Challenges of Blended Learning Pedagogy during Covid-19 Pandemic: A Case of Selected Secondary Schools of Livingstone District, Zambia

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Abstract—this article revealed some of the challenges of blended learning pedagogy during COVID-19 pandemic in three selected schools of Livingstone District, Zambia. The article uses a phenomenology research design to generate data. The target population included all the parents, school managers, teachers and pupils from the three selected schools of Livingstone District, Zambia while the sample size was 30 participants. The article was based on data derived from a face to face interview with 22 participants (Learners, Teachers and School Managers) while the remaining data was derived from the Focus Group Discussion with 8 parents all from the Parents Teacher Committees (PTCs). This article employed a qualitative approach to generate data. Inductive thematic analysis was used to analyse data because themes were strongly linked to data. The research used a non-probability sampling approach to select the working sample. In non-probability sampling, the researcher decides who ought to be included to take part in the study according to their relevance to help in answering the research questions. The article provides evidence that schools encountered various challenges related to online learning categorised under the following interlinked themes: COVID 19 pandemic, lack of technological infrastructures, poor

Index Terms— Covid 19, Blended learning, Pandemigy, .

I. INTRODUCTION

After the global declaration of Coronavirus (COVID-19) pandemic on 30 January 2020 by the World Health Organisation (WHO) (Sohrabi, Alsafi, O'Neill, Kerwan and Al-Jabir 2020), all the educational institutions were forced to shut down. The pandemic affected all levels of global education systems from the pre-school to the university (Impey 2020, Panesar, Dodson, Lynch, Bryson-Cahn, Chew, and Dillon 2020). Similarly, on 18 March 2020, all institutions of learning in Zambia were placed on lock-down due to COVID-19 (Cabinet Office Circular Minute of

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2020-CO 7/6/2). By 20 March 2020, all institutions of learning were compelled to abruptly close down (Hapompwe, Kukano, & Siwale 2020; Mulenga & Marbán, 2020; Naciri, Baba, Achbani, & Kharbach 2020; Sintema 2020).

The outbreak of the virus forced all schools to migrate into online teaching and learning (Mulenga & Marbán 2020). The decision by the Ministry of Education to move the traditional face-to-face teaching and learning to online teaching and learning meant that teachers and learners had to urgently switch to online without prior adequate preparations. There were no online platforms for communication or other facilities to facilitate blended modes of learning (Hapompwe et al. 2020).

While this move was good and forward looking, Kombe & Mtonga (2021) stated that in Zambia however, online learning was generally not a popular mode of teaching. This was because the education system was largely based on traditional face-to-face teaching and its unpopularity of online learning was attributed to various challenges such as power outages, unreliable internet access and lack of online learning devices by teachers and learners. Stewart; Harlow, Danielle & DeBacco, Kim (2011), defined online learning as a system of learning where the learners learn virtually through the use of internet. Meanwhile, Dhawan (2020) defined online education as the ability of the learners to use devices connected to a network, offering them the possibility to learn with any means, in any rhythm, anytime and from anywhere. In another study by Singh & Thurman (2019), online learning is referred to as the learning experiences in synchronous and asynchronous environments using different devices such as mobile phones, laptops, tablets and many others with internet access. In these environments, learners can be anywhere (independent) to learn and interact with teachers and with other learners.

A recent study by Adedoyin & Soykan (2020) pointed out several concrete challenges caused by the abrupt digital transformation of teaching and learning during the period of the COVID-19 pandemic. The key challenges in this study include technological infrastructure, digital competence, socio-economic factors (educational inequality), assessment and supervision, heavy workload, and compatibility (some subjects such as Physical Education require physical interactions). In another recent study, Chola, Kasimba, George, & Rajan (2020) argued that internet access is also expensive and largely restricted to urban areas. The recognition and provisions of internet access or stable power

supply were not fully in place. Poor ICT (Information and Communication Technology) skills and unfavourable academic conditions at home were also found to be some of the serious challenges to online learning (Chola et al. 2020; Hapompwe et al. 2020; Mulenga & Marbán 2020; M. Mundia et al. 2023).

