ESI Preprints **Not Peer-reviewed**

Higher Education Challenges in the Era of Covid-19, from the Perspective of Educators and Students (Ghana, Georgia and Pakistan Cases) – A literature Review

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Doi: 10.19044/esipreprint.12.2022.p21

Approved: 03 December 2022
Posted: 05 December 2022

Cite As:
Butakor P.K., Shah S.M.M. & Hunt E. (2022). *Higher Education Challenges in the Era of Covid-19, from the Perspective of Educators and Students (Ghana, Georgia and Pakistan Cases) – A literature Review.* ESI Preprints.
https://doi.org/10.19044/esipreprint.12.2022.p21

Abstract

For the last three years, the entire world has faced a colossal phenomenon - the covid-19 pandemic. All sectors and areas of life have been affected, forcing rapid and radical changes towards adaptation in its wake. Inevitably, the unexpected pandemic's mark and impact on education is more severe and longer lasting than imagined. It disrupted education provision at an unprecedented scale. This article is intended as a review of literature on the experience of different countries and education systems during the Covid-19 pandemic. Based on the analysis of the existing literature and research on this issue, from the perspective of educators and students, including the experience of different countries around the world, the pandemic has had a great impact on higher education and pushed it to digital transformation, implicitly overcoming important challenges. The review uses particular examples of higher education in the era of Covid-19 in Georgia, Ghana and Pakistan, exposing measures taken to continue educating in spite of the pandemic. However challenging this phenomenon

proved to be, it equally gave way to enormous opportunities for creativity within progress. Discussed are barriers that students and academics faced during online teaching-learning, the pros and cons of online teaching-learning, as well as the quality of teaching-learning and the state of preparedness for future education.

Keywords: Pandemic, impact, education, challenges, opportunities, online teaching-learning, quality

Introduction

The pandemic has been a major challenge for almost every sector of the world, including the education system. The gradual educational transformation from traditional face-to-face to the digital or hybrid educational system has received considerable attention from Governments all over the world. Most countries have made efforts to introduce technologies as part of the efforts to transform their educational systems from the elementary to the tertiary level (García-Morales et al., 2021). Thus, a growing number of colleges and universities have been implementing a transition from traditional face-to-face teaching methods to online teaching or a combination of online and traditional teaching technically known as the blended learning approach (Rajab et al., 2020). This form of transition and management of technological systems to support teaching and learning had been a common practice among some schools in developed countries and few schools in developing countries until the worldwide pandemic struck and sharply caused a swift deployment of the use of the online system at the expense of the traditional/conventional system (Bashir et al., 2021; García-Morales et al., 2021; Mahyoob, 2020; Johnson et al., 2020; Henaku, 2020; Chidambaram, 2020; Duong, 2021; Cheng et al., 2021; Jin et al., 2021; Banji et al 2021; Amir et al., 2020; Puspitawati, 2020; Almendingen et al., 2021; Aliyyah et al., 2020; Means & Neisler, 2020).

The emergence of covid-19 in Wuhan, China, compelled the world health organization (WHO) to declare it a pandemic after studying its mode of spreading and suggested rigorous prevention measures, including social distancing (WHO, 2020; Aboagye et al., 2021; Adedoyin & Soykan, 2020). Complementarily, governments across the globe following the directives, issued executive fiat and closed all businesses, sports activities, and schools, forcing institutions to migrate to online platforms as part of measures to mitigate the adverse impact of the pandemic on education (Barrot et al., 2021). Following the immediate closure of all activities which involve human contacts, schools with adequate digital muscles substituted the in-person instruction for remote learning without effective preparations. In China, however, despite certain limitations, the government initiated a

"Suspending Classes Without Stopping Learning" policy to ensure that learning was not compromised at any time during the COVID-19 pandemic lockdown (Zhang et al., 2020). For example, Ghana also closed all schools, but universities, polytechnics, and colleges were allowed to continue with online learning, while high and basic schools remained closed until further notice with students participating in the government's radio and television learning programmes to support students at home until early 2021 when all schools were directed to reopen and adhere to all protocols. Similarly, teaching tools, such as Skype Call, Vipers, ThingLink, Zoom, Google meet, and other video conferencing apps, were introduced to both teachers and students in other jurisdictions (Hamzah & Ahmad Shaberi, 2021; Sobaih et al. 2021). As we mentioned above the crisis situation caused by Covid-19 has affected many countries on a large scale, and the Georgia's case was no exception. The transition to online teaching mode immediately created problems and at the same time raised doubts about the quality of teaching. Prior to the COVID-19 emergency response period in Georgia, there was neither legal permission nor experience of online teaching in the official environment.

The state was forced to make a quick decision on the existing situation. Such a rapid change in the teaching format, in turn, has had an impact on the achievement and evaluation of learning outcomes, as the programs of Georgian higher education institutions were not designed for online teaching. As a result, within a few weeks, new changes were made to the education system. Due to the wide-scale spread of the virus and in order to reduce the disastrous consequences, the state decided to continue education throughout Georgia remotely through online learning platforms, which posed a number of challenges for representatives of higher education institutions, as well as academic staff and students.

However, moving from an offline to an online mode of learning poses a number of challenges for students and educators in both developed and developing countries (Liguori & Winkler, 2020). For instance, the key hurdles of online education in developing nations, for example, were insufficient ICT skills, poor network administration or IT skills, and insufficient content development capabilities (Aung & Khaing, 2015; Hadullo et al. 2018; Noor et al. 2020). In Kenya, a study found that three major barriers to online education adoption include insufficient IT infrastructure, weak ICT skills, and a lack of financial resources (Ngwacho, 2020; Almaiah et al. 2020). Another study by Kanwal & Rehman (2017) revealed that the main impediments to successful online education adoption in Pakistan were a lack of existing IT infrastructure, internet availability, and computer literacy (Kanwal & Rehman 2017). According to Kenan et al. (2013), cultural, political, and economic obstacles were the key reasons for

Libyan online education's failure. Kisanga & Ireson (2015) highlighted poor interface design, insufficient technical assistance, and a lack of IT skills as major hurdles to the successful implementation of existing e-learning projects in Tanzania.

The migration and emphasis on online teaching and learning has burdened all the stakeholders of the education sector across the three countries and efforts need to be put in place to sustain the gains made during the pandemic as we moved into the post-COVID-19 era. Specifically, many instructors and students are struggling to adopt online teaching and learning mode (Hodges et al., 2020). The sudden shift toward remote or online teaching and learning at such short notice globally was a novel phenomenon (Brom et al., 2020). These types of emergencies are not planned and require the competency of using technology to teach remotely (Joshi et al., 2018; Rush et al., 2016). The transition to online teaching has also created problems in the process of fully implementing student support activities. As the university is obliged to create a student-friendly environment, to offer relevant services, to inform them and support students with low social status and students with disabilities. In view of the above, it was also a great challenge for Georgian universities to provide socially disadvantaged students with the resources needed for distance learning, especially for state universities (Bakradze, 2020, pp. 3-4).

It is noteworthy that online teaching has had an impact on curricula that require both practical and laboratory teaching. Students found it difficult to achieve learning outcomes in technical subjects, so students at technical faculties were more affected than those in the humanities. In view of all the above, there was a time when it has become a challenge for everyone, for both students and academic staff, to suddenly study and teach in an unusual format.

As it is known, the online teaching process requires the proper equipment, access to Internet, relevant skills and experience, which were lacking before the pandemic and remains a significant challenge today. All of the above, along with other factors (job closures, lack of income or downsizing) initially caused tension and uncertainty. The urgency of the process is also due to the regulations imposed by the state to increase access to education, in particular, higher education, which in turn has become an important dilemma for universities.

