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EMERGENCY REMOTE TEACHING DURING COVID-19 PANDEMIC AND UNDERGRADUATES' LEARNING EFFECTIVENESS AT THE UNIVERSITY OF IBADAN, NIGERIA

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Abstract

The study investigated the influence of Emergency Remote Teaching (ERT) components (Zoom, Google Meet, Telegram forum, and LMS) on undergraduates' learning effectiveness at the University of Ibadan. The descriptive survey research design was adopted and the population comprised 100 to 400 level students - with a sample size of 200 students who were randomly selected from the Faculties of Arts, Education and the Social Sciences. A 30- item questionnaire titled "Influence of ERT on Students' Learning Effectiveness (IERTSLE)" was developed and validated by experts, and its reliability coefficient was 0.81 with the use of Cronbach alpha. Data were analyzed using descriptive and inferential statistics of frequency counts, simple percentages, analysis of variance (ANOVA), mean and standard deviation analysis at 0.05 level of significance. The findings of the study revealed that the ERT components (Zoom, Google Meet, Telegram Forum, and LMS) significantly influenced students' Learning Effectiveness ($F_{(4, 174)} = 6.512$; $R^2 = 0.13$), and jointly accounted for 11.0% of its variance. Based on these findings, it was recommended that the Management of the University of Ibadan embark on full integration of online educational platforms to cater to both lecturers' and students' progressive skills and technical knowledge acquisition to help sustain them for the 21st century digital teaching and learning procedures. The study recommended that seminars, workshops, and other relevant

programmes should be put in place to help improve students' and lecturers' adaptation to ERT teaching and learning in the institution.

Keywords: Emergency Remote Teaching, Learning Effectiveness, Undergraduates, Covid-19 Pandemic

Introduction

Historically, teaching and learning in higher education settings has been predominantly face-to-face. However, other modes that are suitable for distance learning have developed simultaneously, including education by postal correspondence, radio and television, as found in the United Kingdom's Open University. More recently, lives and education have further shifted as our world has become more digital (Bearman, Dawson, Ajjawi, Tai and Boud, 2020). It is common practice for many to turn to Google or YouTube to search for information or learn a skill (Bhatt and MacKenzie, 2019). Unsurprisingly, formal learning is also being increasingly positioned online. Selwyn (2016) noted that "the confluence of technology and education is complicated, contradictory and messy." This is reflected in current times during which the pandemic has compelled some people to accelerate the transition of education to fully remote teaching and learning. In areas like Australia and New Zealand however, online and remote education has begun since around 1922 (White, 1982; Bewley, 1996; Seelig, Cadwallader, and Standring, 2019).

The COVID-19 pandemic began in 2020 and led to a global lockdown of schools and learning institutions, affecting hundreds of millions of students. Although, the disease did not critically affect the health of children, it played an essential role in the transmission of the virus (European Centre for Disease Prevention and Control, 2020). Therefore, closure of schools was considered to be an important and preventive measure to reduce the transmission of COVID-19 (Abdulamir and Hafidh, 2020). Due to this, there was a shift in delivery method of education as teachers and facilitators began to engage students in online learning; teachers enjoyed technological access and parental support, thus, they worked towards their academic goals. Emergency Remote Teaching (ERT) was therefore conceived of as a response to the emerging crisis of COVID-19; this mode of teaching is different from pre-planned online learning. This is because "ERT offers rapidly

developed, temporary instructional support in a crisis" (Hodges, Moore, Lockee, Trust, and Bond, 2020) without the availability of pre-planned structures and resources. The World Health Organization (WHO) has warned that COVID-19 is likely to haunt the world for a long time and that the planet will only return to normalcy when a viral strain vaccine has been discovered. Currently, there are currently ten candidates' vaccines in clinical trials worldwide and 126 candidate vaccines in pre-clinical trials (World Health Organization, 2020).

With the sudden closure of schools, classes at all levels moved from traditional (physical) to distance learning mediums. Schools and teachers have made efforts to design and deliver online courses through the Internet or television broadcasts. "Approximately, 200 country-wide school closures, due to COVID-19, affected more than 1.5 billion learners of all ages" (UNESCO, 2020; UNICEF, 2020). Whenever education is being delivered online only, the teaching and learning environment as well as the educational interactions have to undergo various structural changes, including knowledge construction and socialization. It is safe to say that under usual circumstances, online education creates location and time flexibility for learning and teaching. Thus, the COVID-19 pandemic prompted an emergency transition from traditional to distance learning at all levels of education -- this is called Emergency Remote Teaching (Hodges, Moore, Lockee, Trust, and Bond, 2020).

