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E-learning in the Higher Education Sector under the COVID-19 Pandemic - Japan and Sri Lanka Case Study

التعليم الإلكتروني في قطاع التعليم العالي في ظل جائحة COVID-19

– دراسة حالة اليابان وسريلانكا

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Abstract

This study aims to shed light on the ways to confront the challenges result from the outbreak of the Corona virus on the higher education, and make recommendations on how to manage the negative effects and fill the gaps in educational opportunities and draw attention to the approaches to learning and creative to push towards improvement programs quality and communication in the e-learning.

The descriptive analytical approach was relied upon to propose a theoretical framework based on the literature that discusses the current trend of e-learning, and to study some international e-learning experiences. The results of the study revealed that the correct combination of soft skills and hard technologies are essential for the success of e-learning; giving priority to participation of students to ensure continuity and inclusion of education.

Keywords: E-learning, COVID-19 pandemic, higher education.

ملخص

تهدف الدراسة إلى التعرف على سبل مواجهة تحديات تفشي فيروس كورونا على قطاع التعليم العالي، وتقديم توصيات حول إدارة الآثار وسد الفجوات التعليمية ولفت الانتباه إلى مناهج التعليم والإبداع لتحسين جودة البرامج والتواصل.

تم اعتماد المنهج الوصفي التحليلي لمناقشة اتجاه التعليم ودراسة بعض التجارب الدولية. أظهرت النتائج ضرورة المزج الصحيح بين المهارات الشخصية والتقنيات الصلبة؛ إعطاء الأولوية لمشاركة الطلاب لضمان الاستمرارية والشمولية.

الكلمات المفتاحية: التعليم الالكتروني، كوفيد 19، التعليم العالي.

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1. INTRODUCTION

The recent epidemiological crisis has widened the pre-existing education equality gap by reducing the opportunities available to many of the most needy and marginalized students to continue their education, especially those who lack digital services and the Internet necessary for remote learning such as the poor, girls, rural residents, refugees, the disabled and the homeless, etc. The situation also threatens to wipe out decades of intellectual and ideological progress and development, and extends beyond this generation that witnessed the Corona crisis.

On the other hand, this crisis prompted governments to adopt innovative technical strategies and effective non-traditional teaching and learning methods to support the continuity of education and training, therefore, some countries of the world have moved towards digital learning and make the "distance education" system a basic alternative to the direct education system.

However, these changes led to rethinking a promising future for learning and keeping pace with the rapid changes in the patterns of providing quality education for all learners, whether in terms of mobilizing logistical and technical resources, or the quality of educational content, or for teachers and their need to obtain basic skills to deal with new methods of providing education, in addition to supporting all the education community.

Higher education systems in various countries of the world need great efforts and thinking outside the box in order to find and activate many modern and non-traditional methods and strategies in the fields of institutional capacity and educational effectiveness within university institutions and providing high quality learning opportunities for all students which would ensure the activation of the distance education system, which may continue as a system education parallel to the regular educational system. From the previous submission, the main question is: **How can university institutions adopt e-learning according to teaching and learning methods that provide quality and connectivity in education?**

Based on the research problem and as an initial answer to it, the following hypotheses can be presented:

-The right combination of skills and technologies is essential to the success and quality of e-learning;

-Giving priority to participation and attention to students to ensure continuity and inclusion of education;

-Digital solutions need relevant content, appropriate educational curricula, and effective educational practices;

-Provide a supportive educational environment for professors and students to facilitate communication and achieve the goals of distance education.

The study is descriptive and comparative analysis, aiming to explore the reality of e-learning in the higher education sector during the Covid-19 crisis, and to identify the problems resulting from it in the higher education community and possible solutions based on previous studies. A study was conducted of the Japanese and Sri Lankan experiences related to the method of e-learning and compared the response of both countries to the challenges of this crisis on the education sector.

