The Effectiveness of Online Teaching and Learning During Covid-19 Pandemic: Teacher's/ Learner's Perspective at Western Philippines University

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ABSTRACT

The whole educational system from elementary to tertiary level has been collapsed during the lockdown period of the novel coronavirus disease 2019 (COVID-19) not only in the Philippines but across the globe. This study is a portrayal of online teaching-learning modes used in Master in Education and Management at Western Philippines University for the teaching-learning process. This study was conducted to determine the effectiveness of online teaching learning among teachers/learners of Western Philippines University taking Master in Education. Specifically, it sought to answer the following questions: (1) what are the various forms of online teaching-learning mode adopted during Covid-19 pandemic? (2) What are the perceptions of teachers/learners on online teaching-learning during Covid-19 pandemic? (3) What are the challenges faced by the teachers/learners in adapting the online teaching-learning process during Covid-19 pandemic? The descriptive method of research was used in this study. The questionnaire composed of two parts was administered to the 41 respondents of which 7 are males and 34 females. Based on the following findings, the perceptions of teachers/learners was based on their experiences during online teaching-learning modes: first, it's difficult to get an immediate feedback on what was being taught, second, lack of direct contact with learners, third, possible distractions from other family during online lectures may occur, fourth, they prefer to have a training on conducting online lectures, and fifth, poor internet connection is their major problem they've encountered. From the conclusion of the study, the recommendations are proposed: (1) the governments must ensure the availability of reliable communication tools, high quality digital academic experience, and promote technology enabled learning for teachers and learners to bridge the disparities originated in the education system before and after COVID-19 catastrophe which is also inevitably necessitated for uninterrupted learning. (2) Few steps should be accounted in the wake of this pandemic; to develop such a curriculum that reflects the perceptible change in the content knowledge and learning experience of teachers/learners as well as enable them to think critically, (3) Teachers/learners must attend different trainings about computer or Information Technology for them to have enough knowledge on how to use and manage it, (4) Different telecommunications companies, like; Smart, Globe, Talk and Text, Sun and many more must provide a good services to their consumers for them to have a good access into internet, and (5) Teachers/learners must have a huge patience, determination and perseverance to conquer those challenges faced during online teaching and learning modes. The value of this paper is to draw a holistic picture of on-going online teaching-learning activities during the pandemic period including establishing the linkage between change management process and online teaching-learning process in education system amid the COVID-19 outbreak so as to overcome the persisting academic disturbance and consequently ensure the resumption of educational activities and discourses as a normal course of procedure in the education system.

Background

The COVID-19 is a highly infectious disease or illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), originated in Wuhan City of China, has already taken on pandemic proportions, affecting across all the continents (Remuzzi and Remuzzi, 2020), mostly spread among individuals during close contact now resulting in millions of deaths. COVID-19 is referred as pandemic due to its severity and fierceness also as the greatest global health crisis since after centuries in human civilization. One of the most preferred ways to subdue the effect of this crisis is enact the COVID-19 containment measures in their respective territories (De Brouwerl, Raimondi and Moreau, 2020). Nowadays lockdown is a common buzzword that has been mulled over by the people during corona pandemic. In fact, lockdown is a state of the emergency protocol implemented by the competent authorities (in this case it is central and state government) to restrict people from leaving their place of living resulting in mass quarantines and stay-at-home across the world since March 2020.

The study described and explored the effectiveness of online teaching and learning during COVID-19 pandemic teacher's/learner's perspective. This study was beneficial for the department of education as it highlights the relevance of research in addressing the effectiveness of online teaching among the teachers/learners taking Master in Education and Management at Western Philippines University during First Semester School Year 2020-2021.

Literature Review

Online Learning or E-Learning Rapid. Developments in technology have made distance education easy (McBrien et al., 2009). "Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-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" (Cojocariu et al., 2014). Online learning can be termed as a tool that can make the teaching–learning process more student-centered, more innovative, and even more flexible. Online 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" (Singh & Thurman, 2019). 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 classes; it is available at different learning systems and forums. Instant feedback and immediate response are not possible under such an environment (Littlefield, 2018). Synchronous learning can provide a lot of opportunities for social interaction (McBrien et al., 2009). Amidst this deadly virus spread such online platforms are needed where (a) video conferencing with at least 40 to 50 students is possible, (b) discussions with students can be done to keep classes organic, (c) internet connections are good, (d) lectures are accessible in mobile phones also and not just laptops, (e) possibility of watching already recorded lectures, and (f) instant feedback from students can be achieved and assignments can be taken (Basilaia et al., 2020).