Emergency remote teaching (ERT) is a temporary shift of instructional delivery to an alternative delivery mode, due to critical circumstances (Hodges et al., 2020). It involves the use of fully remote teaching solutions for instruction and education that would otherwise be delivered face-to-face or as blended courses, with the expectation that teachers would return to the older model once the crisis or emergency has passed. In this context, the major goal is to provide instant access to education and training in a way that is easy to construct and to be made available during an emergency or a crisis, rather than to recreate a stable educational environment. Millman (2020) described the situation as emergency remote teaching and learning or 'pandemic pedagogy'. Emergency remote online teaching is a newly emerging approach to lesson delivery, especially during an emergency (Chinansa, 2021).

Emergency Remote Teaching (ERT) is the unplanned and sudden shift from the traditional form of education to a remote one, because of the state of emergency in different countries as a result of COVID-19 outbreak. In terms of course design and evaluation tools, this method of teaching is different from online learning before the outbreak of COVID-19 (Affouneh, Salha, and Khlaif, 2020). This means that faculty members, students, parents and educational institutions were not well prepared for the situation. Therefore, the use of emerging technologies strongly influenced the peculiar learning environment – the use of these tools on campus was either blended with physical classes or fully online (Czerkawski and Lyman, 2016). These technologies reshaped student engagement for learning through new features that enabled learners and instructors to communicate synchronously and asynchronously (Bergdahl, Nouri, Fors, and Knutsson, 2020; Khlaif and Farid, 2018). The change was unexpected and unplanned, so it caused anxiety and astonishment among students and instructors. Institutions have now decided to use evolving technologies to move to an online platform in order to provide educational services and engage students. In distance education, student participation is crucial to students' learning and fulfilment (Martin and Bolliger, 2018). Different countries have used technology in online teaching for a limited time; thus, they have responded to crises and shut down schools and universities (Czerkawski, and Lyman, 2016; Khlaif and Salha, 2020). In this transition, new technological tools were used for the first time by both learners and teachers.

While this research focused on ERT, the term "online teaching and learning" was used extensively throughout the survey because the term ERT is not commonly used in Nigeria and so would be unfamiliar to participants. Online learning is both a social and cognitive process (Conole, 2021), it is not merely a matter of information transmission via remote information technologies. Careful planning for online learning therefore includes not only identifying the content to cover, but also considering how different types of interactions will be supported and prioritized.

Consequently, development of online courses may take up to 9 months. Quite a number of scholars in the academic community have been debating the concept of learning remotely on social media, and the terminology 'Emergency Remote Teaching (ERT)' has emerged as a

common alternative term used by online education researchers and professional practitioners to clearly differentiate this form of learning from the well-known and recognized high-quality 'online education'. Some students may prefer the term "teaching" over such choices as "learning" or "instruction." Rather than debate all the details of those concepts, the term "teaching" is most suitable for the purpose of this study because of its simple definitions – "the act, practice or profession of a teacher" and "the concerted sharing of knowledge and experience".

Another reason is the fact that the first task undertaken during emergency changes in delivery mode is that of a teacher/instructor/professor. In contrast to the usual experiences that are systematically planned from the beginning and designed to be online. While Emergency remote teaching (ERT) is a temporary shift of instructional delivery to an alternative delivery mode, due to critical circumstances. This means that learning will return to the old format once the crisis or emergency has abated. The primary objective in these circumstances is not to recreate a strong educational system but to provide temporary access to instruction and instructional support in a way that is quick to set up and is reliably available during an emergency or a crisis. When we understand ERT in this manner, we can begin to separate it from "online learning."

Different countries devised various responses to the closure of schools and universities during the crisis – they implemented models such as mobile learning, radio, blended learning and other solutions that proved to be more feasible. The COVID-19 pandemic hastened the application of digital teaching and learning (Houlden and Veletsianos, 2020), although many educators did not have the necessary digital literacy skills. Furthermore, many lacked a clear vision of what was required of them (Dhawan, 2020). Thus, there was a need to quickly and efficiently set up a digital pedagogical pivot as an emergency remote teaching option (Anderson, 2020). The shift to ERT required that educational institutions take more control of the course design, development and implementation processes. With the expectation of rapid development of online teaching and learning events, and the large number of faculties in need of support, faculty development and support teams must find ways to meet the institutional need to provide instructional continuity while helping faculties develop skills to work

and teach in an online environment. As such, institutions must rethink the way instructional support units do their work, at least during a crisis.