The study was prepared during the last three months of 2020. The research tool used for this study in analyzing the data collected from various sources and testing the established hypotheses is the content analysis. The qualitative and methodological aspects of scientific research have been taken into consideration. This study is based entirely on a systematic review of the literature gathered from secondary sources such as scholarly articles, reports, and websites.

Based on the previous proposition of the research problem, this study aims to achieve a set of objectives, the most important of which are:

-Carrying out an analysis of difficulties and problems for online learning during the corona virus pandemic;

-Knowing the recommended and applicable protocols and modalities for successful e-learning style;

-Make a comparative study of some international experiences to be used in identifying the most important methods of responding to the challenges of online education;

-Provide some suggestions and recommendations for the success of the distance learning system during the Coronavirus crisis.

2. Theoretical framework of the study

The definition of e-learning will be introduced, then the impact of the Corona pandemic on the higher education sector, as well as a guidelines for a successful approach to distance education.

2.1. E- Learning

Rapid developments in technology have made distance education easy. Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, and blended learning, for ex.) have in common the ability to use a computer connected to a network that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means.

E-learning can be termed as "a tool that can make the teaching–learning process more student-centered, more innovative, and even more flexible. E-learning is defined as “learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students”. The synchronous learning environment is structured in the sense that students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback, whereas asynchronous learning environments are not properly structured. In such a learning environment, learning content is not available in the form of live lectures or class (Shivangi, 2020, pp. 6-7)

The transmissive relation of teaching is replaced in training by a triangular pedagogical relation where the learner develops his knowledge from his environment, the trainer being one of the human resources in this set. It is a training method which, thanks to the use of different means of communication, will break with the three units of time, place and action, allowing learners to train without having to travel to a specific place identified for training by contacting the trainer-coach or teacher through the means of communication (Balancier P, 2006, pp. 11-12)

2.2. The effects and aftershocks of the epidemic on the higher education sector

In the higher education sector, while online learning has generally taken place through recorded lectures and online platforms, some universities have postponed learning and teaching until further notice, due to the lack of information technology infrastructure for both students and teachers. Some questions also remained about how to coordinate classrooms and academic calendars, as some programs were successfully implemented online, while others could not be implemented (Brief, 2020, p. 7)

Certain challenges of online education include, lack of online teaching skills in educators, online preparation of lesson plans as it is very time-consuming, lack of appropriate support from the technical teams, and traffic overload in online educational platforms. Not only the teachers but the students are also facing challenges due to their deficiency of proper learning attitude, lack of suitable materials for learning, more involvement in classroom learning, incapability of self- discipline, and the inadequate learning environment at some of their homes during self-isolation (D, 2020, p. 5)

Universities closures have necessitated changes in – and in some cases caused serious disruptions to – how students are evaluated. In most countries, exams have been postponed; in a few, they have been cancelled; and, in others, they have been replaced by continuous assessments or alternative modalities, such as online testing for final exams (Brief, 2020, pp. 7-8)

E-learning create difficulties and problems associated with modern technology, and sometimes student finds online teaching to be boring and unengaging. Personal attention is also a huge issue facing online learning, students want two-way interaction which sometimes gets difficult to implement. In a study, students were found to be not sufficiently prepared for balancing their work, family, and social lives with their study lives in an online learning environment. Students were also found to be poorly prepared for several e-learning competencies and academic-type competencies. Also, there is a low-level preparedness among the students concerning the usage of Learning Management Systems (Shivangi, 2020, p. 7)

2.3. The guidelines recommended by some international organizations for a successful approach to distance education

The responses that countries have taken in response to the crisis are linked to the suspension of direct higher education, which has led to the emergence of three main levels of action: Strengthening distance learning through a variety of media and platforms; Support and mobilization of the higher education community; Pay attention to students' psychology and well-being.

- **Mobilizing local resources, maintaining education shares as a priority, and addressing deficiencies**

Education systems themselves share a direct responsibility for increasing fiscal space by improving the cost-effectiveness of education services, so priority must be given to ongoing reforms and innovations that address deficiencies.