Online Teaching Is No More an Option, It Is a Necessity. The major part of the world is on quarantine due to the serious outbreak of this global pandemic Covid-19 and therefore many cities have turned into phantom cities and its effects can be seen in schools, colleges, and universities too. Betwixt all this online teaching and online learning can be termed as the panacea for the crisis. The Corona Virus has made institutions to go from offline mode to online mode of pedagogy. This crisis will make the institutions, which were earlier reluctant to change, to accept modern technology. This

catastrophe will show us the lucrative side of online teaching and learning. With the help of online teaching modes, we can sermonize a large number of students at any time and in any part of the world. All institutions must scramble different options of online pedagogical approaches and try to use technology more aptly. Many universities around the world have fully digitalized their operations understanding the dire need of this current situation. Online learning is emerging as a victor ludorum amidst this chaos. Therefore, the quality enhancement of online teaching–learning is crucial at this stage. Online education in Chinese universities has increased exponentially after the Covid-19 outbreak. There was an overnight shift of normal classrooms into e-classrooms, that is, educators have shifted their entire pedagogical approach to tackle new market conditions and adapt to the changing situations. During this tough time, the concern is not about whether online teaching–learning methods can provide quality education; it is rather how academic institutions will be able to adopt online learning in such a massive manner (Carey, 2020). Resistance to change will not help any educational unit across the world. They will be judged on their pace to adapt to the changes in such a short period and their ability to maintain the quality. The reputation of educational units is on stake and under scrutiny. How well they behave and how well they maintain their quality of education amidst this crisis shows their adapting capabilities. The shift from face-to-face lectures to online classes is the only possible solution. Indeed, academic institutions would not be able to transform all of their college curricula into and online resource overnight. Distance, scale, and personalized teaching and learning are the three biggest challenges for online teaching. Innovative solutions by institutions can only help us deal with this pandemic (Liguori & Winkler, 2020). There is a requirement of a quick shift to online learning mode; therefore, the products by Google can be really useful under such problematic situations; they are (a) Gmail, (b) Google Forms,(c) Calendars, (d) G-Drive, (e) Google Hangouts, (f) Google Jam board and Drawings, (g) Google Classroom, and (h) Open Board Software (not a Google product, helps in recording meetings in the form of files). These tools can successfully be used as an alternative for face-to-face classes (Basilaia et al., 2020).

Problems Associated With Online Teaching and Learning

There are *n* numbers of technologies available for online education but sometimes they create a lot of difficulties. These difficulties and problems associated with modern technology range from downloading errors, issues with installation, login problems, problems with audio and video, and so on. Sometimes student finds online teaching to be boring and un engaging. Online learning has so much of time and flexibility that students never find time to do it. Personal attention is also a huge issue facing online learning. Students want two-way interaction which sometimes gets difficult to implement. The learning process cannot reach its full potential until students practice what they learn. Sometimes, online content is all theoretical and does not let students practice and learn effectively. Mediocre course content is also a major issue. Students feel that lack of community, technical problems, and difficulties in understanding instructional goals are the major barriers for online learning (Song et al., 2004). 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 (Parkes et al., 2014).

Possible Solutions for Problems

A lot of issues are attached to online education but we cannot ignore the perks of it in times of such crisis. We can always have solutions to fix these difficulties. Technical difficulties can be solved through prerecording video lectures, testing the content, and always keeping Plan B ready so that the teaching–learning process cannot be hampered. Online courses should be

made dynamic, interesting, and interactive. Teachers should set time limits and reminders for students to make them alert and attentive. Efforts should be made to humanize the learning process to the best extent possible. Personal attention should be provided to students so that they can easily adapt to this learning environment. 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. The quality of the courses should be improved continuously and teachers must try to give their best. Online programs should be designed in such a way that they are creative, interactive, relevant, student-centered, and group-based (Partlow & Gibbs, 2003). Educators must spend a lot of time in making effective strategies for giving online instructions. Effective online instructions facilitate feedback from learners, make learners ask questions, and broaden the learner horizon for the course content (Keeton, 2004).