The rapid approach necessary for ERT may diminish the quality of the courses delivered. A full course development project can take months when done properly. The need to "just get it online" is in direct contradiction to the time and effort normally dedicated to developing a course of good quality. Online courses created in this way should not be mistaken for long-term solutions, but accepted as a temporary solution to an immediate problem. Especially, concerning the degree to which the accessibility of learning materials might not be addressed during ERT.

This is one reason that universal design for learning (UDL) should be part of all discussions around teaching and learning. Principles of UDL focus on designing learning environments that are flexible, inclusive and student-centred, in order to ensure that all students can access and learn from the course materials, activities and assignments. Crick (2021) expounded that the COVID-19 pandemic was the catalyst for change in digital education. This opinion aligns with the view that COVID-19 provided opportunities for transition into a new realm of digital education, where a person's work environment is at home (Hodges et al., 2020). Although some remote learning had been going on before, the pandemic accelerated its evolution and expanded its scope, bringing about what it now as "emergency remote teaching" in the international literature (Ralston, 2020). The term 'emergency remote teaching' has been used in the context of the pandemic; thus, there is a need to conceptualize the terminology (Hodges et al., 2020).

Tertiary institutions and researchers are now increasingly learning from the experience of academics, as subsequent waves of COVID-19 are resulting in repeated lockdowns and closures. As of November 2020, there were 30 country-wide closures, which accounted for 32.7% of the total enrolled learners who were studying remotely (UNESCO, 2020). Specifically, universities are exploring educators' experiences to determine what can be done to improve the current way of teaching (Whittle, Tiwari, Yan, and Williams, 2020; König, Jäger-Biela, and Glutsch, 2020). Emergency remote teaching was a response to the pandemic. The situation was different from the well planned and properly structured traditional methods of teaching,

because it was unexpected and unprecedented for teachers, students, and parents. For the first time in world history, all students were required to take all their classes online and all teachers and lecturers were required to teach online. However, well planned online learning is a complex process where careful instructional design and development are needed to create an effective learning environment (Ergulec, 2019; Palloff and Pratt, 2013). Emergency remote teaching is a temporary teaching solution to an emergent problem. Thus, the courses that are delivered in this kind of situation should not be considered as long-term solutions.

A distinction should be made between ERT and online learning, as "the degree to which educators believe in distance education these days will play a significant role in its prosperity in a post-COVID world" (Bozkurt and Sharma, 2020). In addition, emergency remote teaching in this situation created an obligation for students, while well planned distance learning usually creates a flexible and alternative learning environment (Bozkurt and Sharma, 2020). However, just as any new concept or innovation, the shift from the concept of online learning to emergency remote teaching has brought new challenges and opportunities at social and technological levels. The discussion above on emergency remote teaching is germane to this study because it enables us to understand the relationship between emergency remote teaching and learning effectiveness.

Learning effectiveness is the holistic process by which students engage in a learning experience of high quality. It is also the result of carefully considered and highly structured learning systems which include students, educators, and educational institutions. This study is concerned with how all these are taken into consideration on emergency remote teaching platforms. Learning effectiveness is measured in whole or in part by teachers' perceptions of their students' meaningful progress. It also connotes a shift in the learning curve which could be measured in terms of performance and responsiveness of students' perceived satisfaction, as well as the attitudinal change among others.

Therefore, this study assessed the viability and success level of ERT in its contribution to students' learning effectiveness and it seeks to propose a methodology for dealing with critical situations where instructional environments can be contextually understood and

provisionally supported. In addition, the possibility of widespread school closures due to epidemics, active shooter incidents, and other events may result in an increased adoption of emergency learning environments in the future. It is on this basis that this study examined the influence of students on, and their perception of the implementation of Emergency Remote Teaching on Learning Effectiveness in University of Ibadan, Nigeria, during the COVID-19 pandemic.

Statement of the Problem

Emergency Remote Teaching is an abrupt transition to online learning or distance learning as a response to the COVID-19 pandemic. It is unlike the usual online learning which is originally organized and designed in online format. All institutions of learning in various countries adopted this mode of delivery to meet educational needs of learners during the pandemic. The shift from physical to online learning has brought new challenges and shortcomings, and has ultimately influenced learners' learning effectiveness. Also, facilitators had issues converting paper-based instructional materials into digital forms that can be assessed on various technological devices and platforms, while most students complained about facing issues such as poor network coverage to attend virtual classes among others.

It is on this basis, that this study evaluated and assessed how effective and efficient this transition has been on the learning of undergraduates in the University of Ibadan. It should be noted that any new system must have its challenges and for this reason an in-depth study is required to understand what this new response system is, how well it has served the educational system and how it has contributed to students' learning effectiveness in the institution.