The purpose of this study is to conduct a comprehensive review about the challenges of instructors and students about post-covid-19 online teaching and learning in Ghana, Georgia, and Pakistan.

Based on the analysis of the existing literature and research on this issue, which includes the experience of countries around the world, as well as Georgia, Ghana and Pakistan, we can conclude that the pandemic has really

had a great impact on higher education and pushed it to digital transformation, which implies overcoming many challenges. However, challenging this phenomenon proved to be, it gave way to enormous opportunities for creativity within progress. all of which will be discussed in this article, considering the questions and issues below:

- What barriers do students and academics face during online teaching-learning (e.g. emotional, technical, financial, material ...);
- What are the pros and cons of online teaching- learning?
- Are they satisfied with the policy pursued by the state in this direction?
- What other steps can be taken to ensure access to quality education?

Literature Review

Digital transformation is not a novel phenomenon, and it has been accompanying higher education institutions for some years now (Kopp et al., 2019; Leszczyński et al., 2018).

Digital transformation in the context of higher education institutions can be regarded as the summation of all digital processes required to accomplish transformation process that gives higher education institutions the opportunities to positively apply digital technologies optimally for teaching and learning (Kopp et al., 2019).

It has been argued that the contemporary transformation will be seen as revolutionary modifications in the specifications of higher education as a process and as an institution in the next 50 years because the transformation has moved face-to-face instructional programs using objectivist, teacher-centered teaching methods, for thousands of home-grown, provincial Hiltz and Turoff, (2005) and domestic universities to online and hybrid programs applying digital technologies in enhancing constructivist, learner-centered, cooperative pedagogy for some hundred “mega-universities” that function worldwide (Adedoyin & Soykan, 2020).

Institutions’ fast-paced move into the blended or hybrid models and the widespread adoption of digital technologies for course redesigns and pedagogical transformations have engendered significant challenges for both students and academic communities.

In Georgia, distance learning as a means of non-formal learning was not a novelty, but this type of learning was not large-scale until recent, familiar events. Due to the Covid-19 pandemic, the higher education institutions were facing a choice - they either had to create safe environment to ensure health and conduct the education process in the classrooms or work remotely and manage online teaching-learning process via Internet. Due to the severity of the situation, it was decided to keep the remote teaching-learning process in online mode. Despite the force majeure situation, the

universities were still able to quickly cope with this challenge and soon began online lecture-seminars. All this, in turn, has led to the introduction of new terms that are directly related to online learning and the teaching-learning process in general, for example: E-learning, distance learning, online learning, mixed learning, hybrid learning (Bakradze, New Educational Reality, Terms, Challenges, Recommendations, 2020).

This relatively new terminology had to be defined, explained and assimilated at light speed, at the very beginning of the pandemic.

OECD definitions

Online learning (e-learning) involves the use of digital materials in the learning process. This does not necessarily has to be done remotely and can be conducted at classrooms in accordance with traditional teaching methods, in that case this process is called mixed learning. (Bakradze, New Educational Reality, Terms, Challenges, Recommendations, 2020) Distance learning refers to learning that takes place away from the classroom or workplace.

Traditionally, it included courses without a direct contact when a student connected to an educational institution by mail. Today, it mainly includes online education, where the teacher conducts lessons and gives assignments using digital technologies. In short, the term online learning is mainly used to refer to learning through digital resources that is carried out remotely. (OECD 2005, 11).

UNESCO definitions

Distance learning - a general term in education that implies the distance between a student and a teacher in time and space. It includes online education (80% of information is transmitted over the Internet) and mixed learning (30-79% of content is delivered through the Internet), as well as the form of education that uses printed material.

Online Learning - Most or all of the content (≥ 80%) is delivered online only. Online education is not synonymous with distance learning, although in many developed countries that have widespread access to the Internet, it is the most widespread form of distance education. (Carlsen, et al. 2016, 105).

The European Association for Quality Assurance in Higher Education (ENQA)

The document prepared by the ENQA e-learning Working Group on "considerations for quality assurance of e-learning provision Report from the ENQA Working Group VIII on quality assurance and e-learning" clarifies the definition of terms related to non-traditional teaching methods, in

particular e-learning, however, the document states that “e-learning terms and definitions may vary by different countries, although it is necessary to define terms in order to share a common understanding.” (Huertas, et al. 2018, 4).

The pandemic became the engine of digital transformation in Georgia. The Georgian education system, including educators, students, IT specialists, representatives of the quality of education service and various departments of the administration) were faced with the novelty. Naturally, the situation caused by the Covid-19 pandemic was found to be unusual and stressful initially due to the challenges we have already mentioned and will be further presented below.

However, these challenges were not insurmountable for Georgia. The Organisation for Economic Co-operation and Development (OECD) has named Georgia and Finland among the top 98 countries for their distance learning and continuing education process. Also, Microsoft praised these two countries for promoting distance learning. (24 May 2021, the Ministry of Education and Science of Georgia).

Therefore, on the one hand, it was revealed that it was actually possible to conduct the teaching-learning process in this form, but, on the other hand, vulnerable groups found themselves in a difficult situation. They needed to have access to respective devices, Internet in order to engage in the teaching-learning process remotely, to listen/see the recorder lectures, e-resources, textbooks and other educational resources. However, not all could afford it. Also, learners did not have the necessary digital skills in order to search and use all resources (K. Bendeliani, Interpressnews, 11 August 2020).

In Ireland, a study by the (QQI, 2020) on the effects of Covid-19 found that higher education institutions had some experience in distance learning. Nevertheless, about 60% of the academic staff had little or no distance learning experience, and only 13% reported sufficient experience.

"There were significant changes in the level of support, both by staff and students, it depended on their individual context. Some staff and students had online learning experience, while some had little or no experience (QQI, 2020 August).

The Covid-19 pandemic has caused numerous changes in the lives of students. In the Irish research document cited above, 38% of students at one of the higher education institutions said they have lost their jobs and became unemployed. Students are concerned about the current situation and worry about their future careers.

Conventional and e-learning approaches of teaching and learning

Globally, the fast growth of technology has had an impact on all aspects of human existence, most notably agriculture, medical, education, communication, record keeping and administration, and so on. Countries throughout the globe made excellent investments and formulated and implemented policies to assist them to use technology for economic growth and development to embrace this global phenomenon and increase the capability of their human capital.

Most schools around the world deployed the use of online learning to supplement the traditional learning approach called blended learning. This effort persisted until the covid-19 pandemic outbreak forced many institutions to embrace an online learning approach to contain the spread of the virus. The emergency response from educational institutions during crises (e.g., pandemics or conflict) to shift teaching and assessments online is known as Emergency Remote Education (ERE) (Shin and Hickey, 2020). Due to the nature of the spread of the virus, most schools that could not transform to the digital space were closed for almost a year.

In every educational system, the pedagogical strategies of teaching and learning differ significantly. While some found it prudent to use conventional (traditional face-to-face) others too deployed the use of the internet or Hybrid form of the two forms for teaching and learning. According to Oscar (2020), online learning has several advantages over traditional learning but it appears that traditional face-to-face learning happened to receive Global use all over the world.