Ministries of Higher Education should foster dialogue with ministries of finance in a systematic and sustainable manner to maintain an adequate share of the national education budget and increase it wherever possible (particularly when internal reallocation is possible) (Brief, 2020, p. 20)

- **Continuous evaluation**

Innovative continuous assessment methods have received a lot of attention, as students' progress can be monitored through mobile phone surveys, tracking usage and performance statistics from learning platforms and apps, and implementing rapid learning assessments to identify learning gaps. Every solution has its own challenge, notably in terms of equity through ensuring access to remote learning (devices, internet), ensuring engagement and retention, and addressing well-being needs across spiritual and emotional, cognitive and social, and physical dimensions (COVID -19 response – remote learning strategy, 2020)

- **Curriculum adaptation, flexibility and contextualization**

Under this approach, value must be attached to teachers' independence and to developing complex competencies among teachers. Some countries have

prepared curriculum prioritization proposals that include a reduced set of fundamental learning objectives in different disciplines, moving from curriculum prioritization to the current curriculum, adopting a modular approach to content by level, shifting from basic education to new learning associated with integrated or significant objectives that can create links between subjects (UNESCO, 2020, p. 3) through diverse discussions. The difficulty, length and quality of teaching material should match the student's online-learning behavioral characteristics and academic readiness (D, 2020, p. 6)

- **Support the teaching profession and teachers' readiness**

It is imperative to fully prepare communities and support teachers for equitable and inclusive learning to be guaranteed in the classroom and beyond. Technology alone cannot guarantee good educational outcomes. More important than training teachers in ICT skills, is to ensure that they possess assessment and pedagogical skills to meet students of their own level and implement the accelerated curriculum and differentiated learning strategies that may emerge in their return to university (Brief, 2020, pp. 23-24)

A new World Bank note outlines three key principles to strengthen teacher effectiveness during and in the immediate aftermath of the pandemic, as well as opportunities for long-run improvement: (Beteille, 2020)

Principle 1: Support Teacher Resilience to Ensure Teacher Effectiveness.

Principle 2: Support Teachers Instructionally to Ensure Teacher Effectiveness.

Principle 3: Support Teachers Technologically to Ensure Teacher Effectiveness.

- **Expand the Definition of the right to education to include connectivity entitlement**:

Considerable attention has been given to the use of technology to ensure learning continuity. Those digital solutions to improve teaching and learning which are institutionalized in the aftermath of the pandemic need to put

equity and inclusion at their centre, to ensure all students may benefit from them.

Nor can education be dependent on digital platforms controlled by private companies. Governments could support open educational resources and open digital access (expand, 2020)

Social media and various group forums can be used to communicate with students. Communication is the key when it gets difficult to try reaching out to students via texts, various messaging apps, video calls, and so on— content should be such that enable students for practice and also hone their skills (Shivangi, 2020, p. 12)

- **Strengthen data and monitoring of learning:**

Managing the education crisis requires a continuous monitoring of data at the student, teacher, and university levels.

This monitoring will need to be based on a mix of existing data and assessment systems and potentially new approaches tailored to this specific context. To reinforce resilience, data should help monitor the learning environment, and help assess university accountability. Data quality and timeliness are essential, which implies a complementary strategy that minimizes the digital divide and expands teacher abilities in pedagogical practices for distance education.

- **Strengthening articulation and flexibility across levels and types of education and training:**

An important element of resilient education systems is their flexibility, which relies on strong articulation between levels and types of education, but also the capacity to mobilize alternative modes of delivery (Brief, 2020, p. 24)

When the approach is out of the reach of the learners or referential or interactive methods of the external learners, it may thus appear unapproachable, unrelated, insignificant and lose the power of attraction. Therefore, it is imperative that while the curriculum follows a clear rationale linking educational content, teaching methods and assessment, instability

and even volatility in the learning process are recognized, and this is what a hybrid learning style requires (W, 2020, p. 4)

Hybrid learning offering flexible and quasi-individualized learning pathways for learners requires a mix of pedagogies and approaches, and also the mobilization of alternative pedagogical resources from national and international platforms.