Institutions must focus on pedagogical issues and emphasize collaborative learning, case learning, and project-based learning through online instructions (Kim & Bonk, 2006). The challenge to educational institutions is not only finding new technology and using it but also reimagining its education, thereby helping students and academic staff who are seeking guidance for digital literacy.

Challenges

Online learning faces many challenges ranging from learners' issues, educators' issues, and content issues. It is a challenge for institutions to engage students and make them participate in the teaching–learning process. It is a challenge for teachers to move from offline mode to online mode, changing their teaching methodologies, and managing their time. It is challenging to develop content which not only covers the curriculum but also engage the students (Kebritchi et al., 2017). The quality of e-learning programs is a real challenge. There

is no clear stipulation by the government in their educational policies about e-learning programs. There is a lack of standards for quality, quality control, development of e-resources, and e-content delivery. This problem needs to be tackled immediately so that everyone can enjoy the benefits of quality education via e-learning (Cojocariu et al., 2014). One should not merely focus on the pros attached to the adoption of online learning during the crises but should also take account of developing and enhancing the quality of virtual courses delivered in such emergencies (Affouneh et al., 2020). A lot of time and cost is involved in e-learning. It is not as easy as it seems, a considerable amount of investment is needed for getting the devices and equipment, maintaining the equipment, training the human resources, and developing the online content. Therefore, an effective and efficient educational system needs to be developed to impart education via online mode. Ensuring digital equity is crucial in this tough time. Not all the teachers and students have access to all digital devices, internet, and Wi-Fi. Unavailability of proper digital tools, no internet connections, or iffy Wi-Fi connections can cause a lot of trouble due to which many students might lose out learning opportunities. Efforts should be taken by institutions to ensure that every student and faculty is having access to the required resources. They must also ensure that all the educational apps work on mobile phones as well, in case students do not have laptops. Therefore, steps must be taken to reduce the digital divide. Practice makes a man perfect is a famous and very true proverb. Students and teachers across various universities have never really practiced e-learning. Most of them are complacent and are stuck with traditional modes of teaching.

Objectives

This research study seeks to find out the effectiveness of online teaching and learning during COVID-19 pandemic teacher's/learner's perspective. Specifically, it seeks to answer the following: (1) what are the various forms of online teaching-learning mode adopted during COVID-19 pandemic? (2) What are the

perceptions of teachers / learners on online teaching-learning during COVID-19 pandemic? And (3) what are the challenges faced by the teachers/learners in adapting the online teaching-learning process during COVID-19 pandemic?

Methodology

The researcher used quantitative methodologies to study the perceptions of learners based on the online teaching-learning process in teachers/learners during the pandemic period. This study was delimited to teachers/learners of Western Philippines University taking Master in Education and Management during First Semester School Year 2020-2021.

Sampling. The participants for the study were chosen using purposive sampling. The inclusion criteria were: (1) teachers/learners of Western Philippines University taking Master in Education and Management during

Table 1. Represents the data of teachers/learners with their gender, teaching category, and affiliation

Gender	Frequency	Percentage
Male	7	17.07
Female	34	82.93
Teaching Affiliation		
School	29	70.73
Undergraduate	6	14.63
Post graduate	6	14.63
Affiliation		
Public	40	97.56
Private	1	2.44

All teachers/learners of Western Philippines University taking Master in Education and Management during First Semester School Year-2021 were the population of the study. There were 82.93% for female and 17.1% for male.

70.7% were teaching from school, 14.63% were teaching from post graduate and undergraduate as well. In terms of their affiliation, 97.56% were teaching in public

First Semester School Year 2020-2021, and (2) male or female.

Instrumentation.

The research study gathered data through the use of Google form survey. Before the researcher conducted each survey, she performed the following: (1) give sign of appreciation for the time and willingness to be part of the research study, (2) reminds the participants about the agreement, (3) explains that the survey is for the study purposes, and (3) give at least 5-day time the respondents to answer the questionnaires.

Data Analysis. Data analysis were analysed by using descriptive method to distribute the perspective in online teaching and learning of teachers/learners. The study used the following rating scale: 5- strongly agree, 4- agree, 3- neither agree nor disagree, 2- disagree, 1 - strongly disagree.

Results and Key Findings

schools and 2. 44% were teaching in private school.