Traditional Face-to-face is an approach for teaching and learning which strives on delivering instructional content to learners through physical contact, characterized by an instructor-led approach, and instructor-based activities where students are taught in a manner that is conducive to sitting and listening (Tularam, 2018). This instructional model has been used for its relevance and popularity, and many instructors prefer to adopt it for teaching and learning (Flanigan et al., 2021). Online teaching and learning on the other hand are the use of the internet and technological tools for delivering instructional materials and content for teaching and learning (Adedoyin & Soykan, 2020). There are two forms of online instruction: synchronous and asynchronous. Synchronous online courses strive to replicate the communication paradigm of a traditional classroom by allowing instructors and students to be online at the same time through a virtual platform such as google meet and Zoom (Abu Talib et al., 2021; Hsiao, 2010). (Abu Talib et al., 2021; Hsiao, 2010). Asynchronous online classes are differentiated by more versatility and self-paced learning possibilities since they do not demand real-time contact or meeting at a defined time (Abu Talib et al., 2021; Hsiao, 2010) (Abu Talib et al., 2021; Hsiao, 2010)

During the COVID-19 pandemic, most instructors with limited experience in online education design readily converted their traditional classrooms to synchronous online courses by simply uploading the teaching materials over an online learning management system (Gillis & Krull, 2020).

These measures have extensively influenced the understanding of the impacts of emergency use and integration of online and other types of digitalized learning and teaching on the role of institutional deployment of the approach. Most schools deployed the use of an online learning approach without adequate preparations (Maphosa, 2021; Coman et al., 2020; Hondonga et al., 2021; Addae et al., 2021; Aduhene & Osei-Assibey, 2021). the use of online learning helped many institutions to plan digital content with haste and the opportunity to engage students remotely. Complementarily, literature has it that the use of online learning could improve the consistency and quality of instructions, both for formal and non-formal education, and increase opportunities for more student-centered pedagogical approaches that is promoting education by addressing inequalities in gender, language, disability among others (Leu & Price-Rom, 2006). Furthermore, the use of the online platform for teaching and learning has widened the traditional sources of information and knowledge by fostering collaboration, creativity, higher-order thinking skills and providing flexibility of delivery of lessons as well as reaching a wider range of student population outside the traditional education system. Given the benefits that online education offers for teachers, students, and institutions, it is not surprising that it has attracted so much attention (Kebritchi et al., 2020; Konetes, 2011).

Increases in the number of online programs and course offerings are altering the role of instructors and the nature of teaching, with an increasing number of professors and support personnel needed for online instruction (Bennett & Lockyer, 2004). Teachers, who are at the forefront of this growing need and pressure to teach online, are being forced to reconsider their basic beliefs about teaching and learning, as well as the responsibilities they play as educators (Wiesenberg & Stacey, 2008). This increased interest in online education necessitates a rethinking of higher education institutions' cultural, intellectual, organizational, and pedagogical frameworks in order to adapt to a new culture of teaching and learning (Howell, Saba, Lindsay, & Williams, 2004). While conventional teaching responsibilities may be transposed to the online environment, the affordances and restrictions of the new learning environment necessitate instructors adapting to new roles in order to provide successful and meaningful learning experiences. Because of the internet's accessibility and the flexibility of online courses, online education has become an essential component of higher education (Luyt, 2013).

In the literature, several studies have addressed the challenges associated with the introduction of e-learning (Pokhrel & Chhetri, 2021; Rajab et al., 2020). Evidence suggests that the implementation of electronic learning initiatives failed because institutions and their constituents were unprepared for the experience (Aboagye et al., 2021). Furthermore, individuals are connected to present pedagogies and practices, making it difficult for them to adapt to new ones and update old ones (Kundu & Bej, 2021). According to Kundu and Bej (2021), student opinion of online learning has been poor owing to previous experiences, resulting in high dropouts and low learner motivation (Aboagye et al., 2021). Other factors highlighted include poor student satisfaction with the online learning experience (Aboagye et al., 2021). Nonetheless, data indicates that students and instructors are as satisfied with online learning as they are with conventional learning (Ali & Ahmad, 2011).

This pandemic is the first of its kind in recent times, disrupting higher education institutions, and both teachers and students have found the experience to be challenging. It is critical to study and understand students' experiences during this time to better prepare for future interruptions to higher education institutions and to understand how COVID-19 has shaped our students, especially since studies have shown that the COVID-19 has had a significant impact on psychological wellbeing in the general population (White and Van Der Boor, 2020).

According to research, there was no substantial difference in the objective assessments and effectiveness of conventional and synchronous online learning (He et al., 2021), and students preferred the flexibility of asynchronous forums but also enjoyed the capacity to interact in real-time online interaction with the lesson (Gillis & Krull, 2020; Hsiao, 2010).

Several problems faced teachers and instructors throughout the transition. However, for some of them, the initial step was to design online courses using instructional design concepts and then teach them online (Chen & Liu, 2021; Cote et al., 2020; Gillis & Krull, 2020).

Conceptualizing online teaching and learning challenges Global context

According to the UN (2020) report, the COVID-19 outbreak has inflicted the very worst disruptions in education systems in history, impacting over a billion students across almost all nations and continents. School and other learning space closures have affected 94 percent of the world's student population, including 99% in lower-middle-income nations. COVID-19 has left no part unaffected in any nation on the earth, and its consequences will be felt for years to come (Mohamedbhai, 2020). However, while massive effects were being utilized to change and develop higher

education throughout the globe, there is a risk that COVID-19 will harm the sector, with serious consequences (Aborode et al., 2020).

Comparing the developed world to the developing countries is a bit problematic, it was discovered that low-income countries are facing challenges which include inadequate knowledge. Poor internet connectivity in the use of technological tools and deficiencies in content development (Aung & Khaing, 2015). for example, is still a phenomenon for many teachers, especially at the tertiary level in third world nations.

The Chinese government for instance has taken stringent steps to halt the spread of the Covid-19 epidemic (Zhu & Liu, 2020). The majority of face-to-face activities, including teaching, have been prohibited. The start of the spring semester at Chinese universities and colleges has been postponed. Students were not permitted to return to campus without prior authorization.

The United States of America has millions of international students communing from their respective countries to the numerous colleges and universities in the states in America to pursue their education. Hess (2020) conceded that all these students have been direly impacted by the covid-19 pandemic. In the review of Leping et al., (2021) over a thousand colleges and universities in the states were closed leaving about 14 million students stranded. During the periods of the schools' closure, many researchers reported universities and colleges' tremendous efforts transiting from traditional (face-to-face) to online education (Greenhow & Lewin, 2021; Carrillo & Flores, 2020; Crompton et al., 2021) and the challenges as well as the opportunities that instructors and students confronted during and after the covid-19 pandemic (Moore et al., 2021; Kaisara & Bwalya, 2021).

Distance education is developed differently in different countries, but it created problems for everyone because no one was ready for such mass and sudden switch to distance learning. The difference was that the countries that were advanced in this direction had to overcome less problems than those who were not (Abkhazava, 2020, June 15).

The proper functioning of distance learning, along with other conditions, is conditioned by two main factors: The first - technical capabilities, which include electronic devices (computer, tablet, smartphone, phone, etc.) and Internet access, as well as digitalized learning management systems (LMS), which facilitate the continuity of the online learning process. Provision of the Internet access in Georgia started years ago and at this stage covers most of the regions of the country, but when it comes to access to education and the right to do so, in the 21st century there should not be even the smallest population and especially students who do not have access to the Internet. A relatively minor but slightly larger scale problem is the quality of the Internet connection and its stability. This issue is mostly

related to the students living in rural areas, who are provided with consistently low-quality connectivity.

