

Effects of COVID-19 pandemic on the teaching and learning process: lessons learned from selected secondary schools in Kapiri- Mposhi District, Zambia.

Rachel Mabuku Kabeta^{1*}, Givers Chilinga¹, Leornard Sakakombe¹

¹ Mulungushi University, School of Education, Kabwe, Zambia; Email: rkabeta@mu.ac.zm

¹ Mulungushi University, School of Education, Kabwe, Zambia; Email: gchilinga@mu.ac.zm

¹ Mulungushi University, School of Education, Kabwe, Zambia; Email: lsakakombe@mu.ac.zm

*Correspondence: Rachel Mabuku Kabeta, Email: rkabeta@mu.ac.zm

ARTICLE HISTORY Received 27 May 2023; Accepted 5 September 2023

ABSTRACT

The COVID-19 pandemic caused unprecedented disruptions in education systems worldwide and Zambia has not been an exception. This study was carried out in selected secondary schools in Kapiri-Mposhi District in Zambia to examine the effects of the pandemic on teaching and learning in secondary schools and to highlight the lessons learned from the experience. Through a mixed-methods approach, including surveys and interviews with teachers, students, and educational stakeholders, the study investigated the challenges faced during the pandemic, explored the strategies employed to mitigate the impact, and identified the key lessons learned for future educational preparedness. The findings of this study showed that overall the COVID-19 pandemic affected the teaching and learning process negatively in both urban and rural schools in Kapiri- Mposhi district. This study revealed that the COVID-19 pandemic created new challenges in teaching and learning for secondary school teachers in the district specifically and probably in Zambia in general. These new challenges are of different dimensions ranging from psychological, health, infrastructure, methods of teaching and learning to technology. Evidently, 59.9% to 90.9%) of the participants in this study revealed that COVID-19 had largely affected the teaching and learning process in the district negatively. Lessons learned encompass successful practices, innovative solutions, and areas for improvement. These lessons inform future educational practices, policies, and preparedness for similar crises. While Covid- 19 presented several challenges, there were likely many lessons learned.

Keywords: COVID-19, teaching learning, secondary schools, Kapiri-Mposhi District, Zambia

INTRODUCTION

Background to the study

Corona virus disease (COVID-19) is an infection which resulted from a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Therapeutic diagnosis and findings have revealed that people infected with COVID-19 can be symptomatic or

asymptomatic in the early stages usually depending on ones' immune system. The first symptoms of the infection are said to be a dry cough, fever, tiredness, shortness of breath and general body weakness (Zhong et al, 2020). The corona virus disease is a highly infectious disease which spreads through droplets (WHO, 2020).The global outbreak of the COVID-19 pandemic spread worldwide

affecting almost all countries and territories. The outbreak was first identified in Wuhan, China in December 2019. The public care strategies have included hand washing, wearing face masks, physical distancing, and avoiding mass gathering and assemblies. According to Sintema, (2020), lockdown and staying at home strategies were put in place as the needed action to flatten the curve and control the transmission of the disease. The worldwide rapid spread of the novel corona virus disease of 2019 referred to as COVID-19 led the World Health Organization (WHO) to declare it as a full global pandemic in March, 2020. The unprecedented rapid transmission of the virus has already reached all countries in the world. According to the WHO statement on the second meeting regarding the outbreak of novel coronavirus (2019-nCov) of 2020; the spread of the corona virus had already reached all countries and all territories around the world and there were over 49 million confirmed cases and more than 1.2 million deaths worldwide as of 5th November, 2020 (2) and as of 5th November, 2020, a total of 1,854,169 COVID-19 cases and 44, 316 deaths were reported from 57 countries in Africa. The rapid transmission of the virus from person to person coupled with the lack of effective medications and vaccines had posed serious challenges to the control of the spread of the disease. Several countries instituted various containment measures, including a range of physical and social distancing measures to flatten the epidemiological curve and avert morbidity and mortality due to COVID-19 (Viner et al., 2020; Quaife et al., 2020).