Findings related to Objective one

To get the findings of objective one, researcher conducted a survey study in which percentage analyses had been done to reveal the different types of online teaching-learning modes adopted by the teachers/learners during the pandemic period.

Table 2: Figure showing different modes of online teaching used by the teachers/learners.

Which tools are used in online Teaching	Frequency	Percentage
Google Classroom	33	80.49
Modular	2	4.88
Zoom	2	4.88
Google Meet	4	9.76

2 portrays the details of the varied modes of online teaching-learning being used by the teachers/learners during the pandemic period of COVID-19 outbreak. Western Philippines University has decided to use the different Online Learning Apps or Modes of Teaching in the wake of the suspension of the formal teaching-learning process due to the imposed (MGCQ) Modified General Community Quarantine by the government in the Philippines. All the teachers/learners must know how to use the different Apps or Modes of Teaching since, it was one of the most popular means of digital education among teachers almost all the teachers/learners used this but slightly down the percentage of some teachers/learners' side due to the accessibility reason of internet connectivity. Interestingly, despite having a variety of digital modes of teaching-learning, almost all the teachers/learners were using Google Classroom and Google meet for educational interactions, submission of assignments, and clarification of doubts. There were 80.49 % of teachers/learners using Google classroom and 9.76 % teachers using Google meet, 4.48 % were using Zoom for taking online classes.

Findings related to Objective two

INDICATOR	5(Strongly Agree)		4 (Agree)		3 (Undecided)		2(Disagree)		1 (Strongly Disagree)	
PERCEPTIONS	F	%	F	%	F	%	F	%	F	%
1. You have sufficient computer knowledge and IT skills to conduct your online lectures	5	12.2	6	14.6	29	70.7	1	2.4		0
2. Do you prefer to have a training on conducting online lectures	23	56.1	17	41.5	1	2.4		0.0		0
3. Do you prefer to have training/guideline on preparation of online lectures materials	26	63.4	13	31.7	2	4.9		0.0		0
4. During online sessions, give proper breaks so that the learners will have time to think about the topic and frame their questions as doubts	22	53.7	17	41.5	2	4.9		0.0		0
5. Flexible hours of conducting online lectures	18	43.9	20	48.8	3	7.3		0.0		0

6. Gained experience of conducting online lectures	11	26.8	25	61.0	4	9.8	1	2.4		0
7. Online lectures are effective than traditional/live classroom lectures	1	2.4	11	26.8	17	41.5	10	24.4	2	4.9
8. Lack of direct contact with learners	26	63.4	15	36.6		0.0		0.0		0
9. Learners are motivated during online lectures	2	4.9	10	24.4	29	70.7		0.0		0
10. Happy about the student-teacher interaction during online teaching and learning	3	7.3	15	36.6	23	56.1				0
11. Learners ask questions or clear doubts during online class	5	12.2	25	61.0	7	17.1	4	9.8		0
12. Difficulties of conducting practical sessions	8	19.5	25	61.0	8	19.5	0	0.0		0
13. Difficulties of teaching some subjects (e.g. mathematics)	12	29.3	22	53.7	7	17.1	0	0.0		0
14. It is better to keep your class short or a series of short sessions	9	22.0	27	65.9	4	9.8	1	2.4		0
15. It may be difficult to get an immediate feedback on what was being taught	24	58.5	17	41.5	0	0.0	0	0.0		0
16. Online environment simply takes more time than face-to-face class to effectively accomplish	7	17.1	27	65.9	4	9.8	3	7.3		0
17. Home environment is	5	12.2	22	53.7	8	19.5	6	14.6		0

suitable for conducting online lectures									
18. Possibility or distractions from other family during online lectures	23	56.1	14	34.1	3	7.3	1	2.4	0
19. Do you like to conduct online lectures with conventional lectures after the COVID-19 Pandemic?	3	7.3	19	46.3	10	24.4	6	14.6	3	7.3

To get the findings of objective two, i.e. to study the perceptions of teachers/learners on online teaching-learning during COVID-19 pandemic, the content analysis of the questionnaire on the perception of teachers/learners over online teaching-learning has been done. The University has a clear vision about implementing the online teaching-learning and thus encouraged teachers and leaners to do the needful in this regard. The WPU, CHED and DEpEd substantially made the righteous decision at the right time for inclusion of all the teachers/learners in online teaching-learning mode that depends upon the change of mind set for the organisational authorities along with the educators to adapt to the technology-based teaching. Excellent domain knowledge, proficient computer knowledge, communication skills, clarity of expression, emotionally connect with the students and other necessary skills to deal with the demands of the online platforms and the ability to resolve small issues during and after the online classes are found as online teaching skills and techniques needed to teach through online mode in this pandemic. Virtual classroom experience, patience, empathy, care for students, excellent presentation skill with addressing to the point of a given topic, proper handling of teaching-learning tools available with user-friendly features were the additional skills found to manage online teaching process.