The second key condition is the ability and experience of educational institutions, pupils, students and teachers to create and / or use appropriate resources for distance education through modern educational technologies; Also, independently plan, manage and participate in the distance learning process. The emergence of such skills or technical capabilities and the dismantling of this huge mechanism in a short period of time across Georgia proved virtually impossible. The Ministry of Education has granted sudden and compulsory freedom to educational institutions, teachers and students, which, in turn, has led to a partial shift of responsibilities. (R. Abkhazava, COVID-19 - The Catalyst Effect on Education (Part 1), Radio Liberty, June 15, 2020)

However, since all universities faced a common challenge, they successfully overcame these challenges through cooperation. Universities have also been guided by the recommended principles of e-learning and quality assurance developed by the European Association for Quality Assurance in Higher Education (ENQA). (24 May 2021, the Ministry of Education and Science of Georgia)

At the universities, curricula have been modified, teaching methods and assessment systems were revised, relevant guides and video instructions for students and lecturers were developed. Also, online lecture / seminar recordings were uploaded to the relevant platform and made available specifically to the students registered to that subject. An online hotline has been set up at the university to solve technical problems. Universities and the state have pursued preferential tuition policy for students due to the pandemic (K. Bendeliani, Interpressnews, 11 August 2020).

The Georgian Context

The main challenges in Georgia during the pandemic

- Access to Internet and Owning a Computer was a challenge in Georgia even before the pandemic. For example, 20% of the Georgian population does not have access to the Internet and about 64% have access to a computer. It can be said that 80% of those who have access to the Internet before the pandemic, used it for communication on social networks, and rarely for educational purposes. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)
- Learning infrastructure, in many cases, is not adapted to modern technologies. The qualification and knowledge of professionals in this area also remains a challenge. Professor and -teachers had suddenly found themselves facing a new reality, when the

curriculum, the lessons plans had to be completely redesigned for online teaching, while they did not have the basic skills of using a computer nor the Internet. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020). This situation obviously affected the quality of teaching as well as the number of pupils and students to be taught efficiently.

- **The process was spontaneous and best practice was elaborated during the process, certain directions were being tested on the go**, although this way of teaching presented problems for a number of groups. For example, it can be said that students with disabilities remained outside the educational space, despite their formal involvement in the teaching-lecture process (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020). Accessibility depended on the individual responsibility and goodwill of each professor or teacher.
- During the pandemic, it became necessary to introduce new forms of teaching, especially using modern technologies. It required appropriate readiness, knowledge and skills from both the academic staff and the students, which is not so easily mastered, especially by the older academic staff. Both parties should be actively involved in the use of modern teaching-learning methods and assessments, forms, proper use of resources, the use of digital technologies and other such endeavors. It is important to have the appropriate knowledge and motivation to learn and develop in this direction and therefore ensure the efficiency and quality of the process. Current educational programs are accredited with traditional, face-to-face quality assurance standards that do not provide for online learning. Online learning has reduced the quality of teaching courses / modules, shifted the time to study practical subjects, made it difficult to achieve some learning outcomes in executive programs, in medical programs and other programs with laboratory or practical training. There were few e-manuals, digital libraries, auxiliary e-materials or virtual laboratories. (Bakradze, New Educational Reality, Terms, Challenges, Recommendations, 2020)
- As for internationalization and mobility, students and academic staff can no longer physically afford it, but it can be done online, allowing them to no longer have to leave the country while able to get an education abroad.

As already mentioned, the online teaching-learning process is specific and different from traditional teaching. In order to conduct it, the academic staff must not only have the knowledge and skills to use modern technology, but

also be able to adapt teaching-learning and assessment strategies to online teaching. Furthermore, they should be motivated to explore and develop all of the above. Accordingly, the academic staff needs development and constant support. The transition to online learning has shown that the academic staff was not ready to use modern technologies and as mentioned above, the problems did not arise only in Georgian reality.

Both academic staff and students need technical support from relevant services. These functions were performed by an online hotline at some universities. However, solving problems such as limited internet connection, lack of equipment, etc., was difficult to solve without the involvement of the state. Most students use a mobile phone because it is more comfortable to use but it requires vigilance, so another requirement is cyber hygiene and security (Bakradze, new Educational Reality, Terms, Challenges, Recommendations, 2020).

Steps taken in the direction of higher education during the pandemic and legislative changes in Georgia

There have always been difficulties in terms of equal access to quality education in Georgia, but now that everything has stopped, the problem of access has been faced by almost everyone during the first stage. Kindergartens, private and public schools, vocational and higher education institutions, groups, foreign language training centers were closed. All institutions where formal or non-formal education was available were closed. (R. Abkhazava, COVID-19 - The Catalyst Effect on Education (Part 1), Radio Liberty, June 15, 2020).

Challenges and opportunities created by the Pandemic:

It could be considered as an important positive aspect of the pandemic, that Georgia started to introduce innovative approaches in the educational space. In order for students not to be delayed, distance learning is the most pragmatic solution for almost every country. As for the situation in Georgia, in the summer of 2020, the Law of Georgia on Higher Education (“Law of Georgia on Higher Education" December 21, 2005) was amended to include the term “e- learning”.

E-learning – the study process or a part thereof that does not require the presence of a student and the personnel of a higher education institution simultaneously at a certain location, based on modern information and communication technologies and organised by a higher education institution for persons in the territory of Georgia to acquire a qualification on the basis of higher education programmes accredited in Georgia. Appropriate approaches and methods for planning the curriculum and organising and

administering the study process are required for providing e-learning; (Article 477 Law of Georgia on Higher Education. December 21, 2005).

During distance learning, information is transmitted electronically using various means of digital communication. There are different forms of e-learning: Asynchronous, synchronous or hybrid.

Synchronous learning is an integral part of the traditional learning process. In this case, the teaching takes place in the classrooms and the learning process is planned in advance. Accordingly, the communication between the students and the lecturer takes place at the same time. With the development of technology, teaching methods were evolving and improving. Various webinars, online trainings and the internet in general have made it quite comfortable and accessible to transfer synchronous learning to online mode. (G. Ghvinefadze, Z. Tielidze, "Principles of programming and management of e-learning platform on the example of ILIAS system", 2016). As for asynchronous learning, it is mainly student-centered teaching. The learning process is not spelled out in time and communication between students and lecturer takes place through various online platforms. Because teaching does not take place in classrooms, students have the free choice to engage in the learning process from anywhere at any time. Asynchronous learning helps a person in both education and personal development by using methods such as: Blogs, social networks, webinars and various electronic media. (QQI august 2020, 76) Hybrid learning involves both a synchronous and an asynchronous method. We will talk about hybrid learning in more detail below, although today this method is the most common in the world. (QQI august 2020, 76).

The National Center for Educational Quality Enhancement has taken the initiative to support higher education with an auxiliary textbook aimed at ensuring online and hybrid learning and its quality, which in turn will help the Georgian higher education sector to easily overcome the shortcomings caused by the COVID-19 pandemic. (F. Crozier, A. Greer, "Criteria and Guidelines for the Evaluation of Online and / or Mixed Learning and Teaching", November 30, 2020). Such an approach will accelerate Georgia's integration into the international educational market, because with the help of modern digital technologies our students will be competitive, which will help them in their personal development, as well as the country for economic and social development. Online education used to be only a free choice, it was also a future plan for Georgia, but the current reality has forced the country to quickly implement online and hybrid education with the help of digital technologies. In the beginning there were various problems including technical deficiencies, lack of digital skills, unqualified staff and so on. However, gradually, through joint efforts, the education system faced the challenge well. Most importantly, the learning process did not stop at higher

education institutions, and for students with a profession for which attendance was mandatory due to the specifics of the subjects, the hybrid teaching method was the most tailored and comfortable. Higher education is one of the main preconditions for the economic development of the country, therefore the state should make every effort to spend more resources on education in order to further improve the teaching process and make it as adaptable as possible to the student, hence having a positive outcome in return;

In the 21st century, in the digital world, innovative methods are essential for general and vocational and higher education levels. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020).

