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Effect of the COVID-19 Pandemic and its Consequences of the Lockdown on the Education System

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ABSTRACT

The COVID-19 pandemic has affected the study and learning processes of students at all levels. Numerous countries took control measures to reduce the rate of deaths and infections through guidelines, rules on health and safety, lockdown, and social distancing among the students, as they were important stakeholders in the educational process. Even COVID-19 caused an educational crisis worldwide. The government closed all educational institutions for a period of time. This crisis has pointed out many deficiencies that were required for online education, including the supportive environments required to focus on learning. The educational community worked hard to maintain learning continuity during this time, but students had to rely more on their own resources. Research was conducted through various reliable sources such as PubMed, Scopus, Web of Science, and Google Scholar. Of them, analyzed numerous recent reports to determine the total number of COVID-19 infections in educational system. Students were assisted in a variety of methods, including via radio, television, and online teaching applications like Microsoft Teams, Google Classroom, and Zoom. Recent developments have prompted universities worldwide to shift toward online education, and advancements in information and communication technology (ICT) have contributed to the emergence of new and innovative education methods. Inadequate e-devices and expensive internet packages necessary for uninterrupted connectivity, uncooperative students and their families, low learner attendance, and a dearth of expertise in online teaching are some of the obstacles that educators encounter when implementing online teaching practices. It was determined that to enhance the efficacy of online instruction, educators should participate in development courses and faculty-led seminars coordinated by the school administration. They have to demonstrate their ability to learn despite having very limited facilities. Strengthening educational planning and health measures at the university can allow students and other stakeholders to restrict the spread of the virus. Other issues for higher education have arisen, such as how to assess and evaluate students, support international students, manage travel restrictions, and ensure the psychosocial well-being of students, faculty, and staff.

Keywords: COVID-19, Affecting education, Internet insufficient availability, Managing space and students.

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INTRODUCTION

A novel coronavirus, SARS-CoV-2 (severe acute respiratory

syndrome coronavirus 2), initiated the December 2019 outbreak in Wuhan, China, and subsequently expanded

globally. The World Health Organization officially designated this disease as COVID-19 on February 11, 2020 (Talevi et al., 2020; Zhou et al., 2021). The unexpected arrival of a virus around February 2020 shocked the entire world and has since claimed several innocent lives all over the world. Originating in China, the coronavirus, also known as COVID-19, is a virus that the Centers for Disease Control and Prevention (CDCP) (2019) classifies as an infectious disease that can be transmitted. The virus spreads primarily through saliva droplets or nasal discharge, which means that if an infected person coughs, sneezes, or talks near other people, they are at risk of becoming infected (Bull et al., 2020). This means that the virus is transmitted through close contact with the infected or by touching virus-infected objects or surfaces and then touching one's mouth, nose, and/or eyes (CDC, 2019). The majority of people infected with COVID-19 will have mild to severe respiratory illnesses, while others will have no symptoms at all (asymptomatic) (Bull et al., 2020). As a result, the COVID-19 virus is new and no treatment is available, making the coronavirus fatal. As the COVID-19 virus spread rapidly in various countries around the world, governments were alarmed because they had little experience dealing with a global virus outbreak. After all, this was only supposed to happen in biblical stories or movies.

As a result, poor emergency response was seen at the start of the outbreak, particularly in countries with weak and autocratic governments, with infected people and death tolls rising continuously as governments worldwide attempted to control the outbreak and prevent the coronavirus from spreading rapidly (Nixon et al., 2020). A novel disease delivered widespread devastation in the spring of 2020. The 2019 novel coronavirus disease (COVID-19) affected more than 294 thousand individuals across 187 countries in less than 90 days following its official identification in late January (Bull et al., 2020), shutting down transportation and cities, quarantining civilians at their houses, and knocking the world on high alert (Wang et al., 2022). However, the global incidence of confirmed cases and fatalities persists in its ascending, whereas the figure for China is gradually declining (National Health Commission of the People's Republic of China, 2020) (Li et al., 2020). Consequently, China faces the dual challenge of containing imported cases from foreign passengers and recovering from a nationwide shutdown (Hu and Konrad, 2021).

The pandemic has put almost every organization's and educational institution's operations in jeopardy, and

education as a whole has been hit hard around the world (Babbar and Gupta, 2022). The study looked into the effect of COVID-19 on students' learning processes at all levels. In Pakistan, such a pandemic has never occurred (Babbar and Gupta, 2022; Nasir and Hameed, 2021). In Pakistan, which is still struggling to stand on its own two feet, the pandemic has exacerbated the country's problems, whether they are economic, political, or educational. The government closed all educational institutions beginning March 13, 2020, for a period of three weeks (Latif and Sajid, 2020).

SARS-CoV-2, the seventh human coronavirus, was discovered in Wuhan, Hubei province, China, during a recent pneumonia epidemic in January 2020 (Hu et al., 2021; Zhou et al., 2020). SARS-CoV-2, SARS-CoV, and Middle East respiratory syndrome coronavirus (MERS-CoV) all-cause severe pneumonia, with fatality rates of 2.9 percent, 9.6 percent, and 36%, respectively (Cascella et al., 2020). The other four human coronaviruses, OC43, NL63, HKU1, and 229E, generally cause a self-limited disease with mild symptoms (Liu et al.). The cases found outside of Wuhan, along with the finding of infection in at least one household cluster by Jasper Fuk-Woo Chan and colleagues 6 in the Lancet and the recent reports of infections in healthcare workers caring for COVID-2019 patients, show that the disease can be passed from person to person (Wang et al., 2020; Yang and Zhou, 2020). This means that it has a much higher chance of spreading to other people. As of January 23, 2020, China had identified a cumulative sum of 835 laboratory-confirmed cases of COVID-2019 infection, consisting of 25 deaths and 93 percent of those who remained hospitalized (VIRUS, 2020).

The COVID-19 virus had a huge effect on education systems around the world (Daniel, 2020). Since schools had to close to stop the virus from spreading, teachers, students, and parents quickly switched to learning from home (Tadesse and Muluye, 2020). This sudden change showed that not all students had the same access to technology and tools, which made the learning gap bigger between them (Di Pietro, 2023). Lack of face-to-face contact also hurt students' emotional and social growth (Al-Maskari et al., 2022; Saleh et al., 2023). Also, assessment methods had to be changed, which made people wonder how well internet tests really work. As schools slowly start to return, a method that combines learning in person and online is becoming more popular (Asaqli, 2020). It's still not clear what these changes would mean for the education system in the long term, which has led to debates about the need for educational reform in a

world after the pandemic (Akpen et al., 2024). Because of the COVID-19 pandemic, the world's education system is changing and adjusting to new problems (Mann, 2020). This is putting old ways of teaching and learning to the test. This study's goal is to find out how the COVID-19 pandemic has affected higher education by looking at problems that come up and how hard it is for universities to keep their academic programs going.