Table 3 shows the perspective of teachers/learners in online teaching mode. The table shows majority of the respondents strongly agreed on the statement numbers 2, 3, 8, 15, and 18, as stated, "Do you prefer to have training on conducting online lectures," "Do you prefer to have training/guideline on preparation of online lectures materials," "Lack of direct contact with learners," "It may be difficult to get an immediate feedback on what was being taught", "Possibility or distractions from other family during online lectures." It is a very challenging task to accept the change, and it will take time from both sides to acquaint with new changes. With these perspectives it was found that patients on the part of all the teachers/learners would go a long way in managing the transition. Further, consequently, when the maximum data limit used by the teachers/learners, they felt helpless to continue online classes. "Google Classroom is the simplest and appropriate way to chat with teachers," as responded by several teachers/learners with the condition of functional internet connectivity. Respondents responded half-heartedly on the pace of online teaching done by the teachers and also get contented with the academic readiness regarding online teaching of the teachers. Teachers/learners responded negatively on the understanding of online classes to sufficiently understand the conceptual knowledge and discourse activities; they further exposed that

they were not able to maintain the pace of their learning behaviour or capacity with the teachers' teaching speed. Expansion of ICT facilities is to be promoted practically to make this kind of situation a better handle. The most crucial teaching skill that needs to be developed is making learning personalized experience for the teachers/learners even when it is happening online as narrated by some of the respondents.

Findings of the Objective three

To get the findings of objective three i.e., to examine the challenges faced by the teachers/learners in adapting to online teaching-learning process during COVID-19 pandemic, teachers/learner's responses on online teaching-learning were collected through Google survey form. It was found that most of the teachers/learners somehow encountered with similar kinds of challenges and issues. The major challenge while teaching and listening online was the unstable network connection. If the videos and audios of the teachers/learners were kept off, the connection remains more stable, but that mode of teaching seems to teach to a blank wall. Moreover, it was perceived that some of the learners had not essential resources to join online; there it appeared like pushing the digital divide further. So, the difficulties with online teaching were both technical and ideological. Most of the challenges were related to the teachers/learners and their responses to the needs of online teaching, which include uninterrupted electricity connection, intermittent signal issues. Among others, level of understanding, lack of scope for meaningful interaction, the range for innovative teaching, and mechanical conduct of classes were the significant challenges reported by teachers. It was found that teachers/learners were unable to read the face and mood of their teachers and classmates, and thus difficult to change the teaching pattern. Besides, a lack of motivation as immediate feedback was not possible in this online teaching-learning transition phase perceived by both teachers/learners.

Discussion

This paper intended to study the perception of teachers/learners on the online teaching/learning process during the COVID-19 pandemic. While keeping the theoretical lens at the base the research provides varied perspectives on the challenges facing online teaching/learning today. The mixed-methods study examined perceptions of teachers/learners keeping at Western Philippines University in context. New insights come to the forefront while understanding teachers/learners' perceptions about the new trend. The same readiness was shown by the Chinese government under the policy of "Suspending Classes without Stopping Learning" to continue standard online teaching/learning activities during the period of COVID-19 situation of uncertainty (Zhang, Wang, Yang, & Wang, 2020). University's preparedness was geared up in respect of techno-academic blending to a greater extent. Learners faced specific problems like connectivity and video issues due to the remoteness of their location and could not compromise the quantum of time required for machine learning. Again, several available online teaching-learning tools like Zoom, Google Meet, Messenger and Google Classroom streaming available for teachers/learners were put to need based use. Some of the teachers/learners were asked guidance to the experts on how to use those tools on online teaching. It was found out that some of them have a little knowledge in computer and IT. Therefore, majority of the teachers/learners are willing to attend a training/guideline about online lectures, and to conduct online lectures with conventional lectures after COVID-19-pandemic. Aside from slow internet connectivity they've encountered, they also found out that it's difficult to do a practical session, to teach some subjects (e.g., mathematics), to get immediate feedback on what was being taught, distracted from other family during online lectures, and lack of direct contact with learners. Some of them, couldn't decide it yet if online lectures are effective than