The pandemic, along with all the other challenges, presented new opportunities for universities. For example, we can do the mobility online without leaving Georgia, invite lecturers online and so on. (D. Tsiramua, Higher Education Challenges and Potential, GEORGIA FORBES WOMAN, February 2, 2021).

Among the positive results of the pandemic are:

1. The desire expressed throughout the higher education sector to be very quickly involved in a whole new situation that required the rapid development of staff skills in order to maintain the delivery of education to students;

2. The crisis has revealed more potential for international education, which is available to a larger number of potential students;

3. Students acknowledged the support and effort from academic staff, including those who did not have online teaching experience;

4. The staff realized the support and assistance they received from the Ministry of Education and the National Center for Education Quality Enhancement.

5. In some cases, emergency response proved useful and resulted in, for example, better attendance and student engagement and better term papers. (F. Crozier A. Greer, "Criteria and Guidelines for the Evaluation of Online and / or Mixed Learning and Teaching", November 30, 2020).

The main advantage that studies have shown is the saving of time and financial resources. These are the two most important resources that can help a person take the next steps successfully. Nevertheless, it has been noted that a certain proportion of students are in favor of traditional teaching because they believe that hybrid and/or online teaching reduces social interaction, which is quite an important component in terms of personal development.

As for the negative aspects: To this end we can emphasize the low motivation of the academic staff, especially of the elderly staff to deepen the knowledge in the field of digital skills, to use technologies, to use equipment,

to use modern educational technologies during lecture-seminars or to study from scratch. Also low motivation of students and lack of mobilization during the online learning process, emotional barrier, which for example, may be manifested in not turning the video- camera on and it seems to limit interaction, as well as health problems (vision, scoliosis ...), lack of equipment, Internet access and so on.

The benefits for each student in particular deserve special mention:

- Efficiency - Distance learning allows the student to make and manage their own schedule, they can decide when and where to study and how much time to devote to learning. (A.FOX, “What are the Advantages And Disadvantages That Distance Education Can Offer Your?”, 4 July 2020)
- Study from anywhere - Students can study without leaving home or office, they just need to have an access to Internet. Such learning is especially accessible to people with disabilities, prisoners, and people living far from educational institutions. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)
- High Academic Outcomes - According to American science studies, the results of distance learning are not inferior to the results of traditional teaching. During distance learning, students work much harder on themselves, trying to deepen their knowledge with the help of modern technologies, which then has a positive impact on their academic results. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)
- Saving the expenses - is one of the major benefits of distance learning. In this case, the daily expenses that are familiar to all students are reduced (transportation costs, food costs, rent costs, etc.). (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)
- Individual approach - In distance learning, a very important component is the student-centered environment, which considers individual needs. In addition to being able to choose and allocate time for education, they can also have contact with lecturers and get answers to existing questions within a small amount of time. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)

As for the disadvantages and challenges for students that come with distance learning:

- Lack of communication - which means lack of direct communication between students and the lecturer, as well as among students due to the virtual environment. Therefore, distance learning is less likely to

facilitate development of such skills as team work, direct communication and so on.

- Lack of practice - It is quite difficult to learn such courses electronically that require practical assignments.
- Problem of user identification - Another difficulty with exams is how honestly the student wrote the exam, the only possibility in this case is the exam under video surveillance. However, students still have to go on site take the exams to prove that they are not cheating, especially if they want high academic results. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)
- The probability of misunderstanding theoretical knowledge - since there is a very large amount of information on the Internet, the probability is quite high that the student will misunderstand the existing material. Because communication between students and professors is indirect. (L. Tvalabeishvili, "The Right to Education during Pandemic," New Education, November 13, 2020)

Ghanaian Context

The concept of e-learning in Ghana traces back nearly a decade. Ghana's efforts to integrate Information and Communications Technology (I.C.T) into the pre-tertiary education level to meet the aspirational goals of assisting the Z-generations in acquiring digital skills to achieve global standing received attention in the early 2000s with the implementation of Ghana's ICT for Accelerated Development (ICT4AD), which is aligned with the Education Strategic Plan and Sustainable Development Goals 2018-2030 forms an integral part of school education (Asabere et al., 2020; Otoo, 2020; Adarkwah, 2021; Tanye, 2017; Ofori-Birikorang et al., 2020; Asabere et al., 2017). Besides government Initiatives, many universities and colleges have developed digital platforms to supplement administrative and instructional activities through the use of the e-learning or blended Approach (Ansong et al., 2017; Sarfo & Yidana, 2016; Forson & Vuopala, 2019). University of Ghana among other universities in Ghana employed the online learning and management systems (LMS) a virtual learning tool for teaching and learning popularly known as SAKAI management systems through distance programs and remote learning among others (Ampadu & Sedofia, 2021; Tagoe & Cole, 2020; Asamoah, 2020; Darko-Adjei, 2018). It appeared that all these efforts were made as a strategic vision to flip the entire educational system into the digital space. Effective integration of e-learning is achieved when instructors and students have the competencies required to manage its operations and functionalities which could be attained when the curriculum is tailored to embrace I.C.T in education and Train instructors towards it (Matthew et al.,

2020). Frantically, in Ghana, all efforts to promote I.C.T in education appears that many schools in some areas across the country do not have the necessary infrastructure and resources to fully integrate I.C.T tools into the educational system for teaching and learning to leverage the digital gab (Tadesse & Muluye, 2020; Adarkwah, 2021, Soma et al., n.d).

Given the factors that impede the integration of I.C.T into education in Ghana, between 2009 and 2014 the Government of Ghana (GoG) has also introduced an intervention program dubbed 'One Laptop per Child Policy' to sustain the interest of pupils in ICT as well as enhance teaching and learning in basic schools by sharing over 450,00 RLG laptops (Adu Gyamfi, 2017) to most schools at the pre-tertiary level throughout the country (Ababio, 2010). According to Owusu-Ansah (2015), Several schools have already benefited from the policy across the country. Factors such as internet access, electricity, and infrastructure among others which has the potentials of thwarting efforts geared at integrating ICT into the educational system in Ghana were being managed slowly with plans at the point of critical considerations before the covid-19 outbreak.

The sudden change from the Traditional face-to-face model to the online model of education and learning has posed serious challenges in front of instructors and students in Ghana (Aboagye et al., 2021; Serhan, 2020; Mseleku, 2020). The shift from the conventional mode of education to remote or online education was not adequately planned and many institutions' practices and attitudes towards digital platforms depict a completely unexpected occurrence without option (Salih & Omar, 2021; Di Giacomo & Di Paolo, 2021).

The sudden shift to the online mode of teaching and learning without prior preparations, posed a greater challenge on both instructors and students with the use of the online systems post covid-19 teaching and learning practices in Ghana. Hence, the need to conduct a study to determine the challenges for improvement.

However, less than 15% of these teachers used the internet as an innovative way of improving teaching and learning. Over 30% of the teachers also used the computer mainly for research work. Despite the limited use of computers by teachers in their teaching, many agree that the computer has changed the way students learn.

Pre-existing challenges prior to the COVID-19 pandemic

Collis and van der Wende (2002) and the Open and Distance Learning Paper (2004) state that the integration of eLearning in universities has been so far disappointing both at the macro-level of their strategic options and at the micro level of their educational work processes Collis and van der Wende (2002) and the Open and Distance Learning Paper (2004)

state that the integration of eLearning in universities has been so far disappointing both at the macro level of their strategic options and at the micro level of their educational work processesCollis and van der Wende (2002) and the Open and Distance Learning Paper (2004) state that the integration of eLearning in universities has been so far disappointing both at the macro level of their strategic options and at the micro level of their educational work processes.