MATERIALS AND METHODS

This study examines the observations and impacts of COVID-19 on education and student mobility, with a particular focus on how the pandemic affected study abroad programs, institutional reliance on international student fees, and education systems around the world. Post-pandemic, study abroad programs have shifted toward shorter duration and safer destinations. The global foreign education industry, valued at \$300 billion, revealed vulnerabilities due to its heavy dependence on international students. School closures and interruptions have affected education on an unprecedented scale globally.

The present study conducted a systematic review of existing literature related to the impacts of COVID-19 on global education systems. The primary sources of data included academic databases such as PubMed, Scopus, Web of Science, and Google Scholar. The search was conducted between 20-03-2020 and 01-12-2022, focusing on publications available in English. This section outlines our systematic approach to selecting, screening, and analyzing the literature sources used in the study. The following keywords and phrases guided the search: "COVID-19," "education disruption," "online learning," "students' mental health," "higher education," "school closures," and "educational challenges during the pandemic."

Inclusion and Exclusion Criteria

Peer-reviewed articles, reviews, and official reports that discuss the impact of COVID-19 on various educational dimensions; publications providing empirical data or comprehensive reviews; studies published in reputable journals.

Exclusion criteria

Articles not available in English; commentaries, opinion pieces, and editorials lacking empirical evidence; studies focusing solely on non-educational topics.

Data Extraction and Analysis

All available articles were imported into reference management system, and duplicates were removed.

Independently screened titles and abstracts for relevance. The full texts of potentially relevant articles were then evaluated against the inclusion criteria, and any disagreements were resolved through discussion or consultation.

Data relevant to objectives

Study setting, methodology, key findings, and implications—were extracted systematically. A thematic analysis approach was employed to synthesize findings across diverse studies, focusing on the psychological, technological, and institutional impacts of COVID-19 on education.

Data Analysis and documentation

Softwares such as GraphPad Prism 8 (San Diego, California, USA), and PhotoScape v3.7 (South Korea, Seoul, MOOII Tech) were used.

RESULTS AND DISCUSSION

As the level of global interconnection increased, the risks that we encounter also increased (Figure 1). The pandemic of COVID-19 has transcended national boundaries (Figure 2). It has impacted individuals of every gender, nationality, income, and educational attainment. In contrast, the aforementioned outcomes have hampered education disproportionately (Schleicher, 2020). Students from privileged backgrounds who had their parents' support and who were eager and capable of learning might be able to find their way past closed school doors to alternative learning opportunities (Korkmaz et al., 2022). Those from disadvantaged backgrounds were frequently shut out when their schools closed. This crisis has highlighted many inadequacies and inequities in our education systems, ranging from access to broadband and computers required for online education to the supportive environments required to focus on learning to the misalignment of resources and needs (Shahzad, 2024).

Lockdowns in response to COVID-19 have disrupted traditional schooling, resulting in nationwide school closures (Figure 3) in the majority of OECD and partner countries, with the majority lasting at least 10 weeks (Reimers and Schleicher, 2020). While the educational community worked hard to maintain learning continuity during this time, children and students had to rely more on their resources to continue learning remotely via the Internet, television, or radio (Avanesian et al., 2021). Teachers were also required to adapt to new pedagogical concepts and modes of instruction for which they had not been trained (Winter et al., 2021). Learners from the most

marginalized groups, in particular, who lack access to digital learning resources or the resilience and engagement to learn on their own, are at risk of falling behind (Haleem et al., 2022).

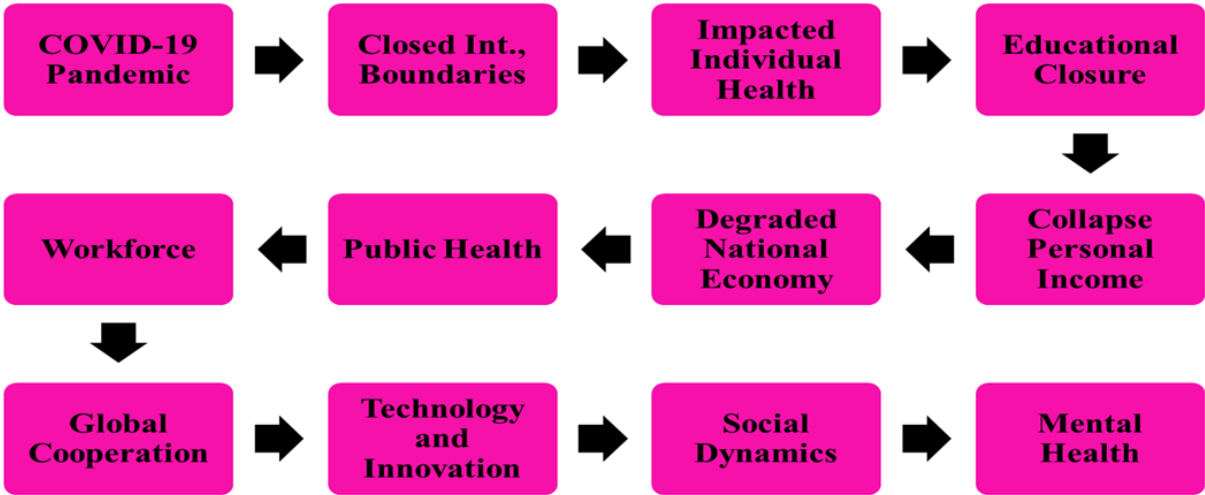


Figure 1: Effect of COVID-19 pandemic on the World:

