higher education to distance learning in Poland. *International Journal of Environmental Research and Public Health*, 17(18), 6468.

- Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, 12(4).
- Sarwar, H., Akhtar, H., Naeem, M. M., Khan, J. A., Waraich, K., Shabbir, S., ... & Khurshid, Z. (2020). Self-reported effectiveness of e-Learning classes during COVID-19 pandemic: A nation-wide survey of Pakistani undergraduate dentistry students. *European journal of dentistry*, 14(S 01), S34-S43.
- Simamora, R. M. (2020). The Challenges of online learning during the COVID-19 pandemic: An essay analysis of performing arts education students. *Studies in Learning and Teaching*, 1(2), 86-103.
- Sintema, E. J. (2020, April 7). Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. *EURASIA Journal of Mathematics, Science and Technology Education*, 16(7)
- Subedi, S., Nayaju, S., Subedi, S., Shah, S. K., & Shah, J. M. (2020). Impact of e-learning during COVID-19 pandemic among nursing students and teachers of Nepal. *International Journal of Science and Healthcare Research*, 5(3), 9
- Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4).
- United Nations. (2020). Policy brief: Education during COVID-19 and beyond. United Nations
- Wahid, Ridzal, Florence Pribadi, and Berlian Ester Wakas. "Digital Activism: Covid-19 Effects in Campus Learning." *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal* 3, no. 3 (2020): 1336-1342
- Wang, C., Cheng, Z., Yue, X. G., & McAleer, M. (2020). Risk management of COVID-19 by universities in China. *Journal of Risk and Financial Management*, 13(2), 36.
- Wargadinata, W., Maimunah, I., Febriani, S. R., & Pimada, L. H. (2020). Mediated arabic language learning for Arabic students of higher education in COVID-19 situation. *Izdihar: Journal of Arabic Language Teaching, Linguistics, and Literature*, 3(1), 1-18.
- Wendelboe, A. M., Amanda Miller, J. D., Drevets, D., Salinas, L., Miller, E. J., Jackson, D., ... & Public Health Working Group. (2020). Tabletop exercise to prepare institutions of higher education for an outbreak of COVID-19. *Journal of emergency management*, 18(2), 1-20.

Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 outbreak. *Journal of Risk and financial management*, 13(3), 55.

Zolotov, Y., Reznik, A., Bender, S., & Isralowitz, R. (2020). COVID-19 fear, mental health, and substance use among Israeli university students. *International journal of mental health and addiction*, 1-7.

Walker, Mirabelle (1998) Effective distance learning: an Open University perspective, Presented at CTI Law Technology Centre Seminar: Distance Learning the Way Forward?, Warwick University