But hybrid learning poses challenges to the recognition of learning. With a view to safeguarding integrated systems, stronger linkages should be developed between formal and non-formal structures; it will allow education systems to become more equitable and inclusive, as well as more effective in fulfilling their mission, more efficient in their operations and use of resources (Brief, 2020, p. 25)

3. A presentation of some international experiences in the field of e-learning

In what follows, the Japanese and Sri Lankan experience in the field of e-learning in the higher education sector will be addressed

3.1. The Japanese experience in e-learning during the Covid19 crisis

Japanese schools have reacted differently to the present crisis due to the lack of human and material resources necessary for implementing and deploying digital instruction tools. Hodges et al. (2020) consider it is unrealistic to expect high quality teaching outcomes from quick fix solutions, and point out that the process of planning, preparation and development of a fully online university course is a lengthy matter, taking around six to nine months before the course is delivered, so that the whole plethora of co- and extra-curricular support to be in place and fully available to the students. In fact, they consider that the key to a successful course is not only good teaching, but also the co-curricular and extra-curricular supports and interactions, such as library resources, housing, career services, and health services, which learning relies upon.

progress in applying ICT in education has been slow and fraught with difficulties, such as lack of personnel and know-how in content creation and system management; absence of ICT competencies among teaching staff; difficulty in establishing a cooperative support system within the institution;

and little understanding of the educational outcomes of ICT (N, 2020, pp. 9-13)

- Mobilizing local resources, maintaining education shares as a priority, and addressing deficiencies: Several universities plan to provide students with cash (between 80 – 460 USD) to help them with costs related to taking online courses, some will reduce tuition fees while others plan to offer emergency scholarships without reducing tuition fees.

- Support the teaching profession and teachers' readiness: Faculty members who are generally not familiar with ICT use in teaching have been in a complete panic and spent a great deal of time in preparing lectures since emergency remote education was first announced.

- Expand the Definition of the right to education to include connectivity entitlement: Students have expressed worries about limited internet connection and data usage on their mobile phone as quite a few Japanese students live in a place where there is no internet connection and thus depend on mobile phones for internet access (A, 2020, pp. 14-15)

3. 2. Sri Lankan experience in e-learning during the Covid19 crisis

During the COVID-19 pandemic, more than 90% of higher education institutions (governmental and non-governmental) implemented distance learning (often via the Internet), and achieved great success, and this is due to their application of a set of measures, the most important of which are:

- Mobilizing local resources, maintaining education shares as a priority, and addressing deficiencies: The government In Sri Lanka ordered all educational institutions closed from 12 March 2020, including higher education institutions—15 state universities and about 40 other state and nonstate tertiary education institutions. Such disruptions in tertiary education by COVID-19 could delay the creation of the leaders and skilled workforce the country needs to successfully transition to upper-middle-income status.

To mitigate the effects of disrupted learning, higher education institutions utilized existing Moodle-based learning management systems under university web servers. The Lanka Education and Research Network (LEARN) was connected to university web servers and used for online

education. The network could monitor the utilization of Zoom daily. In addition, all internet service providers in Sri Lanka provided free access to university web servers during the pandemic until 17 August 2020.

The highest political leadership made a difference. Soon after the pandemic was declared in March by the World Health Organization to provide free internet access for university web servers, because this is the most practical solution to continue the education of collegiate-level students, taking into account the time, scale, and cost through the Lanka Education and Research Network (LEARN).

This critical intersectoral collaboration was made possible because of the intervention of the highest political leader, but was not an overnight success. LEARN had been in development over 30 years. LEARN is an association registered under the Companies Act of Sri Lanka, and works as a specialized internet service provider for education and research purposes. It provides a high-speed backbone network connecting the Ministry of Education, UGC, and state higher education and research institutions. LEARN functioning as an internet service provider facilitated white listing university web servers for access to online tertiary education during COVID-19 (Ryotaro H, 2020, pp. 2-3)

- Strengthening articulation and flexibility across levels and types of education and training: Faculty members reported using PowerPoint presentations, and about 40% answered that they used short online tests and an online whiteboard. Online teaching was significantly higher than offline teaching (21%), which was led by a distribution of study guides, materials, and printed workbooks in non-governmental higher education institutions.