Objectives of the Study

The objectives of this study are to:
  i. determine the extent to which ERT components (LMS, Google Meet, Telegram Forum and
  ii. Zoom) influence undergraduates' learning effectiveness in the institution, and
  iii. ascertain the perception of the students on the implementation of ERT in the institution.

Research Questions

　　i.　How did the ERT components (Zoom, Google Meet, Telegram forum and LMS) influence students' learning effectiveness in the institution?

　　ii.　What is the perception of students on the implementation of the ERT components (Zoom, Google Meet, Telegram forum and LMS) in relation to their learning effectiveness?

Methodology

The expost-facto research design of descriptive survey was adopted for this study. The population of this study consisted of 100 to 400 level students from the Faculties of Arts, Education and the Social Sciences. Simple random sampling technique was used to select sixty (60) students from each faculty to participate in the survey. Thus, a total of 180 respondents were selected for the study. A 30-item questionnaire, titled: 'Influence of ERT on Students' Learning Effectiveness (IERTSLE)' was used as an instrument for data collection. The instrument was divided into two – parts A and B. Part A was used to collect respondents' personal information, while Part B was used to collect data on the variables under study. A 4-point Likert format with the following options: Strongly Agree (SA) = 4, Agree (A) = 3, Strongly Disagree (SD) = 2, Disagree (D)= 1 was adopted. After face and content validation, the questionnaire reliability coefficient (r) was calculated at 0.81 using Cronbach alpha. Descriptive and inferential statistics of frequency counts, simple percentages, mean, standard deviation and multiple regression at 0.05 level of significance were used to analyse the data collected.

Answers to Research Questions

Research Question 1: How did the ERT components (Zoom, Google Meet, Telegram forum and LMS) influence students' learning effectiveness in the institution?

Table 1: Multiple Regression Analysis on Interpersonal relationship

Multiple R= .361 Multiple R^2= .130 Multiple R^2 (adjusted) = .110 Standard error of estimate= .51562

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	792.443	4	198.111	6.512	0.000
Residual	5293.434	174	30.422		

Table 1 presented results on the joint influence of ERT components (Zoom, Google Meet, Telegram forum and LMS) on learning effectiveness. The table showed that the multiple regression correlation coefficient (R) showing the linear relationship between the Independent variables and the dependent variable is 0.361; the multiple R^2 is 0.130 and the adjusted R^2 is 0.110. This means that the independent variables (Zoom, Google Meet, Telegram forum and LMS) contributed to 13.0% of the variations in the dependent variable; this variation is statistically significant at $P < 0.01$. Further, table on 2b, the analysis of variance of the multiple regression data produced an F-ratio of $F_{(4, 174)}$ = 6.512 which was significant at $P<.01$. This multiple regression analysis of the data proved that the multiple regression correlation coefficient (R) shows the linear relationship between the ERT components (Zoom, Google Meet, Telegram Forum and LMS) and the dependent variable (Learning Effectiveness). The joint contribution of the independent variables to the variation in the dependent variable (13.0%) was significant. Also, the result means that other variables not included in this model may have accounted for the remaining variance.

Research Question 2: What is the perception of students on the implementation of ERT in the institution?

Table 2: Descriptive Analysis of students' perception of the implementation of ERT in the institution N= 180

S/N	ITEMS	SA	A	D	SD	Mean	SD
1	The institution made the ERT easier by developing adequate partnerships with telecommunication companies regarding internet connection, data packages etc.	17 9.5%	54 30.2%	66 36.9%	42 23.5%	2.26	.93
2	The use of ERT did not align with strong network connectivity in my place of residence	12 6.7%	38 21.2%	89 49.7%	40 22.3%	2.12	.83
3	I prefer the conventional learning platform to ERT	12 6.7%	32 17.9%	84 46.9%	51 28.5%	2.03	.86
4	I learnt more and benefitted immensely from the ERT	12 6.7%	56 31.3%	83 46.4%	28 15.6%	2.29	.81
5	Prior complete reliance on the conventional face-to-face delivery method made the transition to ERT difficult	8 4.5%	26 14.5%	90 50.3%	55 30.7%	1.93	.79
6	I was well prepared for the deployment of UI ERT	12 6.7%	56 31.3%	74 41.3%	37 20.7%	2.24	.86