From this background, the article might significantly inform policy and practice on the actual challenges schools went through in relation to online learning. The research might provide insight into schools on how to appropriately respond to challenges faced by both teachers and learners to ensure equal delivery of quality education. The article might further contribute to the existing body of knowledge on the subject and stimulate interest for further research.

A. Theories Relating to Blended Learning Pedagogy

This study examined the challenges of blended learning pedagogy and their effects on learner performance during the COVID 19 pandemic in three selected secondary schools in Livingstone District of Zambia. In the quest to ascertain this, the study was guided by two theories, namely; classical liberal theory of equal opportunities and technology acceptance model in relation to the challenges of blended learning pedagogy on learner performance during COVID 19 pandemic as discussed below:

Classical Liberal Theory of Equal Opportunities is one of the theories which guided the current study. The theory holds that an individual matter most in any society. This means that an individual must be allowed to live the best life in their own unique way. As such, it is clear that the society must take deliberate effort to ensure all individuals are receiving equal opportunities in any societal realm. In the current article, this theory was used to illustrate the need for providing learners with equal opportunities despite them coming from different socioeconomic backgrounds. The pandemic has widened the economic inequality in the region which could limit access to education. According to Von Mises (2012), liberalism is an aspect in which equality and individual liberty are considered as the most important objectives by emphasising on opportunity equality and individual rights. Similarly, it was argued in Cutter (2017) that liberal theories brace provision of basic rights for everyone while seeking to avoid favouritism or unfairness.

Technology Acceptance Model (TAM) was useful for the current article in explaining why there could have been a resistance during the initial stages of implementation of blended learning pedagogy during COVID 19 pandemic in three selected schools of Livingstone District in Zambia. The theory illustrated and described how people in different societal realms come to accept and widely use a given technology. The theory holds that people are forced by behavioural intention (BI) as a factor to embrace technology. But, BI is affected by attitude which is the general impression of the technology. One of the factors that influence acceptance is perceived usefulness which has to do with how the users view the technology in question. To accept a given technology, a user must perceive it as useful in their lives, and in this case, the general education. Another factor that users consider is the ease-of-use which is defined as "the degree to which a person believes that using a particular system would be free from effort" (Al-Maroof & Al-Emran 2018). The hindrances are removed out of the way only if the user thinks that the technology in question is easy to use (Gergen & Davis 2012). Researchers have agreed to the fact that the technology acceptance model (TAM) has been the most influential of all the theories explaining the acceptance of digital transformation.
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II. METHODOLOGY

A. Research design

Research design is the blueprint for conducting the study that maximises control over factors that could interfere with the validity of the findings. Designing a study helps the researcher to plan and implement the study in a way that will help the researcher to obtain intended results, thus increasing the chances of obtaining information that could be associated with the real situation (Burns & Grove 2001). Research designs can also be said to be the techniques and framework of the research methods that the investigator selects to complete the projects (Creswell & Creswell, 2017). In another study, Blanche et al. (2008) stated that a research design refers to plans that guide the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure" and that it serves as a bridge between research questions and the execution or implementation of the research. In the pursuit to understand and explore the experiences of learners learning journey in the time of COVID -19 pandemic, this study used a qualitative phenomenological research design.

B. Research site

The study was carried out at three selected secondary schools in the peri-urban townships of Livingstone District in Southern Province of Zambia. The three peri-urban townships that surrounds the three selected public schools were Nakatindi, Malota, and Ngwenya. The research site was carefully selected because these three public secondary schools are located and surrounded by large compounds that started as informal settlement areas and have been in existence in Livingstone for a very long time.

C. Target Population

Polit & Hungler (1999) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. In this study the population was all the stakeholders namely; 8 parents, 3 head teachers, 6 teachers and finally 13 learners of the three selected schools from whom the researcher selected the 30 study samples. The definition of the population should be as specific and precise as possible because it acts as a check for eligibility of the entire research. In the current study, the subjects were drawn from the three selected public secondary schools in the peri-urban townships of Livingstone District in Southern Province of Zambia. Since this study was conducted during the time of pandemic crisis where COVID-19 policy guidelines are adhered to strictly or emphasised, the selection of participants were based on the availability and willingness of learners in each of these three selected schools in the district.