The online teaching and learning challenges are frequently attributed to the Covid-19 experiences, which is not the case; rather, the pandemic revealed the hurdles and unreadiness of certain nations and institutions toward E-learning (Nikdel Teymori & Fardin, 2020). Collis and van der Wende (2002) claim that the integration of eLearning at universities has been unsatisfactory so far, both in terms of administrative strategic decisions and instructor-student level educational standard requirements.

Ali (2020) and Correia (2020) argued that covid-19 revealed the vulnerabilities in today's e-learning educational system which was kept behind the traditional and the blended methods. Nelson and Thompson (2005) reported that time management, workload, motivation, inadequate administrative support, cost of technological tools and management systems, students' interactions, and infrastructure posed a challenge to the efforts geared towards e-learning in most institutions among faculty members. They recommended that the administration should provide adequate resources and encourage the use of technology for teaching and learning by providing both pre-service and in-service training, institutions should employ more distance education courses and limit the physical contact between instructors and students, and that promotions be fashioned as an incentive to promote online engagement. collaboratively, Bascow et al. (2012) postulated that the e-learning challenges form an integral part of the digital transformations as applications and systems continue to evolve. In their study, they believe that challenges such as technical challenges, lack of motivation and attitudinal challenges, nature of course content, high cost of adopting online learning, unemployment among several others thwarts the full adoption of e-learning.
Similarly, Keengwe and Kidd (2010) disclosed that faculty members' involvement in e-learning remains a prevalent issue for most institutions planning to embrace e-learning. It was further revealed that most of the faculty members are reluctant in leaving the conventional method the online learning. 5% of active faculty in German-speaking universities use learning technologies in their courses, according to Barrios and Carstensen (2004), a threshold for eLearning integration that a recent Organization for Economic Cooperation and Development (2005) survey confirms at an international level. As a result, they labeled eLearning as a "thwarted innovation" in their study, while Latchem, Jung, Aoki, and Ozkul (2007) claim that eLearning

integration in Japanese higher education moves at the snail's pace. In universities, technological advancements tend to outrun strategic thinking and pedagogical design, and the long-term integration of eLearning into higher education institutions remains a key issue. Although learners may have achieved success in traditional education and the classroom, this does not guarantee success in an online learning environment (Watkins et al., 2004). Amenyedzi et al (2011) performed research in Tema, Ghana's capital, to evaluate the use of computers and the internet as supplemental educational materials to improve school administration and planning, as well as how students utilize computers and the internet to aid their learning. Students and instructors were chosen using the stratified sample approach. The findings revealed that a substantially 92% of respondent instructors were computer competent, while 78% of respondent learners had basic computer skills.

Many exploratory studies have been carried out to investigate the quality of online programs from different perspectives. Critical concerns impacting the quality of online education, such as communication, technology, time management, pedagogy, and assessment, have been recognized and studied in studies (Bassoppo-Moyo, 2006; Conaway, Eston, & Schmit, 2005; Ko & Rossen, 2010; Limperos, et al., 2015)

According to Almaiah et al., (2020), the argument that obvious impediments such as instructors' technical challenges and lack of motivation are the sole reasons inhibiting the use of learning technologies is the most difficult to explain. According to them, the actual problem for eLearning is driven by macro-level influencing factors that stifle technology-enhanced innovation in higher education, because even if teachers are blamed, pre-service and in-service training will still be a factor. These underlying macro-level constraints are related to university structure weakness, availability and habitual features, and long-standing cultural values in the educational system (Almaiah et al., 2020).

The engagement of the online teacher may be divided into four categories: educational, social, managerial, and technological (Martin et al., 2019). Martin et al. (2019) conceded that pedagogical function focuses on educational facilitation, while the social role focuses on building a welcoming social atmosphere that is required for online learning. The managerial position includes agenda setting, pace, goal setting, regulation, and decision making, while the technical function is dependent on teachers first getting familiar with the technology being utilized and then being able to communicate that degree of comfort to their learners (Martin et al., 2019).
According to Houshmandi et al. (2019), one factor for the delayed uptake of eLearning in higher education is the overwhelming number of faculty members' lack of e-competence. Hadley (2019) reviewed barriers to faculty participation in developing and teaching online courses include inadequate

software and hardware, learner procrastination, slow internet connections, insufficient orientation for learners, lack of technical expertise among instructors, and a lack of release time for instructors to develop and design their courses online (Siga & Acharya, n.d).

Many researchers advocated for teacher training and assistance due to the large number of faculty members who begin their online teaching experience with minimal expertise in the process of conceiving, preparing, and delivering an online course, faculty support becomes critical (Albrahim, 2020).

Post covid-19 challenges

The Internet has become a common medium for interaction, communication, and collaboration within which learners and teachers engage in unique and irreplaceable learning opportunities.

The literature on online learning and teaching in higher education has seen a growing interest in the study of key challenges in relation to the online mode of delivery besides the associated capacities (Siddiquei & Kathpal, 2021). Zhu and Liu (2020) observed that the Coronavirus outbreak has hastened the growth of online education in Chinese higher education. big data, the Internet, 5G, Artificial Intelligence (AI), and cloud-based platforms, among other technologies, have been put to use in the field of education. However, Zhu and Liu (2020) maintained that a more flexible way of teaching and learning does not end up with infrastructure. Rather, infrastructure is only the first step towards a new paradigm of teaching and learning in a post-pandemic time. This paradigm, on the other hand, might reflect a rapid transition away from traditional, teacher-centered, and lecture-based activities and toward more student-centered activities such as group activities, dialogues, hands-on learning activities, and restricted usage of traditional teaching (Zhu and Liu,2020). This requires a conceptual and philosophical rethinking of the nature of teaching and learning, roles, and connections among teachers, learners, and teaching materials, in post-digital learning communities (Jandrić et al. 2018). Full long-term integration of online teaching and learning into university curricula implies further attention to quality.

The imposition of e-learning without providing supporting infrastructure caused a significant setback to the fundamental essence of classical pedagogy, including learner's interactivity, access to study material, attentiveness, regularity, time management, and assessment (Manazir & Rubina, 2020). Similarly, broadly identified challenges with e-learning are accessibility, affordability, flexibility, learning pedagogy, life-long learning, and educational policy (Murgatrotd, 2020).

Challenges to online education reported in the medical literature so far include issues relating to time management, use of technology tools, students' assessment, communication, and the lack of in-person interaction. Teachers are crucial for the inclusive and equitable provision of high-quality distance education. They are expected to have knowledge, skills, and ethics to conduct online teaching, and that calls for more flexible and dynamic post-pandemic teacher education. Post-pandemic national teacher education could be composed of face-to-face teacher education, blended teacher education, and online teacher education (Zhu 2020). National online teacher education could be categorized into sections that provide learning opportunities to future teachers at all levels: early childhood education, primary education, secondary education, vocational education sectors, etc. Online teacher education platforms could function as a traditional teacher education institute that provides pre-service and in-service programs. This could be supported by online platforms with rich digital materials and resources. Curriculum and pedagogy need to be updated and should become models of successful online pedagogies that could be taken into future teachers' practices. Last but not the least, it is critical to building up an enabling institutional environment for sustainable national online teacher education. We need to develop evidence-based policies supported by guidelines for their implementation. To provide a professional reference base for online teacher education, a framework of competencies for conducting online teaching, and other standards, should be developed. In our post-digital context, online and offline (teacher) education cannot be thought of without each other (Jandrić et al. 2018). Therefore, we advocate the development of a holistic teacher education system, regardless of the used model of delivery, which could support present and future teachers in becoming more resilient to a crisis similar to the Covid-19 pandemic. The covid-19 pandemic has brought about a huge disruption to all spheres of human life. Chinese higher education, and Beijing Normal University, in particular, have responded to the crisis with reasonable success. However, we strongly believe that the impact of the Covid-19 pandemic on the Chinese education system should extend well beyond tacking the current crisis it should also bring out potential development opportunities for the future (Jandrić 2020). Our current situation requires innovation and renewed attention to more research, study, and reflection, about each sector of education in China and globally. It is only by doing this research within the pandemic that we can develop a more sustainable, inclusive, and equitable education after the pandemic is gone.