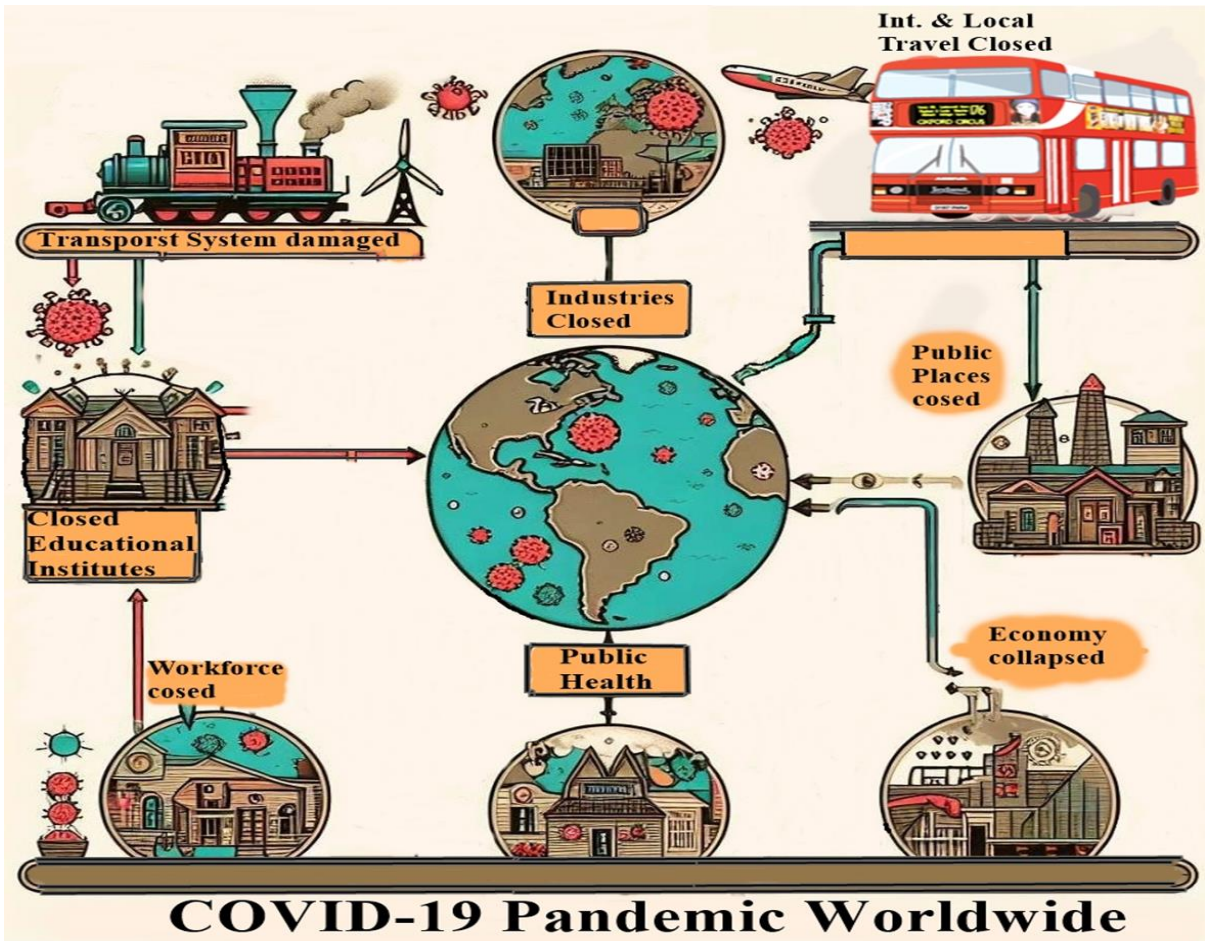


Figure 2: Closure of dynamic world.

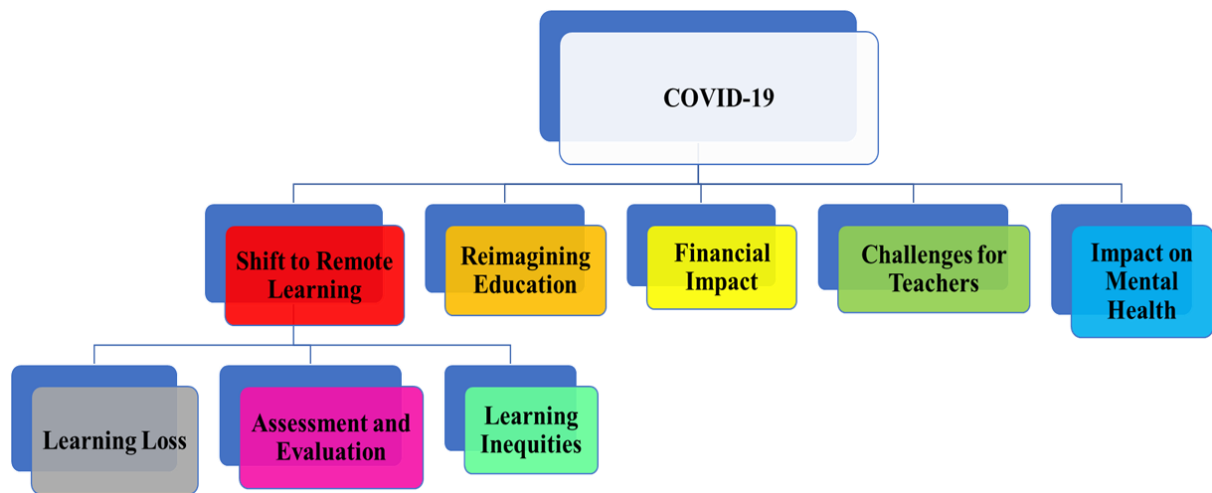


Figure 3: Effect of COVID-19 on the education system of the World.

Although public health is the primary concern, the COVID-19 pandemic has already caused cascading effects in the education systems of many nations, primarily due to the closure of schools (Carr et al., 2022). While a brief absence from school is easier to recover from, a long absence will have a negative impact on learning. Learning loss has an impact on both short- and long-term economic gains, human capital growth, and, most importantly, it widens the equity gap in student learning (Uğraş et al., 2023). Lockdown and social distancing tactics were among the first to have an impact on education and the HE system. Universities, being hubs for people from diverse locations and nations, present an important risk to the transmission of COVID-19 (Bull et

al., 2020; Weeden and Cornwell, 2020). The difficulties of achieving SDG 4 serve as an example of the educational crisis that the world was in even before COVID-19 (Palos-Sánchez et al., 2023). According to the World Bank, approximately 53% of young people in low- and middle-income countries are "learning poor" (Palos-Sánchez et al., 2023). The closure of schools, which is being implemented in many countries to facilitate 'physical distancing' and reduce the risk of contamination, is likely to exacerbate the crisis in the coming years, making it impossible to achieve the goal of halving learning poverty by 2030 (Shmis et al., 2020; Van Lancker and Parolin, 2020) (shown in red in Figure 4).

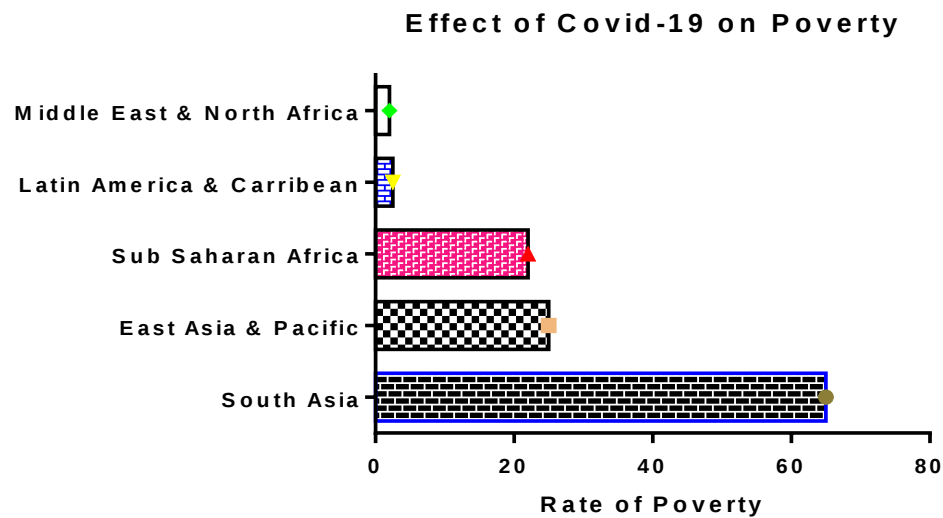


Figure 4: Decreasing in poverty by 2030.