D. The eligibility criteria

These criteria specify the characteristics that people in the population must possess in order to be included in the study (Polit & Hungler 1999). The eligibility criteria in this study were that the participants had to:

  i. Be residents of Livingstone District during COVID-19 pandemic
  ii. Be enrolled learners, teachers or head teachers at any of the three selected schools under study during COVID-19 pandemic
  iii. Be members of the PTC at one of the selected schools during COVID-19 pandemic for the purpose of FGD

E. Study Sample

A study sample is a subset of a population selected to participate in the study, it is a fraction of the whole, selected to participate in the research project (Brink 1996; Polit & Hungler 1999). In this survey, a subset of 30 participants was selected out of the entire population of learners, teachers, head teachers and parents from whose locality is peri urban and around the three selected schools of Livingstone District. These participants included 13 learners (6 boys and 9 girls) typically coming from the peri urban. The researcher picked more girls because in most cases the girl child is more vulnerable than the boy child. The researcher picked 6 guidance teachers or where applicable the ICT teachers and 3 school head teachers. Finally, the researcher picked 8 parents. The 8 parents came from one PTC executive specifically for focus group discussions. The selection of participants for the interview was based on the decision of the researcher of the study, which required participants to have been affected by the challenges of blended learning pedagogy. The research sought to collect and identify the main challenges of blended learning pedagogy and their effects on learner performance. For this purpose, we began to select learners, teachers, school managers and parents. The researcher further conducted a pilot focus group discussion with the PTC executive members from one selected school. Upon receiving approval for the interview, the process commenced.

Table 4.2.1: Biography of participants from each school by gender

School ID	Number of participants	Gender	
		M	F
H	13	06	07
N	08	03	05
S	09	05	04
TOTAL	30	14 47%	16 53%

Source: (Field data (2022)

In the above demographic characteristics of the respondents, the findings indicated that 47% were males while 53% were females. This means that there were more females that were willing to participate in the study than males.

F. Data Generation Process
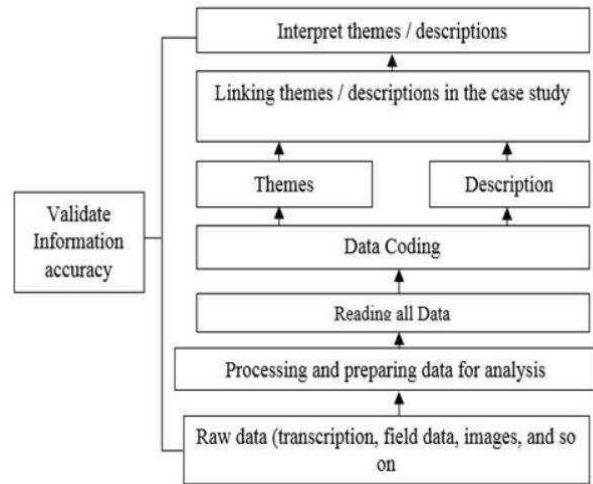
(Source: Creswell, 2003).

G. Data collection procedure

The data collection procedure is the process that the researcher uses to systematically and fashionably gather and measure data on the specific variables in question to enable him/her to fill the knowledge gap and evaluate the outcomes (Ismael 2021). In this section, the researchers had an array of data collection approaches at the disposal during the planning stage. As earlier stated, the current study is phenomenological, meaning that the researcher is studying things as they are. The study involved collecting information from the sample about the challenges they have identified during their use of online learning. While doing data analysis, the researcher filtered out all the data that was unnecessary to analyse the data that matters to the current research.

The data collected for this research is primary data. Andrei (2008) describes primary data as the first-hand information which the investigator gathers by themselves. This is unlike secondary data where the researcher collects data from other sources such as articles, government publications, websites, books, internal records, and so on. In other words, secondary data is derived from third party sources. For the current one, data from other publications was used in the literature review section of the paper to support the results of the primary study. The primary data was collected using interviews and focus group discussions.