- Support the teaching profession and teachers' readiness: Necessity as well as higher motivation and determination has driven among faculty to pursue higher education supported by guidelines and video conferencing licenses provided by higher education institutions.

More faculties tend to receive institutional support in online learning in terms of Internet access and pedagogical training in online teaching.

Faculty members need just a few hours of training to catch up on technology. Training needs for faculty were particularly high for use of technology tools such as web conferencing, digital collaboration tools, and

online assessment (67%). This was followed by blended learning techniques (62%); creating online courses and video lectures, or producing MOOCs (58%); and training in pedagogies for online teaching (49%).

- Expand the Definition of the right to education to include connectivity entitlement: Students also actively joined the online education, achieving a participation rate of 88% for both governmental and non-governmental institutions.

Almost 90% of students are highly or moderately satisfied with the online education. Interestingly, differences were not significant in the adoption of online learning by gender and between governmental and non-governmental institutions. The dataset also does not show a significant difference between urban and rural residents, however, there is a noticeable difference in access to online learning by income group that can be observed within non-governmental higher education institutions.

14% of students reported that the institutions provided a loan or subsidy to help them acquire hardware devices. Students in nonstate institutions were more likely to own hardware devices than students in state institutions (Ryotaro H, 2020, pp. 5-11)

4. Results and interpretation

The country cases provided throughout this study, revealed many similarities and differences and many important issues to consider in order benefiting from them in the Algerian context.

One of the most important similarities between the two experiences is that most of the main problems are caused by the following factors:

Failure to mobilize financial and technological resources as a result of the suddenness of the crisis, and the lack of prior availability of virtual educational infrastructures (suitability of available technology for educational purposes, enjoyment of free internet services, access to other resources such as possibility of interaction with lecturers and the administration).

- Physical restrictions (availability of computers and tablets according to the number of family members, high and continuous flow in homes).

- Educational curricula that is not appropriate to the nature of the crisis (usually compensated for by the usual work pattern) and the digital competence of teachers. This puts students either overburdened with assignments or needing to attend long video lessons unnecessarily, making it difficult for students to understand the lessons lay down.

- Academic phobia, as a result of a lack of accompaniment and emotional support.

The most important differences can be explained by the following subtraction process:

In the case of higher education institutions, most universities do not yet focus on the need to adapt to the digital age compared to Sri Lankan universities.

The ongoing delay in starting universities rather than taking lessons online appears to highlight a weakness in Japanese education. Japan was a world leader in high technology. However, unfortunately, the introduction of technology and its use in school and university systems has been delayed, and teachers in general are not trained qualified to practice e-learning and measure and evaluate student learning, unlike the Sri Lankan universities that have rectified this deficiency in teacher training, as short and intensive courses were prepared in the areas that suffer Of deficiency, and this is what has elevated them and their educational skills and the educational outcomes of students. .

While the Covid-19 crisis has caused challenges and anxiety that teachers, students and parents have never faced before, it could provide Japanese universities an opportunity to move forward with preparations to boost ICT and prepare for e-learning by improving the educational infrastructure and floor, and enhancing capacity building. Teachers and students, develop flexible academic policies and guidelines, and make changes in the perception of online learning.

To address digital divides and accessibility issues in Japan and Sri Lanka, and to address concerns that no learners are left behind. From this perspective, the two experiences have shown that no one technology is superior to other technologies and that the different technologies, if used purposefully and adequately, can serve well to facilitate education, such as

providing options for educational materials in print, audio and video. Learning management systems (like Moodle, Classroom, etc.), simultaneous communication and conference facilities (such as Voice Thread , Zoom, Google Meet, etc.) and for live broadcasting social networking site features (such as Facebook Live, Instagram Live, etc.) have been widely used as broadband internet was available in part.