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traditional classroom lectures, and if the learners are motivated during online lectures since they could not see each other. It also revealed that during online session's teachers give proper breaks so that the learners could think about the topic and frame their questions as doubts. Teachers/learners also believed that in online teaching must have a flexible hour of conducting online lectures. It was found out that majority of the respondents agreed that online environment simply takes time than face-to-face class, gained experience of conducting online lectures, and home environment is suitable for conducting online lectures. Due to poor internet connectivity, respondents agreed that it is better to keep your class short or a series of short sessions. The differences between online and face-to-face mode of teaching could be deliberated during the lectures. It was an arduous task for them to use new instructional strategy. At the very onset of the pandemic, teachers/learners intended to use Google Classroom and Messenger used in conversation for imparting teaching and learning. But gradually, as the pandemic period went on being extended from time to time, Google Classroom, E-mail, and telephonic conversation proved inadequate. In due course, other online platforms were explored. Teachers/learners started installing online learning platforms such as Zoom, Google meets, Google Classroom, and many more to widen their academic exposure and understanding. While the change was underway, yet the majority of the teaching teachers/learners were still found themselves using Google Classroom as a mode of online curriculum transaction. The reason attributed was simple; teachers were accustomed to using Google Classroom and Google meet in day to day life and also suitable anytime for learners as well.

Conclusion:

Based on the findings, the following conclusions are drawn: Google Classroom is the most used online teaching learning mode in Master in Education and Management at Western Philippines University. Majority of them agreed the following: (1) they prefer to have training on conducting online lectures, (2) there's a lack of direct contact with learners, (3)

Possibility or distractions from other family during online lectures (4) it's difficult to get an immediate feedback on what was being taught, and (5) poor internet connection. On the other hand, majority of the respondents were still undecided if they were have sufficient knowledge and IT skills to conduct online lectures. That's why they were strongly agreed to attend training on conducting online lectures for them to apply it in their teaching to their students. Liberalization, Privatization and Globalization of education has been deteriorated remarkably due to limited mobility and limitedly confined exchange programmes of academic activities among the countries during the COVID-19 pandemic. The third world countries are facing policy paralysis in handling the sudden shifting scenario of educational planning, management and organization during this pandemic with their fractured technical infrastructure, academic incompetency and lack of resources; especially among them, low and middle-income countries would suffer the setbacks most as they were already running out of finance (Thomas, 2020). But noticeably everyone must learn to live and survive with the present crisis as it is the beginning only; in the long run, no can afford the negligence towards digital transformation in Education.

Recommendations

From the conclusion of the study, the following recommendations are proposed. (1) The governments must ensure the availability of reliable communication tools, high quality digital academic experience, and promote technology enabled learning for teachers and learners to bridge the disparities originated in the education system before and after COVID-19 catastrophe which is also inevitably necessitated for uninterrupted learning. (2) Few steps should be accounted in the wake of

this pandemic; to develop such a curriculum that reflects the perceptible change in the content knowledge and learning experience of teachers/learners as well as enable them to think critically, (3) Teachers/learners must attend different trainings about computer or Information Technology for them to have enough knowledge on how to use and manage it, (4) Different telecommunications companies, like; Smart, Globe, Talk and Text, Sun and many more must provide a good services to their consumers for them to have a good access in terms internet connection, and (5) Teachers/learners must have a huge patience, determination and perseverance to conquer those challenges faced during online teaching and learning modes. Natural disasters can stimulate our motivation for the adoption of highly innovative communication technology and e-learning tools (Tull et al., 2017). To make e-learning effective in such difficult times, we need to focus on the use of technology more efficiently, that is, the usage of that technology which has minimum procurement and maintenance costs but can effectively facilitate educational processes. Before bringing in and adopting any e-learning tool or technology, its pros and cons need to be weighed. Institutions should conduct plenty of research when bringing the right technology for different educational initiatives. There should be proper clarity on the purpose and context of technology adoption.

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