In this study, the researcher obtained a research permit before embarking on the study. The researcher explained to the participants the overview and focus of the study which was to investigate the challenges of blended learning pedagogy on learner performance during the time of COVID-19 in three selected secondary schools of Livingstone District. The researcher obtained permission in schools and arrangements before administering the instruments The researcher thereafter administered the

research instruments to the respondents. The ethical consideration, such as ensuring the anonymity of the participants throughout the course of study and informed consent, was also to be explained to them.

H. Data analysis

Data analysis is the process of systematically searching and arranging the interview transcripts, observation notes, or non-textual materials that the researcher interlinked themes regarding challenges of blended learning pedagogy on learner performance during COVID -19 pandemic to present the data. accumulates to increase the understanding of the phenomenon. It is also referred to as a process that the researcher uses to systematically and fashionably gather and measure data on the specific variables in question to enable him or her to fill the knowledge gap and evaluate the outcomes. In the analysis stage, the gathered data was grouped into themes. The themes were identified and drawn from the responses to the questions given by the respondents. The framework approach offers the researcher a systematic structure to manage, analyse and identify themes, enabling the development and maintenance of a transparent audit trail (Fugard & Potts 2015). It is particularly useful with large volumes of text and is suitable for use with different qualitative approaches.

The researcher also adopted the thematic analysis research method which is one of the most common methods to analyse qualitative data. This method helps the researcher in the generation of findings and insights for the study (Terry 2017). Thematic analysis is usually used to analyse responses from the interviewees and focus group discussions. In thematic analysis, there are five stages that are needed to be undertaken to complete the process of thematic analysis. These include; getting familiar with the information, coding, identifying themes, naming and defining themes and getting the report on paper (Almaiah et al. 2020). The creation of themes is a critical process where important recurring points are derived from the transcribed texts in relation to the objectives. In this study, the researcher chose to proceed with a focus group which could help in getting more information than the debriefing. This method used for the analysis is the transcription made from the discussions during the interview and focus group discussions together.

I. Ethical Clearance

In this study, the researchers engaged into oral consent with the respondents. The participants were given the due respect required. The information about the study, its purpose, how it was going to be carried out and its duration, risks and benefits was communicated to the participants. The participants were made aware that participation is voluntary and that they could withdraw before its completion if they so wished. Finally, the study was approved by 'A' Ethical committee with the certificate reference number; KNU/2022REC09/006. For confidentiality, the data collection tools and other equipment are kept and locked in a drawer by the principal researcher.

I. FINDINGS OF THE STUDY

A. Challenges of blended learning pedagogy during the COVID 19 pandemic?

The lack of suitable infrastructure and access to technology can cause some constraints for the successful integration of blended learning.

B. Diagrammatic representation of the themes on the challenges of blended learning pedagogy during COVID 19 pandemic are shown below:
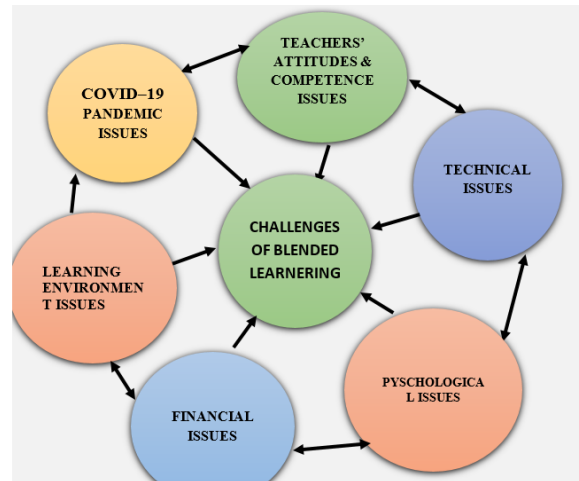
In this study, the Figure 4.3.2 above illustrates the interlinked themes regarding challenges of blended learning pedagogy on learner performance during COVID -19 pandemic.

D. COVID 19 pandemic issues on the delivery of education

Worldwide, education is deemed as one of the most basic rights a human being must access for personal, family, community and national progress and development. However, due to the outbreak of COVID 19 towards the end of 2019, this social service sector came to a standstill in many parts of Livingstone, Zambia.