In Japan, where the necessary infrastructure was not available, mobile phone technologies were used to communicate and provide educational content. It was generally observed that social media networks (such as Facebook, WhatsApp, etc.) were used to create communication channels between students. This note notes the importance of freely available tools and also highlights key components of learning and social interaction.

In addition to the observations centered on comparative control of instructional technology, the change in pedagogy is noteworthy in both countries because, unlike the visual impact of technology, the invisible effect of teaching aids is deeper and long-term as a result of reducing the strategic objectives of the lectures to increase the focus of Students.

In the case of Algeria, there is no doubt that e-learning was the only option to help face the challenges of the Corona crisis on the higher education community, as it is a strategic option that must be adopted in these exceptional health conditions, and its success requires the mobilization of all material means and human energies. The guidelines of the Ministry of Higher Education and Scientific Research were clear and constructive, but educational practices via the Internet still did not fulfill their purpose despite the state's efforts to increase investment in technology directed to support education, and distance education in Algeria faces many questions and fears of its failure due to students 'conditions.

Algerian universities have adopted alternative methods of education, represented in the methods of distance education and the use of various available media, so that the majority of Algerian universities have already launched e-learning platforms and register their students in the learning management system (Moodle), in addition to listening and guidance cells within Facebook pages and websites to interact and communicate with Lecturers and departments.

However, the relative newness of this experiment and the lack of all the elements of the incubating environment that are beyond the control of the Ministry, foremost among which are the difficulties associated with network communication and poor flow rates, the digital gap, connectivity, infrastructure, difficulties in students' understanding and comprehension of the lessons and lectures placed on the line imposing a pattern of marriage between education Traditional and electronic.

This type of education allowed the organization of remote lessons and the completion of the requirements of the curriculum and educational programs, thus enabling a number of pedagogical activities to be conducted in attendance, as well as carrying out evaluation work by adopting a health protocol through student delegation and respecting the rules of protection and prevention, whether at the level of higher education institutions or facilities University services.

This type of education enabled higher education institutions and the university family, foremost among which are research professors, to gain "valuable experience" and to control the pedagogical approaches associated with it, to develop its methods and tools such as educational platforms and digital platforms for network communication, and to adopt new methods in the pedagogical relationship between the professor and the student.

Lessons learned on these issues will be discussed by various stakeholders in light of the Japanese and Sri Lankan experience.

For policy makers / the Ministry of Higher Education and Scientific Research, any response strategy needs to balance the impact from various factors, because distance education is likely to deepen social injustice especially for students living in shadow areas and inequality rather than bridge the gap.

Hence the need to provide alternative options to meet the needs of underprivileged students due to the digital divide, lack of accessibility and / or inadequate infrastructure, and among these options is relying on hard copies and exploiting automated media halls devoted to universities and university residencies for study, opening municipal libraries and bringing services closer to students so that they can follow lessons.

Equally important is that these alternative or "support" measures must be kept out of sight to reduce the perceived shortfall among the beneficiaries.

To identify these students, lecturers can ask students whether or not they have a strong Wi-Fi service, check availability of required devices, and inquire about students' concerns about moving to online learning via a phone call, text message or by e-mail, especially students who are experiencing difficulties.

Following the example of the Sri Lankan experience, some measures must be launched as part of an economic and technological package to enhance education during the epidemic that contributes to placing logistical mechanisms within the reach of students by contributing to the provision of automated media and concluding an agreement with various mobile phone dealers to provide a high flow of the Internet, among which is the need to launch the Internet. Free for students, as well as TV or online courses to get students ready for future skills and encourage self-learning.

Also, the administration's provision of the necessary support for all staff, faculty and students, working with a vision for the future and using simple and methodical solutions, makes the transition to distance education less traumatic, such as providing teaching techniques to teachers remotely from other teachers who have experience teaching online or from Digital teachers.