Emergency online teaching has taken the place of classroom education, but it has had a number of problems, such as teachers not knowing enough about technology and not being able to help students, infrastructure that isn't strong enough, and problems connecting to the internet (Cespedes, 2024). There were also differences in how well people learned in rural areas, where there are known problems with getting enough stable power and Internet access (Kenya, 2020).

Many of the 1.6 billion children and young people who have been confined to their homes will be unable to catch up, or worse, will not return to school (Figure 5) at all (Engzell et al., 2021). The world's governments must therefore continue to put in place systems to ensure educational continuity and ways to return to school as soon as possible, and

international cooperation, including through multilateral institutions such as UNESCO and UNICEF, must support these countries and their young people (Shmis et al., 2020; Unicef, 2021). The Federal Ministry of Education and the state governments are both in charge of Pakistan's public school system (Khalid and Khan, 2006). In 2020, the Ministry of Education and Federal Training Pakistan recognized technology-based education interventions (TBEIs) as a method of assisting students through online teaching platforms, television, radio, and radio broadcasts (Tabassum et al., 2020). These platforms include internet-connected computers, smartphone mobile devices, and applications like Zoom, Google Classroom, and Microsoft Teams. The COVID-19 outbreak has changed the way teachers normally teach in a big way (Zhang et al., 2020).

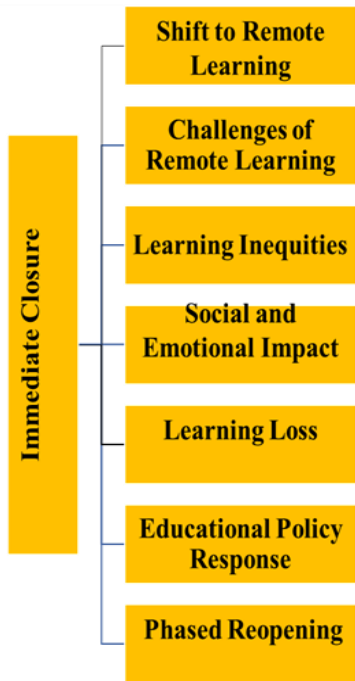


Figure 5: COVID-19 pandemic closed educational institutes worldwide.

Recent developments have prompted universities worldwide to shift toward online education (Figure 6), and advancements in information and communication technology (ICT) have contributed to the emergence of new and innovative education methods for students (Albăstroiui et al., 2014; Kauppi et al., 2020).

Issues to teachers

The main problems teachers face when they try to teach online are not having the right technology (like laptops) and expensive internet plans to make connections work properly,

not knowing how to teach online, students and their families not wanting to cooperate, and not enough students showing up to class (Figure 7) (Morgan, 2022; Yoosefi lebni et al., 2025). In the current climate, the quality of teaching varies and is not uniform across all institutes. Different platforms are used to deliver content. Only a few institutes have their own learning management systems and an IT team dedicated to assisting faculty (Alduraywish et al., 2022). To deliver live lectures, some institutes use video conferencing tools such as Zoom and Microsoft Teams. Others instruct faculty to use a

screen recorder to record their lectures, which are then shared on a WhatsApp group or uploaded to a closed Facebook

group. Faculty members were having difficulty recording lectures from home in some cases (Farooq et al., 2020).

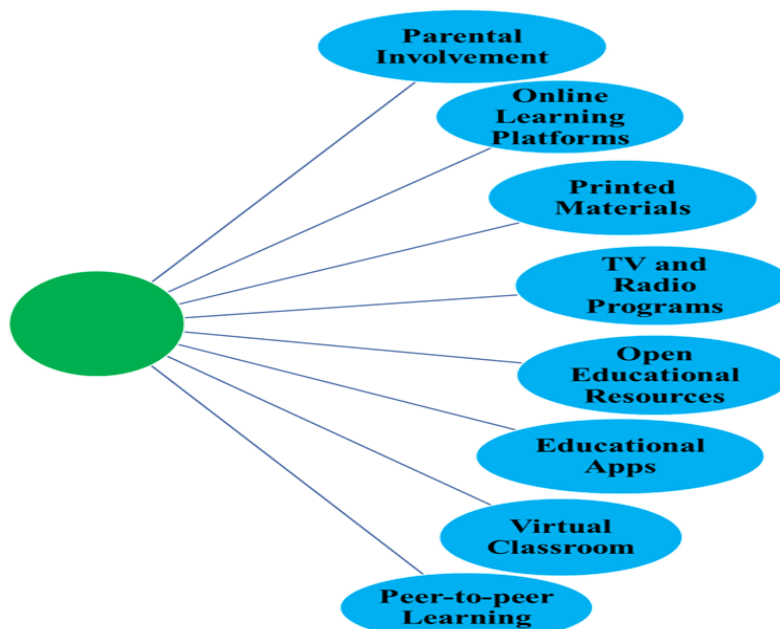


Figure 6: Replacement of School, Colleges and University learning by online education system.

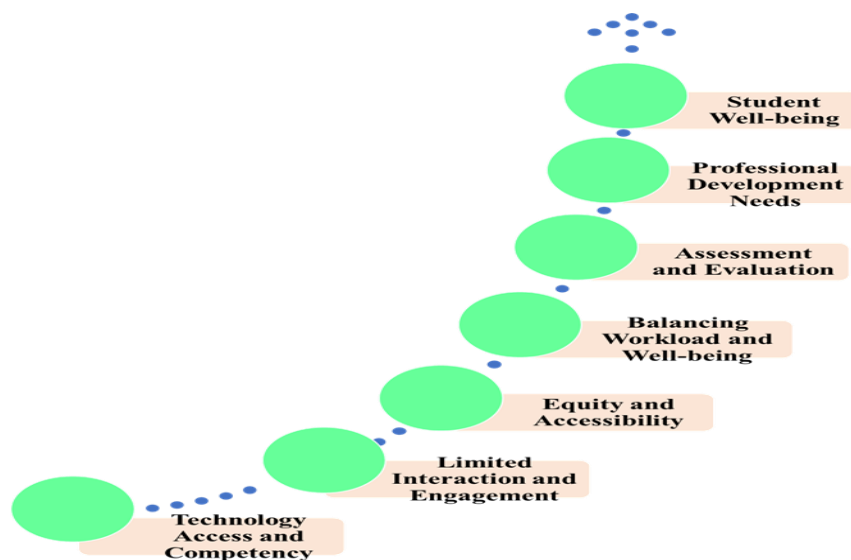


Figure 7: Teachers Issues during COVID-19 of different educational institutes in the teaching and learning processes.