All three head teachers interviewed indicated that the pandemic negatively affected the education sector through the abrupt shutting down of schools, pupils stayed longer periods without lessons, some teachers and parental deaths, closure of businesses where parents earn income to pay fees, loss of jobs for some workers and cost of running schools when they reopened due to measures that schools needed to put in place. In fact, Head teacher from school N explained:

"Since March 18, 2020 when Zambia recorded its first case of COVID 19, education for a couple of millions of children and adolescents got disrupted, potentially regressing the progress made years earlier concerning attaining goal number 4 of the Sustainable Development Goals (SDGs (Head teacher school N Interview, 2022")

Another Head teacher from school S said:

"Despite the negative and devastating effects of COVID 19 of lives of people, industries and the social and economic activities, the pandemic awakened people, families, schools, communities and government in Zambia in matters of personal and interpersonal hygiene and investing in technology for education, social and economic sustenance (Head teacher school S Interview, 2022")

Parents were also asked to share their views on the impact of COVID 19 on education. Generally, all 8 parents during FGD

indicated that the pandemic impacted negatively on schools, pupils, parents and teachers as stakeholders in the operation of schools. They specifically talked about closure of schools, idleness of pupils during the indefinite closure, teenage girls' pregnancies and early marriages and loss of income and the high cost of life increased due to expenditures on COVID 19 measures in schools and in homes. In this regard a parent from school PTC H, explained:

"Although efforts were made to support education delivery by means of radio, television and internet, most pupils failed to access quality education due to poor internet connections, poor radio and radio signals, costly internet bundles and the cost of buying certain gadgets which poor parents could not afford (Parent school H Focus group discussion, 2022)".

This sentiment was complemented by another parent from the same PTC who added:

"The pandemic made the risk gaps widen in learning among children from families that can afford and those who cannot afford to access facilities and gadgets for online lessons. The 'haves' and 'have nots' are now clearly seen (Parent school H Focus group discussion, 2022)".

Teachers talked about their daily fears of contracting the virus as they interacted with learners from various homes and communities; the death of some teachers and their loved ones; the abrupt closure of schools and sudden reopening which disturbed the school calendar and delivery of the lesson in the syllabi; loss of employment and income for some teachers in the private sector and increased workload due to social distancing in classes which resulted in an increased workload for teachers.

One female teacher from school N noted:

"The performance of children in school, especially the young ones heavily suffered as children would come back to school after a few months with nothing to show for what they learned before closure (Female teacher school N Interview, 2022)"

Another teacher from school S added:

"It was worse for us teaching examination classes as we were most at risk as we continued teaching when others were not; the risk of contracting the disease became higher among examination classes teachers (Teacher school S Interview, 2022").

A teacher from school H had to say:

"Our colleagues in the private sector were put off pay-roll and either partially or permanently lost income or employment; it was one devastating period in our lives in Zambia; never seen before that period (Teacher from school H Interview, 2022")

The study identified COVID 19 pandemic as a major challenge to blended learning pedagogy on learner performance. Just like in any part of the World, the outbreak of COVID 19 towards the end of 2019 caused the education sector to come to a standstill in Zambia. According to UNESCO, over 1.5 billion students in 195 countries were out of school in the world due to the school closures (UNESCO 2020b).

During the interview, respondents reported that some teachers were attacked by the virus whilst some parents and other teachers died within the same period while some of the businesses where parents earned income to help them pay fees also closed down. A learner lamented: *"I lost both of my*

"parents in the same week due to COVID-19. My mother was the first to pass on and later the same week my father followed. I have not fully recovered since then." The study by Daniel (2020) revealed that the ill-health and the dying of some teachers left a huge gap in schools where those teachers were teaching. This meant that there was no immediate replacement of those affected teachers in these schools. Some of the parents lost their jobs while the cost of running schools went high when schools reopened due to several measures put in place to ensure that schools were safe for learners and teachers.