Mean Criterion= 2.00

Table 2 above showed the perception of UI undergraduate students on the degree of implementation of ERT components for learning effectiveness, with a Criterion Mean of 2.00. It showed that the respondents would be willing to participate in ERT in the future if the need arises again ($\bar{x}$ = 2.80). Also, the respondents, agreed that it was easy for them to download the materials uploaded onto the LMS component of ERT platforms by the institution ($\bar{x}$ = 2.79). They also

agreed that during their use of LMS within the ERT, they were able to participate in written their tests, submit assignments and participate in virtual classroom activities without difficulties ($\bar{x}$ = 2.44). The students also agreed that the institution's deployment of the LMS component of the ERT improved their ICT literacy level during teaching exercises ($\bar{x}$ = 2.25). Further, they agreed that they learnt more and benefitted immensely from the ERT ($\bar{x}$ = 2.29).

However, the respondents stated that complete reliance on the conventional face-to-face delivery method made the transition to ERT difficult ($\bar{x}$ = 1.9). In conclusion, it showed that respondents agreed more that the ERT components are highly significant and could be conveniently integrated into learning, the highest mean that indicated this was 2.82. Also, the response analysis to this item revealed that the respondents had a significant positive perception of the implementation of the ERT components as just one item scored lower than the criterion mean.

Discussion of findings
Research question one stated that "how did the ERT components (Zoom, Google Meet, Telegram forum and LMS) influence students' learning effectiveness in the institution?" Findings showed that the four components jointly contributed to the prediction of students' learning effectiveness in the institution. That is, all the components accounted for 11% variance in the prediction of students' learning effectiveness. This implied that with these components, students' learning effectiveness would increase by 11%, however, the remaining 89% of the variation is beyond the scope of this study. Therefore, this study shows that a combination of Zoom, Google Meet, Telegram forum and LMS components of ERT only had an 11% influence on students' learning effectiveness. This finding corroborates that of Ergulec (2019) and Pallof and Pratt (2013) who posited that well planned online learning is a complex process where careful instructional design could be used to create an effective learning environment. Also, Czerkawski and Lyma (2016) reiterated that emerging technologies (like Zoom, LMS and Google Meet) strongly influenced educational learning environment; this submission is quite similar to the finding of this study.

The second research question stated that "what is the perception of students on the implementation of the ERT components (Zoom, Google Meet, Telegram forum and LMS) in relation to their learning effectiveness?" The finding revealed that all the four components potently predicted students' learning effectiveness in the institution. This implied that students' learning effectiveness in the institution would be enhanced among the undergraduate students if the ERT components are properly implemented and the management of the institution considered the integration of the four ERT components to be highly essential. The students' responses indicate that they perceive the four ERT components to be highly significant and should be integrated into teaching and learning process in the institution. This finding is in line with the Universal Design for Learning principles which focus on designing learning environments that are flexible, inclusive and student-centred, in order to ensure that all students can access and learn from course materials, activities, and assignments anytime, anywhere. Hence, the digital learning resources provide a platform for students to utilise and mobilise the knowledge they have acquired (McGrath et al. 2020). These suggestions aligned with the view that COVID-19 provides more opportunities for transition into a new realm of digital education.

Conclusion
This study investigated the influence of Emergency Remote Teaching (ERT) components (Zoom, Google Meet, Telegram forum and LMS) on undergraduates' learning effectiveness at the University of Ibadan. Based on the findings of this study, all the four ERT components show significant influence on the possibility of students' learning effectiveness in the institution. It also showed that the four ERT components, if properly implemented will enhance learning effectiveness among the undergraduate students while the full integration of ERT components will promote digital education among all tertiary institutions in Nigeria.

Recommendations
Based on the findings of this study, it is recommended that the management of University of Ibadan should pay more attention to students' perception of ERT components as it was discovered that

students' perception of ERT components and learning effectiveness was positive. In other words, the more positive students perceive the ERT components, the more likely they would be to learn effectively from it. Also, schools should pay a considerable amount of attention to the four ERT components (LMS Zoom, Google Meet and Telegram forums) as significant predictors of learning effectiveness.

In the same vein, learning through the four digital learning platforms should be encouraged among the students, and parents are advised to support this innovation by providing the students with smart phones for easy access. Again, teachers, parents and counsellors should educate the students on the importance of good studying habits during online classes, even though teachers are not physically present to enforce it. They should teach and encourage good study habits in their wards and help them to establish the link between good study habits and learning effectiveness in the strongest and most effective way possible. Lastly, the university management should continuously train and re-train lecturers in order to build their capacity and develop their skills for effective design and delivery of ERT. Teachers should develop interactive online classes to limit students' distraction and improve satisfaction.

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