Worldwide student migration will go down (Weber and Van Mol, 2023). This will have a big effect on the number of students going from China to other parts of the world. This short-term drop happens at the same time as the end of China's 20-year student boom (Law et al., 2016). Because of this, there will probably be a big drop in the short term and a smaller drop in the long term. However, China will still be the

biggest single-sending country for a while longer. When the coronavirus outbreak is over, changing patterns of mobility may happen. Over time, the ways that foreign students come and go have changed. In the past, Iran was one of the main countries sending people, but now it is not as important. Brazil and Saudi Arabia have lost ground, but Vietnam and, to a smaller extent, India have gained it. Nigeria and Kenya in

Africa will be the places where growth comes from in the future (Wang, 2022). Europe, North America, and Australia aren't as popular places to visit as they used to be. Instead, people are going to Asia and the Middle East more often. We think that the total number of people will not rise quickly and may even go down a little. People will also choose different places to visit. The US will probably go down because it is becoming more and more seen as unwelcoming. The usual way of studying abroad will still happen, though (Altbach and de Wit, 2020).

COVID-19 has significantly altered the way higher education is delivered around the world. In response to the COVID-19 pandemic, global higher education institutions have begun to change their operations to meet the needs of students, educators, and professionals (Croucher, 2023). In response to the COVID-19 pandemic, universities, college campuses, and higher education institutions, in particular, cancelled classes and closed their doors (Imran et al., 2023). In accordance with this, many universities in various countries around the world have begun to shift to online learning, with some universities canceling spring breaks and advising international students to return to their home countries (Hodge, 2020).

Issues to students

Even in technologically advanced countries, maintaining online learner engagement is difficult (Cullen et al., 2019). COVID-19 has resulted in thousands of school closures around the world due to its vulnerability, even in school settings (Figure 8). (Antoninis et al., 2020) reported 1, 576, 021, 818 affected learners out of 91.3 percent of total enrolled learners in 188 countries at all levels of learning as of April 6, 2020. In the same way, China closed its schools and universities when severe acute respiratory syndrome, or SARS, broke out in 2003 (Cullen et al., 2019; Zhong et al., 2003). One million kids stayed home in Hong Kong, where 1,302 schools were closed, and 50,600 teachers had trouble using technology to teach their students (Huang, 2004).

Students in Pakistan revealed that, for the majority of them, this is a completely new educational experience. The transition from traditional to online learning is fraught with difficulties (o'Doherty et al., 2018). The vast majority of Pakistanis' Existing studies on the psychosocial consequences of the COVID-19 epidemic, however, have limitations, such as small sample sizes (Chang et al., 2020). Unstandardized psychological measures were used (Liu et al., 2020; Qiu et al., 2020). To inform effective intervention strategies, large-scale epidemiological studies are required to better understand the impact of COVID-19 on mental

health and associated factors in the general population. were unprepared for the abrupt transition from in-person teaching to fully online delivery of educational content in a matter of days without extensive planning or faculty training. As a result, both students and faculty face numerous challenges while participating in online education during the COVID-19 pandemic (Farooq et al., 2020; Liu et al., 2020).

Within two weeks, the 9-item Patient Health Questionnaire (PHQ-9) was used to assess students' depressive symptoms (Kroenke et al., 2001). Each item has a score ranging from 0 (never) to 3, with higher scores indicating higher levels of depression. The total possible score ranges from 0 to 27. The Chinese PHQ-9 has proven to be a valid and reliable tool for screening depression in the Chinese general population. To screen for clinical depressive symptoms, a total score of 7 was used as the cutoff point (Wang et al., 2014). During the winter break, all international students, whether they live on campus, off campus, or in other places in China, must tell their counselor every day where they are and what temperature it is. Students must tell their counselor if they have recently been to Wuhan or have been in close touch with students who have been there. Students who live on campus need to keep their rooms clean and make sure they have enough air flow. There were orders for them to stay in their rooms and not leave school. They have to wear a mask, bring their student ID, and go to the welcome desk at the dorm if they have to leave (Peters et al., 2020).

Students who do not live in college are advised to stay at home and avoid gathering with others, especially at parties. All students, regardless of their living situation, should limit the frequency of their shopping trips. Some teachers recommend that student representatives assist their peers in grocery shopping to reduce the risk of exposure. Hands should be washed frequently! Wear masks outside! Disinfect immediately! Exercise and a well-balanced diet will help students boost their immunity and stay healthy. If they suspect they have any symptoms, such as a cough or a fever, they should go to the hospital right away and seek medical attention before reporting to their counselor. During the epidemic prevention and control period, Chinese teachers and administrators help international students with daily disinfection to ensure the safety and health of every student (Organization, 2020; Peters et al., 2020).

Universities in developing African countries are more vulnerable to the COVID-19 pandemic consequences. According to the International Association of Universities (Universities, 2020), developing African universities are still attempting to transform and improve their higher

education system, and the COVID-19 pandemic has the potential to destabilize the higher education system (Purcell and Lumbreras, 2021). The sector, with serious consequences for African universities and colleges, was required to close following the cancellation of classes to prevent the spread of the pandemic. As a result, some initiatives have been launched in a few African countries to combat the effects of COVID-19 (Ogunleye et al., 2020). In Cameroon, for example, the heads of state universities and higher learning institutions have been urged to use all available tools and resources to establish a digital learning mechanism that will allow students to continue studying and learning while staying at home. Despite this, the majority of developing African countries have only begun to cancel classes, extending the academic year to 2021 and resuming lectures and exams on June 15th (Universities, 2020).

With the closure of higher education institutions around the world, concerns have been raised about the impact of this response on students' learning opportunities. According to (Rieley, 2020), COVID-19 has had a big effect on the foundations of education. Right now, schools all over the world are trying to figure out how to deal with the effects of the pandemic. As a result, COVID-19 has contributed to significant changes in the higher education sector, which can be viewed as opportunities or threats (Cuaton, 2020).

In light of the COVID-19 pandemic, the global education system is currently transforming and adapting to new

challenges, putting traditional teaching and learning practices to the test. Consistent with this, the objective of this study is to assess the ramifications of the COVID-19 pandemic on tertiary education through the identification of emerging concerns and the difficulties associated with maintaining academic programs at universities (Cuaton, 2020).