Parents were also asked to share their views on the impact of COVID 19 on education. Generally, all parents indicated that the pandemic impacted negatively on schools, pupils, parents and teachers as stakeholders in the operation of schools. They specifically talked about closure of schools, idleness of learners during the indefinite closure, teenage girls' pregnancies and early marriages and loss of income and the high cost of life increased due to expenditures on COVID 19 measures in schools and in homes. In this regard a parent from school PTC H explained:

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A learner who was participant A, lamented:

"Home is not a convenient place to do online learning due to so many disturbances ... so much activity happening at home... (Participant A Interview, 2022)

Another participant E (2022)" also complained:

*"my neighbourhood is too noisy to concentrate (*Participant *E Interview, 2022)"*

Similarly, Sun (2020) reiterated that the replacement of physical classrooms with blended learning amid the COVID-19 crises, many students were vulnerable to falling behind in their studies or experienced additional challenges due to their socio-economic status. The author explained that the pupils from low socio-economic families were not able to afford broadband connection and pertinent devices such as computers/laptops or tablets to support their online learning.

Technical issues

Technical challenges are problems that can be resolved using available knowledge and expertise. These challenges consisted of power outages, poor internet connectivity, lack of computer skills and absence of effective institutional support systems. In terms of load shedding, one of the parents who participated at school H during focus group discussion had the following to say:

"We have had serious load shedding in our area because power went out even for three days and sometimes, we only had it at night ...and yet some teachers who were willing to teach online were conducted during the day, so our children

missed out a lot. At least children from well-to-do families used generators… (Participant H Interview, 2022")

Technical challenges in relation to internet connectivity was affirmed by one school manager at school H who reported that the school received numerous calls from learners who wanted to find out whether the school internet connectivity was working properly so that learners could be sending their feedback through the school email for teachers to mark as indicated in the excerpt below:

"As a school, we received many calls from quite a number of learners reporting challenges to access the school created email due to poor internet. Learners also reported lack of technical skills as a barrier to effective Online Learning. They also indicated ineffective and inefficient institutional support systems whenever they encountered technical challenges (Head teacher School H Interview, 2022)"

A participant S complained:

"…I reported my challenges through the contact numbers given but no help was given by the schools … they always said just google by yourselves at home, which was a very unfair statement (Participant S Interview, 2022")

Commenting on the teachers' ability to teach using online methods, it was noted by the majority head teachers that not all teachers had such skills. For example, the Head teacher from school N mentioned;

"Some teachers have basic skills on how to operate computers but I doubt if they may have the skills and knowledge to facilitate learning in terms of on-line teaching (Head teacher school N Interview, 2022")

It was also confirmed that schools did not have online learning platforms as a head teacher from school S observed;

"I have not heard of any school having an online learning platform. Ever since learners closed schools all I see are TV lessons run by the Ministry of Education. But I do not know how many of our learners actually follow those lessons. (Head teacher School S interview, 2022)"

Focus group discussion revealed so many sentiments on the challenges of blended learning pedagogy on learner performance during the COVID 19 pandemic and one parent from school H said:

"I do not think teachers have the competencies to teach in the blended and distance modes of education. But let's assume they had the competencies, the biggest challenge is that our education system has no capacity to go this route. A lot of things need to be put in place including attitude change. (Parent school H Focus group discussion, 2022)"

Another parent from school H further added;

"The COVID-19 pandemic is a challenge to our usual way of doing things in teaching and learning. Just as we could not move around without covering our nose and mouth, so do we need to rethink the teaching approaches because we do not know for how long this scenario will be with us. No wonder it is called the new normal. As parents, we think teachers do not have the required competencies now for blended and distance teaching because we could have seen our children learning through such methods. But we need to have them now before another pandemic falls on us (Parent from school H Focus group discussion, 2022")

Another head teacher from school N also confirmed that teachers had no competencies for blended and distance

teaching and wondered how soon such skills could be acquired. She said;

Teachers do not have any such competencies to teach learners in a blended and distance mode. Teachers would need a robust in-servicing programme to acquire the skills for teaching using blended and distance approaches. But knowing how in-servicing has been done in the past, it would take a lot of time to have every teacher reach. I am not being pessimistic but realistic.

(Head teacher from school N interview, 2022)

Out of 30 respondents, 25 representing (83%) indicated that in remote and semi-rural cases, the use of online and blended learning was far from being ideal; 4 Out of 6 teachers said that in some areas, unreliable power supply was the main hindrance and 2 representing 33.3% were neutral on the matter.