The government needs to mobilize innovations and investments and integrate them into new business models with a strong focus on supporting youth. The promotion of open educational resources, technology exchange and investment promotion are important policy measures that can enhance this process. Educators can use this opportunity to promote, adapt, and use open educational resources in a new direction and spend more time producing quality resources for the Algerian context.

Through the presentation, reading and analysis of the experiments under study with a view to test the hypotheses, the following results were reached:

The first hypothesis that stated that: The right combination of skills and technologies is essential to the success and quality of e-learning was supported since the individual competencies and digital skills are the cornerstone of e-learning success and the inability to use technologies

effectively renders investment in solid technologies such as high-flow internet, computers, distance education, and mobile technologies ineffective. In order to achieve the desired yield, the correct and harmonious combination of these technologies is required.

The second hypothesis which stated that: Giving priority to participation and attention to students to ensure continuity and inclusion of education was supported because the global digital divide is clear, and it has caused an increase in the needs of faculty members and students and inequality in education, and this is what prevented many students from accessing the most important institution to build, develop and refine the human element, which is education. During this pandemic, there were measures to reduce the gap and achieve the required outputs, but this does not change the fact that these measures have only succeeded to some extent, especially when there is no strong political will.

The third hypothesis which stated that: Digital solutions need relevant content, appropriate educational curricula, and effective educational practices was also supported because openness in education and its auxiliaries (open educational communications, open educational sessions, open training courses, educational and electronic communication platforms, open libraries, links to databases) was a pivotal work, in addition to ignoring licensing requirements and giving priority to participation and attention to ensure the continuity of education and its inclusiveness for all learners.

Also, the fourth hypothesis which stated that: Provide a supportive educational environment for professors and students to facilitate communication and achieve the goals of distance education was supported since E-learning is likely to deepen the gap, social injustice and inequality in a single society rather than reduce it. From here it is evident that there is no single solution that works equally and effectively for all individuals and classes. As a result, comes the need to provide alternative educational packages and various digital options to meet the needs of underprivileged students due to the digital divide, difficulty of access, and / or lack of infrastructure.

5. Conclusion

There is no doubt that this pandemic necessitated the higher education community to adopt innovative methods and strategies that would support

the employment and investment of modern technology and the shift towards digital learning, that system that has proven its worth and importance despite the presence of some challenges. this pandemic imposes on the various higher education departments to refine and enhance the skills and capabilities of the academic and administrative staff in the field and support their capabilities towards employment Modern technology and the shift towards digital learning in the current and future period, in addition to providing the means to enhance the knowledge, skill and technical level of students and provide them with values to bear the responsibility of their learning with Direct support from their professors.

Online education (and emergency remote teaching) has been readily promoted as an alternative to physical classes in times of crisis. Still, while emergency remote teaching is a temporary solution that might not provide the students with the same quality instruction of a well-designed online course, it is a more feasible alternative than class cancellation. The effects of the shift to online instruction have not yet been studied enough, but it is expected that, due to lack of preparation and experience, the quality would be lower compared to face-to-face instruction. Universities should therefore consider adopting more robust long-term disaster preparedness solutions to comply with the quality standards promised to their students.

- Recommendations

- Maintaining the education spending share as a top priority and addressing deficiencies;
- Building artificial intelligence and integrated and flexible electronic educational systems to adopt a sustainable electronic system through:
- Highly automated infrastructure that enables countries to institute structural transformations in education patterns, and to equip it to better deal with future crises;
- Enhancing risk management programs and capabilities at all levels of the system while developing decision-making, consultation and communication mechanisms;
- Restructuring the education process. The following points of intervention could be at the forefront of the effort:
- Addressing abandonment of learning, preventing dropout, and targeting marginalized groups;
- Developing the necessary skills and training the student and teacher;

- Reviewing courses and designing examinations in line with the electronic environment;
- Expanding the definition of the right to education to include connectivity and hybrid education;
- Creativity in the educational process to ensure the attractiveness and quality of e-learning.

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