Dumford and Miller (2018) argue that the students enrolled in online courses are often less engaged in collaborative learning, student-faculty communication, and discussion with their peers than their counterparts in

traditional face-to-face courses. It has also been noted that major challenges for online education include developing core professional qualities-namely, the acquisition of interpersonal and practical skills, communication skills, sustaining student retention rates, and effective use of online technologies. Challenges have also been raised by educators whilst adapting some activities, such as performance assessment, to the virtual learning environment avoiding the loss of content knowledge or effective interactions between learners and/or educators. The emergence of a range of learning scenarios and pedagogical models has extensively informed practices of online learning and teaching in the higher education context. Nevertheless, a less addressed challenge is "not whether online courses will replace classrooms, but whether technology will drive the redesign of teaching and Education Making clear distinctions between online and on-campus models of learning and teaching has been at the forefront of online education discourse. What matters here is to understand how to best support innovative and collaborative learning and teaching activities, utilizing emerging instructional technologies regardless of the medium of delivery. It is also useful to understand what form of technology varies between online recorded lectures, in-built assessment, collaborative digital subjects with flexible learning environments, and remote simulation to enable a certain pedagogy or change the existing pedagogical model. Peimani & Kamalipour, (2021) indicated that using new technology to just capitalize on it is not enough; new models must employ these tools and services to engage students on a deeper level. This also lends itself well to other researchers' arguments that giving primacy to technology over pedagogy is a barrier to successful technology integration and, indeed, effective teaching and learning strategies in higher education (Peimani & Kamalipour, 2021). The remaining question here would be to understand which course delivery model stands as the students' favored learning and teaching design blended, fully face-to-face, or online choices.

Siddiquei, M. I., & Kathpal, S. (2021) review on challenges of online teaching and learning during covid-19 identified challenging factors such as infrastructure (electricity, internet, facilities), students or learner challenges (interaction, participation, readiness, technical skills, and learning style), content issues (multimedia, pedagogy, innovation, content creation, and design), institutional factors (policies, incentives, resources), and motivational factors (salary, family support, mental and emotional) as crucial factors that challenges teaching and learning online after factors loaded. Their findings highlighted that instructors' challenges emanated from the transition from offline to online, communication barriers regarding online teaching, preparations, and teaching style. Siddiquei, M. I., & Kathpal, S. (2021) further highlighted factors such as training for instructors, multimedia

and technical skills support, as well students' readiness, technological skills to learn online, learning styles, participation, and pace of learning and network issues as pressing challenging factors associated with institutions and learners, respectively.

Corroboratively, Paudel (2021) surveyed 160 instructors and 120 students in Nepal to investigate their challenges during and after the covid-19 world. The results disclosed that online time managements, freedom of interactions of students and instructors, reliable internet at home were the extreme challenges that most of the respondents reported to would have faced. Additionally, they found that the swift shift of responsibility from instructors to students in terms of learning remotely has the potency of causing social isolation which impacted greatly students' mental health.
The afore-stated reviews are evidence of the challenges in the post-covid-19 world due to the transition from face-to-face to e-learning.

Instructors' challenges

The covid-19 pandemic has affected many instructors during the swift shift to the e-learning platform. It has been established that many instructors were not technically ready for the transition thus, they could not exhibit skills and ideas to troubleshoot the issues that came along with the e-learning. Even though many scholars identify challenges regarding other stakeholders and related factors, instructors' readiness and skills exhibited during online teaching cannot be overstated. It is instructive to note that aspects of the e-learning challenges trace back to the instructors and faculty members. For instance, Crompton et al. (2021) mentioned that instructors and faculty were confronted with the challenge to use, learn, and incorporate appropriate multimedia tools (that they had never used) to support their online instructions. This implies that instructors needed to learn how to handle skilfully the learning management system to deliver the online course, how to create and deliver learner-friendly instructional videos that met the accessibility requirements, or how to deliver the Hybrid courses, with part of the class in the classroom, and the rest remotely on Zoom or asynchronous online learning platform. Furthermore, those challenges were not only for instructors, they directly influenced student performance and created challenges for them (Kaisara & Bwalya, 2021). Chopra et al., (2019) contended that the layout of an online course with poorly designed navigation was identified as one of the challenges faced by students, and the ease of navigation was found to be one of the most important predictors of e-learning success (Alshehri et al., 2019). Educators have been exploring methods to deal with the challenges caused by the COVID-19 emergency (Greenhow & Lewin, 2021).

At the beginning of the urgent transition in 2020, it was least anticipated that instructors who had not designed and taught any online course could achieve all the knowledge and skills and be equipped with the necessary technology tool in a short time frame (Liu et al., 2021). However, during the pandemic period from March 2020 to August 2021, Liu et al., (2021) posited that educators have taken this emergency as an opportunity to adjust their teaching, update all their skills, become equipped with new technology tools, revise the teaching materials, redesign their online courses, and even produce more publications to share their experiences with other educators and researchers (Abu Talib et al., 2021; Crompton et al., 2021). One of the challenges that instructors are facing has to do with assessment and evaluation. Instructors are facing so many barriers in diversifying their mode of assessment for students. Abduh (2021) study on instructors' perceptions and challenges of assessment methods used in full-time e-learning during and after the covid-19 pandemic was reported after 26 instructors were asked to complete a survey and interview, the findings disclosed that instructors reported moderate attitude towards e-assessment, however, the responses indicated that instructors are facing tremendous challenges in assessing students online.

Students' challenges

Students are the most affected group of individuals in the world's educational system as far as covid-19 is concerned. owing to the widespread of the covid-19 pandemic, states-initiated school closure measures to help contain the virus and preserve students' safety at school (Agormedah et al., 2020). hence, the closure of schools, colleges, and universities has affected over 80% of students all over the world. in real terms, in early 2020, approximately 1.7 billion learners were not attending school (Day, 2020; UNICEF, 2020; Crawford et al., 2020; Quinn, 2020; Ebrahim, 2020; UNESCO, 2020a; Kokutse, 2020). UNESCO (2020b) reported that over 191 countries have enforced total closure of schools and about five countries have initiated closure by covid-19 spread, affecting close to 99.4% of the entire student population across the world. School closures have impacted several stakeholders particularly students as well as economic and societal consequences (Lindzon, 2020; Barrett, 2020; Mitchell & Jamerson, 2020). The closing down of schools has broadened learning disparities and has indignant susceptible students disproportionately (UNESCO, 2020e).

To address this issue, some international organizations, particularly UNESCO, have approved the deployment of e-learning programs as well as open educational platforms and software that schools can use to reach learners remotely and limit disruptions to education. In response to these recommendations, schools around the world have begun to operate remotely

via online platforms for emergency remote teaching and learning as part of measures to reduce the spread of COVID-19 (Crawford et al., 2020), but this has been hampered by the digital divide (Bozkurt & Sharma, 2020; UN, 2020; UNESCO, 2020c) due to inequalities among higher educations and socioeconomic distinctions among students. Regarding this, many scholars questioned if higher education institutions are ready to move into the digital platform of teaching and learning (Houlden & Veletsianos, 2020).