Individuals who are in quarantine may encounter tedium, loneliness, and rage, whereas patients who have confirmed or suspected COVID-2019 may be terrified of the repercussions of contracting a potentially fatal new virus. Additionally, adverse treatment side effects such as corticosteroid-induced insomnia and infection symptoms including fever, hypoxia, and congestion may exacerbate anxiety and cause psychological distress (Xiang et al., 2020). We must be aware of the challenges and concerns that COVID (2019) brings. Every effort should be made to comprehend and manage the disease. As a result, the time to act is now (Wang et al., 2020). According to studies, a variety of psychiatric morbidities were reported during the early stages of the SARS outbreak, including chronic depression, panic attacks, anxiety, delirium, psychomotor excitement, suicidality and even psychotic symptoms (Maunder et al., 2003). The psychosocial response to such a large-scale infectious event is complicated. According to (Maunder et al., 2003), patients' and staff's emotional and behavioral reactions have been understood as a normal and adaptive response to stress during a stressful event.

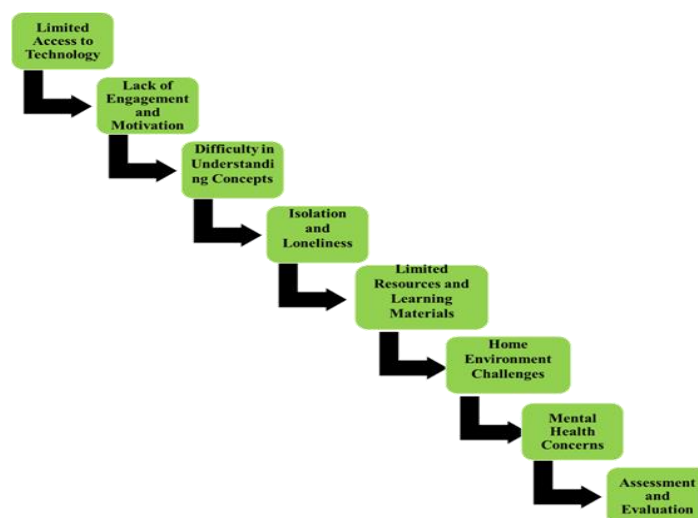


Figure 8: During COVID-19 Students of different educational institutes faced issues in the teaching and learning processes.

Recovery

In response to the pandemic, one of the most difficult challenges for higher education (HE) has been managing the

abrupt shift of teaching and learning from face-to-face to online delivery. Other issues for higher education have arisen, such as how to assess and evaluate students, support

international students, manage travel restrictions, and ensure the psychosocial well-being of students, faculty, and staff (Sahu, 2020). To get better results from online teaching, teachers should go to workshops run by faculty and development courses set up by the school management. Even though they don't have a lot of tools or resources, school teachers have shown that they can learn. Pakistan has spent 2.2% of its GDP on schooling each year on average over the last few years (Maunder et al., 2003; Shmis et al., 2020), more progress is needed to improve the country's primary education facilities. In developing countries, both students and teachers face significant challenges due to a lack of necessary resources and facilities (Kenya, 2020).

Even so, teachers, who are responsible for our children and grandchildren, continue to work hard, even during a pandemic crisis. Even though there are always problems, teaching is still one of the most popular jobs in Pakistan. There are about 1.4 million teachers working in both the public and private sectors, with 51% of all teachers working in government-funded schools (Pasha, 2018; Tabassum et al., 2020). Nonetheless, teachers, who are the guardians of our future generation, continue to provide their services with zeal, even in the midst of a pandemic crisis.

Despite the constant challenges, teaching remains one of the most popular professions in Pakistan, with approximately 1.4 million teachers working in both the public and private sectors, with government-funded education accountancy for 51% of the overall (Pasha, 2018; Tabassum et al., 2020). People in Pakistan think that there aren't enough teachers for training and education programs. Teachers need to get specific training in skills so that they can improve themselves in a useful way. Similarly, school teachers need growth programs to make their jobs stronger. Teachers are responsible for raising the next generation of children. To make education better in Pakistani schools, teachers should help find out about new developments in the fields of teaching and learning (Tabassum et al., 2020). Students and others who have a stake in the university can continue to learn while stopping the virus from spreading by improving health and educational plans. These kinds of precautions can make the surroundings cleaner, which can stop the spread of diseases (Lee et al., 2003). Environmental and health courses should be included in the curriculum of higher education institutions. It is especially critical to make the curriculum as responsive to the needs of the world today as possible. The integration of basic environmental and health courses should be available to all university students. Environmental and health courses should be included in the

curriculum of higher education institutions. It is especially critical to make the curriculum as responsive to the needs of the world today as possible. Because everyone deals with environmental and health issues, the integration of basic environmental and health courses should be available to all university students. Not just science-related majors. Environmental literacy learning materials can also be developed for use in classroom instruction and training with a broader audience in society (Türkoğlu, 2019).

Following an initial phase aimed at determining whether the lockdown would last only a few weeks, most universities replaced all face-to-face instruction with online instruction (Gonzalez et al., 2020). Most countries' HE systems reacted extremely quickly and effectively (Strielkowski, 2020) with little or no additional resources. In fact, more progress in online education has been made in the last few months than in the previous 20 years. For instance, according to a survey by the Conference of Italian Universities, Rectors, 88 percent of Italian universities' courses are now available online as of March 24, 2020, and half of those universities offer 96 percent or more of their courses online (Cesco et al., 2021). Similarly, all top-25 universities in the United States, according to the Times Higher Education/Wall Street Journal, declared emergency eLearning policies (Murphy, 2020).

The COVID-19 pandemic's plethora of problems for HE is best described as a "wicked problem," a policy issue that is challenging to define because each problem is distinct and essentially impossible to solve (Rittel and Webber, 1973). Such issues are part of a growing list of policy issues that "require comprehensive simultaneous solutions to a basket of problems" (Mathur, 2020). The highly interdependent nature of wicked problems (Peters, 2017), such as COVID-19, has created "a set of overwhelming policy challenges" in today's interconnected world. However, because of their difficulty, "an appropriate response or solution is never clear-cut; there is little if any room for trial and error" (Ramley, 2014), even though an acknowledgement of the negative societal ramifications was part of the original framing of the wicked problem (Rittel and Webber, 1973).

As the next part of the recession and recovery begins, policymakers should continue to help unemployed workers with their income and spending by giving them higher levels of support. They should also encourage people to go back to work when conditions get better. When the public health emergency happened, the policy focus right away should have been on protecting workers from a sharp drop in income and consumption as businesses were forced to stop and workers who could stay home were told to do so.

The goal of maintaining consumption should stay the same, but the focus of policy should change to getting people back into the workforce. Most likely, the economic shock will happen in a "stop-start" pattern, with some businesses shutting down for a while and then starting up again. A big "reallocation shock" will also happen as some businesses continue to lose customers, weak businesses fail, and other businesses shrink and move (Barrero et al., 2020).