Some teachers and school administration pointed out the lack of ICT skills among teachers and ill-equipped schools in ICT infrastructure to handle blended teaching and learning effectively.

One parent said:

"The already over stretched teachers in teacher-pupil ratio worsened the situation especially in understaffed schools and districts. (Parent from school H Interview, 2022)"

Technical challenges were identified as the fourth theme in this study which consisted of power outages, poor internet connectivity, lack of computer skills and absence of effective institutional support systems. These were reported as barriers to online learning. In terms of load shedding, one of the participants had revealed that there was serious load shedding in their area because power would go as long as three days and sometimes they would only have power late in the night.

A. Ethical Clearance

In this study, the researchers engaged into oral consent with the respondents. The participants were given the due respect required. The information about the study, its purpose, how it was going to be carried out and its duration, risks and benefits was communicated to the participants. The participants were made aware that participation is voluntary and that they could withdraw before its completion if they so wished. Finally, the study was approved by the university Ethical clearance committee.

II. CONCLUSION

From the research findings, the researcher therefore concluded that the challenges of blended learning pedagogy on learner performance during COVID-19 pandemic included six interlinked themes, namely: COVID 19 and its effects on the delivery of education, learning environmental, Teachers' attitudes and competence to online teaching during COVID-19 pandemic, technical issues that included (Lack of devices, internet, electricity and support systems), Financial and material, and finally the psychological. These were identified to be the most critical barriers to online learning.

Besides, the researcher found out that the pandemic negatively affected the education sector through the abrupt shutting down of schools and yet some learners and teachers did not have enough technical know-how on how to run

learning systems in addition to experiencing time and location inflexibility. These revelations could be attributed to the sharp drop in the performance of learners in 2020 and 2021 examination results. It was also attributed to the shutting down of all schools to prevent the rapid spread of the virus. This evidence was supported by Adedoyin & Soykan (2020) in their study that the sudden shift to blended learning created an unexpected workload, particularly on building e-platforms and integrating external applications into their systems in a timely manner. During the interviews, teachers cited three major reasons why there was a drop in learner performance, namely: the reduced contact hours for learners, lack of catch-up/ remedial works and limitations on syllabus coverage, Assessments and Evaluations.

The COVID-19 pandemic had drastically contributed to schools' failure to complete the school curriculum coverage and late administration of examinations for both grade 9s and 12s. The most critical aspect was the inability of the final year learners to comprehensively do school based assessments which rendered the learning more theoretical. The online infrastructure at all the three selected schools were not effective in supporting effective learning and assessments during the COVID-19 pandemic. It was also established that there was an urgent need to improve the competencies of teachers and learners in the areas of ICT. Schools needed to put in place measures that mitigate the impact of COVID-19 on the academic activities, mental health and extracurricular activities of learners. Therefore, the need to incorporate blended learning in the Zambian schools' curriculum is very vital and will help avoid certain challenges in future.

By and large, the study was a reflection of the state of things during COVID 19 pandemic which was inevitable not only in selected schools but throughout the country. The devastating impact of COVID 19 on the education sector was only one among many other impacts that the pandemic came along with since it landed in Zambia. After the interviews were completed, more data was collected by holding one focus group discussion with the PTC executive members to identify some more factors and solutions to this menace. On the solutions to the challenges, it can be concluded that the whole issue lies with the Government through the Ministry of education to consider investing in technological infrastructure, improving the learning environment, investing in technological devices and to build capacities in both the learners and teachers since it is the major funder to all the public schools. There has been less efforts in the past to integrate ICT facilities in the education sector. Should there have been enough technological infrastructure for the teachers and pupils, the schools and government would not have struggled to keep learners learning at home. Overall, some of these challenges emanate from the lack of proper funding to the education sector from the government through the Ministry of Education. The researcher observed that there was anxiety among the teachers and pupils due to problems of negative attitude, incompetence and inexperience. This was because they did not know how to cover the syllabuses within the given period considering the huge challenges caused by the pandemic.