Researchers have investigated this area with a focus on students' mental health, home learning experiences, virtual learning environment, self-regulation, and students' overall learning experience (Copeland et al., 2021; Fawaz et al., 2021, Suryaman et al., 2020; Carter et al., 2020; Almaiah et al., 2020; Hew et al., 2020; Tang et al., 2020; Adarkwah, 2021; Day et al., 2021; Khalil et al., 2020; Singh et al., 2020) to ascertain students challenges during the online learning platform. Copeland et al. (2020) study on the impact of the covid-19 pandemic on the mental health of students found that the pandemic has impacted students' emotional and behavioral abilities, as well as attention and how well they externalize issues due to self-isolation related problems and confusion. They recommended that states and educational stakeholders should employ safety measures to mitigate the relative consequences of the covid-19 pandemic on students' mental health and wellness. Corroboratively, Barrot, et al. (2021) surveyed 200 university first-year students and discovered that the effects of the pandemic on student learning were dire. They further revealed that challenges associated with online learning varied significantly by extent and type. They maintained that the self-reported questionnaire revealed that the greatest challenges were environmental issues, technical challenges, inadequate learning resources, technological sufficient issues, self-isolation, and technological challenges in that order (Barrot et al., 2021).

Similarly, Suryaman et al. (2020) looked into how learning occurred at home during the pandemic. Their findings showed that students faced many obstacles in a home learning environment, such as lack of mastery of technology, high Internet cost, and limited interaction/socialization between and among students. In a related study, Kapasia et al. (2020) investigated how lockdown impacts students' learning performance. Their findings revealed that the lockdown made significant disruptions in students' learning experience. The students also reported some challenges that they faced during their online classes. These include anxiety, depression, poor Internet service, and unfavorable home learning environment, which were aggravated when students are marginalized and from remote areas

Pakistan case

Online education's challenges

The COVID-19 outbreak compelled academic institutions and schools to move online. Online teaching tools, such as Skype Call, Vipers, ThingLink, Zoom, Google meet, and other video conferencing apps, were introduced to both teachers and students (Hamzah & Ahmad Shaberi, 2021; Sobaih et al. 2021). However, moving from an offline to an online mode of learning poses a number of challenges for students and educators in both developed and developing countries (Liguori & Winkler, 2020). For instance, the key hurdles of online education in developing nations, for example, were insufficient ICT skills, poor network administration or IT skills, and insufficient content development capabilities (Aung & Khaing, 2015; Hadullo et al. 2018; Noor et al. 2020). In Kenya, a similar study found that three major barriers to online education adoption include insufficient IT infrastructure, weak ICT skills, and a lack of financial resources (Ngwacho, 2020; Almaiah et al. 2020). Another research by Kanwal & Rehman (2017) revealed that the main impediments to successful online education adoption in Pakistan were a lack of existing IT infrastructure, internet availability, and computer literacy (Kanwal & Rehman 2017). According to Kenan et al. (2013), cultural, political, and economic obstacles were the key reasons for Libyan online education's failure. Kisanga & Ireson (2015) highlighted poor interface design, insufficient technical assistance, and a lack of IT skills as major hurdles to the successful implementation of existing e-learning projects in Tanzania.

Challenges from the student's perspective

From the perspective of the students, certain major factors influencing the adoption of online education during the Coronavirus pandemic have been documented in the literature. For example, Almaiah & Alyoussef (2019); Al-Araibi et al. (2019) revealed that one of the major problems students experience in technology (e.g., technological difficulty in using e-learning platforms such as Microsoft Team, Google Class, etc), which greatly reduces students' willingness to adopt online education. Another issue is learners' lack of awareness of internet skills (Al-Araibi et al. 2019). Specifically, research has noted that students have poor comprehension of internet capabilities and are hesitant to take charge of their own e-learning. Almaiah et al. (2020) backed up this point of view, stating that due to varying levels of education among students, students found online education adoption difficult.

C***hallenges from the educator's perspective***

In a similar vein, certain important characteristics impacting the adoption of online education during the Coronavirus outbreak have been reported in the literature from the perspective of educators/universities. During the Coronavirus outbreak, for example, institutional preparation for online education was one of the most significant impediments to switching from offline to online education (Chung et al. 2020). Particularly, research has shown that the most significant reason for the failure of online education adoption in Malaysia, Saudi Arabia, and Iraq is a lack of university readiness (Chung et al. 2020; Budur et al. 2021; Alqabbani et al. 2020). This viewpoint is supported by recent research, indicating that a lack of technology infrastructures, such as hardware, software, facilities, and networking, is one of the major challenges for universities in developing nations to transition from offline to online education (Almaiah et al. 2020). Other challenges for educators that significantly hinder the adoption of online education, according to studies by Bao (2020); Laato et al. (2020); Saxena et al. (2021); Fatani (2020), including teaching quality, content localization, and lack of relevance of course content. Similarly, research has shown that faculty members' acceptance of online education (Li, 2021), faculty members' poor ICT literacy skills (Alanazi & Alshaalan, 2020; Duraku & Hoxha, 2020; Besser et al. 2020), and teachers' lack of effort and support in the adoption of online teaching (Almaiah et al. 2020) are all important barriers to online education adoption.

Conclusion

As the quality of life improves, the needs of people evolve, which in turn requires constant development and advancement, with the help of technologies. Education is a constantly evolving field requiring permanent innovations. The Fourth Industrial Revolution had a paramount impact on the digitalization of the world. This was one of the largest changes in the history of the world. The digital revolution transcends all boundaries in the biological and digital fields. Once again, it has become clear that human capabilities have no boundaries. Technologies such as: Artificial intelligence, 3D printing or nanotechnology came out. (What the Fourth Industrial Revolution means and how to respondto new chalenges, 2016)

With the help of technologists, life has become much easier and more comfortable. With the help of modern technologies, the worldwide challenge of pandemic was easier to accept and manage. In education, this was reflected in the transition to the online platform, which had been successfully implemented in many countries around the world before Covid-19. However, for developing countries full transition to the online space was quite a challenge. Whether the education system has coped with this challenge is

still difficult to say, although the current dynamics allows us to assume that this test has been more or less successfully passed. Proper management of information requires proper analysis which requires qualified academic staff. They are better acquainted with the strategies and methods that are appropriate for different levels of higher education. When we talk about technology, we should not leave out the issue of eliminating the geographical barrier. It is with the help of technology that the traditional teaching method has changed and become fully adapted to the student. With the help of digital platforms, they can get education at any time from the desired place. They need the competencies and skills to help them easily adapt to a rapidly changing environment. One of the major advantages of information and communication technology is that it has played a major role for people with disabilities. They were able to get the necessary information on any topic through platforms tailored to them. All of the above is closely related to the quality of teaching. Given the current reality, we can say that access to higher education has increased significantly, as evidenced by the abundance of digital technologies. It would be unimaginable otherwise, as we are living in a period of digital revolution, which is constantly full of new challenges. In order to be successful, it is necessary to follow and keep up with the novelties.

In light of this review, Ghana, Georgia and Pakistan have endeavor to better study and understand the challenges and opportunities of teaching and learning during the pandemic, from the students and educator perspectives. Preliminary results have been obtained and will become the subject of near future publications, in order to help shape the future development of E-learning impact on the quality of teaching and learning.

It is also important:

- ✓ To analyze and take into consideration the advantages and disadvantages, weaknesses and threats risen during the period of covid-19 and while developing in class and e-learning approaches to bridge and bring them together;
- ✓ Submit recommendations to Education regulators for the future development of E-learning;
- ✓ To be prepared for further challenges.

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