Now is the time for managers, teachers, and students to learn from this terrible situation and get past the problems it has caused. Because of the economic problem, it may be easier for more people to learn online (Figure 9). The students are young and active, and they can use the Internet

to learn. Faculty can motivate and inspire younger people to get involved. University officials should tell students and staff to stay in touch online or through any social media site and to work together to get through this very tough time. To help students stay in school, they should be able to get course materials and other services online (Gewin, 2020). The training program should be put in place as soon as possible so that faculty members can begin using the online learning platform. This forced experimentation will guide universities around the world in upgrading their technical infrastructure and making online teaching and learning a core component of their teaching and learning (Watermeyer et al., 2022).



Figure 9: During recovery from COVID-19 pandemic, one of the most difficult challenges for higher education was managing the abrupt shift of teaching and learning from face-to-face to online delivery. Other issues for higher education have arisen, such as how to assess and evaluate students, support international students, manage travel restrictions, and ensure the psychosocial well-being of students, faculty, and staff.

Online teaching

Assessments are also an essential component of the educational process. There are numerous challenges associated with locating effective techniques (Figure 10) in the online environment (Liang and Creasy, 2004), as online assessment necessitates a more ongoing, systematic approach than traditional methods (Robles and Braathen, 2002). Online assessment techniques are effective when realistic scenarios are used to set learning objectives, differences in learning styles are taken into account, and students receive adequate support in learning activities and software use (Mahon, 2018).

Exams, timed tests/quizzes, self-tests, weekly review questions, homework/written assignments/field work, case study responses, peer evaluation with feedback, projects, short essays, group work, presentations, e-portfolios, rubrics for evaluating posts and involvement in discussion forums, and reviewing comments in online chats have all been shown to be effective in the online environment (Boyle et al., 2003; Robles and Braathen, 2002). Another important

aspect of an online course's effectiveness is that assessments should be consistent with learning activities. Critical thinking, course knowledge, problem solving, teamwork, and communication are the most important learning outcomes that should be tested in online assessments (Mahadew, 2024).

Assessments should be both formative (that is, they should track the student's learning progress over the course of the course) and summative (i.e., evaluate the knowledge and skills acquired by students at the end of the course). In conclusion, prior research indicates that for online education to be effective, it must be based on a strong methodology and good teacher-student and student-student interaction (Figure 11) (Maki and Maki, 2007).

Factors influencing online education

We investigate the factors influencing the online educational process, such as people's and universities' technological readiness for the rapid transition to online teaching. We asked respondents to rate the importance of 12 factors in online teaching (Borup and Evmenova, 2019).

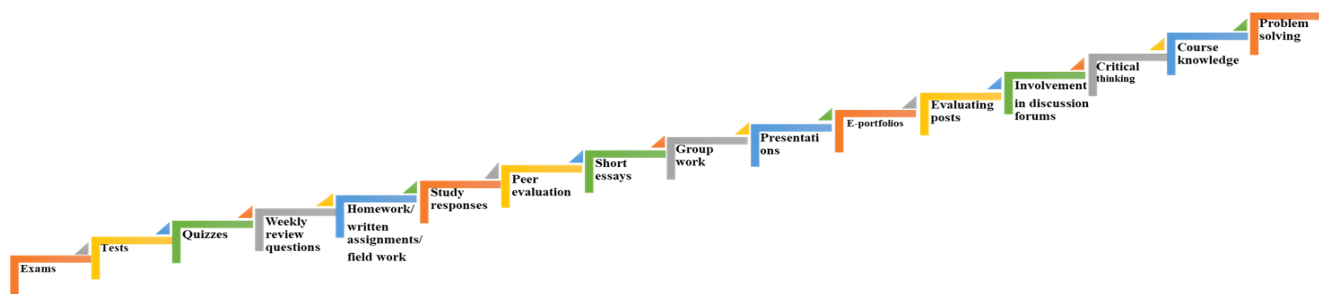


Figure 10: Online teaching associated with are numerous challenges how to compete the above issues.



Figure 11. During recovery from COVID-19 pandemic, one of the most difficult challenges for higher education was managing the abrupt shift of teaching and learning from face-to-face to online delivery. (a) Closer of Borders worldwide; (b) Spreading of Infection worldwide; (c) Closer of Educational Institutes; (d & e) online classes arrangement; (f) educational institutes opening on trial; (h & i) returning on normal routine after covid-19.

The expected positive outcome of online teaching is achieved to a medium degree (mean value 3.092). However, the findings

show that students have a significantly higher positive impact than professors, which is significant given that students are

important stakeholders in the educational process (Figure 12). Increased time management flexibility, ongoing feedback, and taking more responsibility for the educational process all contribute to this impact (unpredictably) (Grabinski et al., 2015; Jill et al., 2019). However, preliminary findings indicate

that students interact less, which may lead to feelings of isolation, which can have a negative impact on learning (De Metz and Bezuidenhout, 2018). Results also show that the perceived effectiveness of online interaction methods and formative assessment is rather medium.

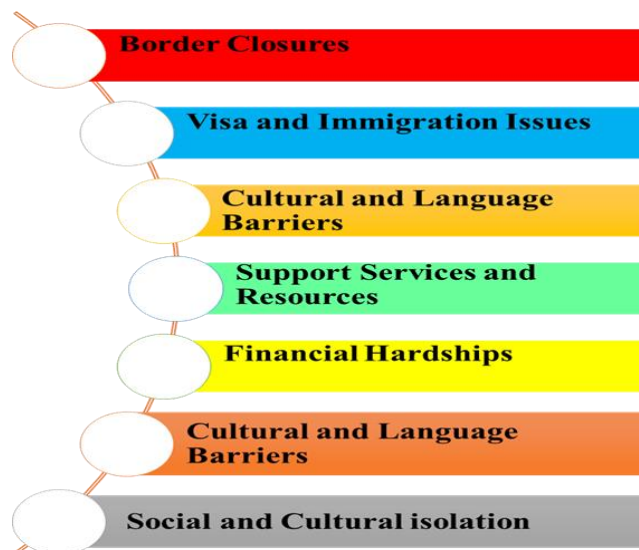


Figure 12: During COVID-19 International Students from different educational institutes in China, South Korea, and other countries faced different issues such as border closed, in the teaching and learning processes etc.

Issues to international students

Universities in China are not immune to the sickness, and they deal with it in a variety of ways. There are millions of people who go to school online (Zhang et al., 2020), and even though it was hard at first and felt like a break, online learning has become the norm. Institutions have strict rules about how employees can move around, and many of them are shut down totally. Students from China and other countries who want to travel must make tough choices. Many foreign students went back home because they thought the disease would be under control by the time they came back after the Spring Festival break. However, they are now facing outbreaks in their home countries as well as strict global travel and customs restrictions. Chinese students are told not to go to other countries, and international students who have stayed in China are self-quarantined at home or on school.