The researcher further concluded that all the three selected secondary schools received insufficient funds during COVID -19 pandemic to ensure that teachers and pupils were given the relevant technical training and also to allow learners to access learning materials regardless of where they were. They should be able to resolve all troubleshooting whenever they arise during the virtual delivery of lessons within the shortest possible time. They should be in a position to train teachers and pupils to deal with minor issues that do not require much technicality.

The researcher also concluded that the adoption of ICT in schools has been relatively slow considering that we are in the midst of the information age. Curriculum developers and designers in ICT in the country need to up their game. Schools require simple local platforms which are very easy to use and which can accommodate all learners. Policymakers over time have failed to see the need for mandatory integration of online learning in Zambia. We need policies that allow for smooth, easy, but quick transition from analog to digital. There is a need for training programs for teachers and pupils to support online learning. Ultimately, the findings in this study provides new suggestions for the decision-makers in the education sector to boost ICT usage in delivery of knowledge so that there is good learner performance during and after the COVID 19 pandemic era.

In a positive note, the study established that despite its devastating effects on humanity in general and specifically on education systems globally, COVID-19 pandemic was a blessing in disguise. For the schools under study, the pandemic was a catalyst at ensuring that they implemented a fully-fledged e-learning platform for all school programmes. The pandemic forced teachers to slowly move from their traditional forms of teaching to new innovative online methods, instructions and pedagogies. Even though teachers' initial attitudes to online teaching were negative, some teachers eventually warmed up to online teaching and have currently embraced it notwithstanding its challenges.

III. RECOMMENDATIONS

The study recommends the following:

Based on the findings anchored on the three research objectives and conclusions of the study, the researcher recommends the following:

A. The government should integrate Information Communication Technology (ICT) facilities, package stress management programs for both pupils and teachers and also to have enough technological infrastructure in the education sector to keep the struggling pupils to learn wherever they may be during any outbreaks. This recommendation was based on the fact that COVID 19 pandemic negatively affected the education sector through the abrupt shutting down of schools. The learners had to stay longer periods without lessons at home, some teachers and parents died along the way during long closure, some businesses where parents earned income to pay fees closed down, loss of job by some workers and the cost of running schools went high when schools reopened due to enormous measures that needed to be put in place by the schools.

B. School administrations should collaborate with the government to open doors to schools and libraries so that those pupils who cannot study at home due to congestion or lack of a safe place can have a cool and suitable environment to study from. This

recommendation is based on the findings of the learning environment to include among others but not limited to the following: the crowded homes, noisy locations, economic status of particular families, lack of internet and electricity outages.

C. The study recommended that the Ministry of Education must enhance their abilities by devising regular training programs or sessions that orient both teachers and pupils towards:

Specialised courses so that educators can acquire enough knowledge on how to use various digital devices and platforms, and pedagogy courses to enable them to run online classes and assess learners in the modern way.

This recommendation was based on the findings which identified some teachers' negative attitudes and lack of competency to online teaching as a result of ICT illiteracy and inexperience.

D. The researcher recommends that the government through the Ministry of Education should provide digital devices to the pupils across the country such as tablets and laptops or find cheaper sources from companies such as Huawei and Samsung, Philips, and many others. The School management in collaboration with the government should provide a reliable network infrastructure that supports online teaching and learning. Strategies and remedies (online learning tools and software) to mitigate challenges faced by stakeholders in the delivery of online lessons during the pandemic and beyond should be implemented. In addition, government and other private companies should enhance internet connection closer to all schools across the country to avoid issues with internet connection. The recommendations above came as a result of the fact that the study findings revealed that some pupils and teachers lacked electronic devices to access teaching-learning materials. This is in line with the equivalency theory which advocates for equal learning experiences for all pupils regardless of whether they hail from large cities or small villages. They should all be provided with the required internet access with the least possible interruption.

E. This study recommends that the government and donors need to consider increasing budgetary allocations to all institutions of learning for infrastructural development and to boost their ICT facilities and other learning management systems. The above recommendation was premised on the fact that the findings of the study revealed that ICT funding was very poor. The schools were not collecting any money from parents at the peak of COVID 19.

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