Traditional life-related to academic study is being severely interrupted overall. Despite the fact that two months of strict measures have effectively reduced the number of new cases of COVID-19 to zero in provinces other than Wuhan, China is gradually and carefully introducing measures to return to normal life. Chinese universities are not immune to the

disease, and their coping mechanisms are diverse. Millions of people participate in online education (Zhang et al., 2020), and despite initial discomfort and disconnect, online learning has become the new norm. Institutions have strict policies regarding personnel mobility, and many of them are completely shut down. International and Chinese students who want to travel abroad must make difficult decisions. Many international students returned home, believing they would be able to return after the Spring Festival break when the disease was under control, but they are now facing outbreaks in their home countries as well as strict global travel and customs restrictions.

International students who have stayed in China are self-quarantined in their homes or on campus, and Chinese students are advised not to travel to other countries. Traditional academic life is being severely disrupted in general. Even though strict measures put in place for two months have successfully cut the number of new cases of COVID-19 to zero in all provinces except Wuhan, China is slowly and carefully taking steps to get things back to normal (Peters et al., 2020).

Recently, global higher education (HE) had a goal of sustainable growth and successful global exchange. Still,

this dream is just a childish idea that came from education leaders and politicians. It's an idea that sways between the cliffs of regional wars and conflicts, famines, natural disasters, pandemic diseases, and other dangers. The number of students in international schools is growing, but that doesn't mean it's getting stronger. As the world becomes more linked, our dependence on each other puts us at risk of being upset and disturbed. In a world that is becoming more connected and divided, the COVID-19 pandemic has made it harder for higher education to become more worldwide (Wang et al., 2014). The coronavirus (COVID-19) outbreak and subsequent national lockdowns and containment measures (e.g., social distancing) have reduced traveler willingness and paralyzed the industry, from airlines to hotels and restaurants (Karabulut et al., 2020).

Slowly, numerous countries (e.g., Denmark, South Korea, China, New Zealand, and so on) show signs of control in the number of deaths and infections; these countries have been easing their control and lifting the lockdown measures, allowing businesses to gradually open with compliance to government guidelines and rules on health and safety, as well as social distancing measures where appropriate (Norris et al., 2020). However, the return to normalcy is debatable. We also want to increase the Supplemental Nutritional Assistance Program (SNAP)'s food stamp benefits for low-income families. It is very important to help

millions of people who may not be able to get jobless benefits or who may get lost in other systems get the food they need. Food Stamps (SNAP) are a big part of the safety net. UI benefits, STC benefits, and SNAP benefits all help people keep their spending steady during times when they lose their jobs. This keeps spending from dropping too quickly. Because of this, they are likely to have a high macroeconomic factor when the economy is bad. It is thought that for every dollar spent on increasing UI benefits, up to \$1.90 worth of extra economic activity happens (Elmendorf, 2014), while every extra dollar spent on SNAP payments brings in an extra \$1.79 for the economy (Elmendorf, 2014; Hanson et al., 2020).

It was time to call home thousands of North American and European students who were in study abroad programs that were a semester long or shorter. From different points of view, these programs may cause problems in the short term, but long-term declines are not possible. It's more likely to speed up the trend toward shorter stays abroad (less than eight weeks) and relying on "safe" countries. We saw how quickly France and Spain got back to being top choices after terrorist acts, and Italy will do the same. Some countries that take in international students, like Australia and, to a lesser extent, the UK, as well as some less well-known colleges and universities in the US, rely on the money they get from international students (Figure 12).

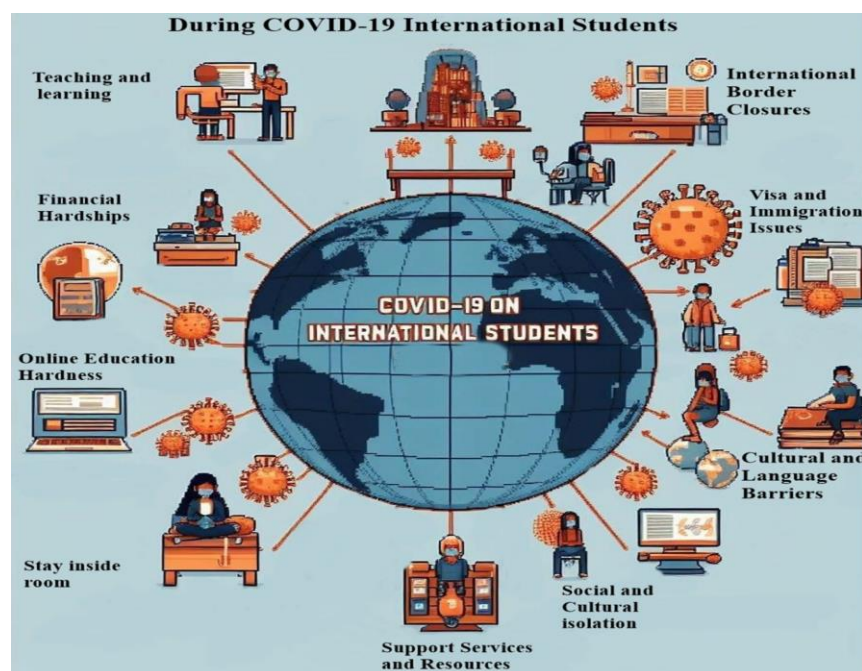


Figure 12: During COVID-19 International Students from different educational institutes in China, South Korea, and other countries faced different issues such as border closed, in the teaching and learning processes etc.

After all, the business of foreign education is worth \$300 billion around the world. The coronavirus disaster shows that this kind of dependence is very bad; organizations that depend on this kind of income are likely to have a lot of problems. From many points of view, the crisis may show that seeing foreign education mainly as a way to make money is not a good idea, but it's scary to think that it won't. Indeed, governments and educational institutions may increase their recruitment attempts (Peters et al., 2020).

CONCLUSION

COVID-19 was initially reported from China and spread all over the world, while this outbreak had not left a person in every corner of the world. A novel coronavirus disease (Covid-19) that spreads from person to person through saliva droplets and has a mild to severe respiratory illness. Official identification of COVID-19 was reported in January 2019 and had affected more than 294 thousand people in 187 countries, shut down cities and transportation, quarantined people at home, and put the world on high alert. Education as a whole has been hit hard around the world. Like all institutes, education was also affected the worst. COVID-19 has resulted in thousands of school closures around the world due to weakness in school settings. Even in developing countries, the closure of educational institutes has deprived thousands of people of primary education at a higher level, although many countries have developed many strategies and policies to overcome these crises.

AUTHORS CONTRIBUTIONS

Mian Sayed Khan and Zahid Khan have conceived and designed the study. Zahid Khan, Muhammad Saeed and Salman Ahmad wrote the manuscript. Haroon and Fazlullah analyzed the data. All authors reviewed the manuscript.

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