The first confirmed two cases of COVID-19 in Zambia were reported in March 2020. According to the Ministry of Health as of 21st September 2020 there were 14,174 cases, 13,629 recoveries and 327 deaths. Public health awareness regarding the pandemic was done mainly through the MOH by messages on the local radio stations and televisions. However, unlike other countries in the region, while measures were put in place to slow down the spread of the virus, Zambia did not institute a full-scale lockdown. Nonetheless, schools and tertiary education institutions were closed. While Covid- 19 presented several challenges, there were likely many

lessons learned. This article therefore focuses attention on the lessons learned from the findings of the study.

Statement of the problem

The COVID-19 pandemic has had a significant impact on teaching and learning in educational systems in Zambia. The sudden closure of schools and the subsequent transition to remote learning have presented numerous challenges for educators, students, and educational stakeholders. However, there is a need to understand the specific effects of COVID-19 on teaching and learning in the schools and identify the lessons learned from this experience. Furthermore, it is crucial to address the key issues and gaps that have emerged during the pandemic to enhance educational resilience and preparedness for similar future disruptions. This study therefore endeavoured to find out the effects of Covid- 19 on the teaching and learning in the secondary schools and what lessons could be learned from these and how the lessons could be used to improve educational practices and improve preparedness for future pandemics and challenges.

Objectives

1. To assess the specific effects of the COVID-19 pandemic on teaching and learning in secondary schools in Kapiri-Mposhi District,
2. To identify the challenges faced by teachers and students in transitioning from traditional classroom instruction to remote learning during the pandemic.
3. To examine the strategies employed by secondary schools in Kapiri-Mposhi District to mitigate the impact of COVID-19 on teaching and learning
4. To explore the lessons learned from the experience of teaching and learning during the COVID-19 pandemic.

LITERATURE REVIEW

The COVID-19 pandemic had affected educational systems worldwide, leading to the near-total closures of schools, universities and colleges. Most governments decided to temporarily close educational institutions in an attempt to reduce the spread of COVID-19.

According to UNESCO, (2020), the Corona virus disease (Covid-2019) resulted in the total shutting of schools in about 215 countries worldwide. It is further stated that this accounted for over 1.6 billion students in the world who were obliged to stay out of school as social distancing was being enforced globally to curtail the spread of the corona virus disease. As of July 2020, 98.6% of learners worldwide were affected by the pandemic, representing 1.725 billion children and youth, from pre-primary to higher education, in 200 countries (United Nations, 2020).

Effects of COVID-19 on teaching and learning

There was disruption of Classroom Instruction because the COVID-19 pandemic resulted in the closure of schools, leading to a significant disruption of classroom instruction. Research studies have highlighted the adverse effects of prolonged school closures on student learning outcomes, academic progress, and social-emotional well-being (UNESCO, 2020). The sudden transition to remote learning posed challenges for both teachers and students, requiring quick adaptation to new instructional approaches. Furthermore schools faced challenges in transitioning to remote learning. The transition from traditional classroom instruction to remote learning presented various challenges. Limited access to digital devices, internet connectivity, and technological infrastructure were key barriers to effective remote learning in many contexts (Chen et al., 2020). Furthermore, teachers faced challenges in designing and delivering online lessons, assessing student progress, and maintaining student engagement in a remote learning environment (Hodges et al., 2020). There were inequities in access to technology and resources and the COVID-19 pandemic exacerbated existing educational inequities, particularly in access to technology and resources. Students from disadvantaged backgrounds, rural areas, or low-income households faced greater challenges in accessing online learning materials and participating in remote classes (UNESCO, 2020). This digital divide contributed to

unequal learning opportunities and hindered educational continuity for marginalized students. The pandemic and the resulting disruptions in education had significant implications for student well-being and mental health. Extended periods of social isolation, lack of routine, and increased anxiety and stressors due to the pandemic affected students' emotional well-being and psychological resilience (Loades et al., 2020). The closure of schools also disrupted the provision of essential support services, such as counseling and social-emotional support. The sudden shift to remote learning required teachers to acquire new technological skills and adapt their teaching practices. Professional development and support initiatives played a crucial role in equipping teachers with the necessary tools and strategies for effective online instruction (Dhawan, 2020). Teacher collaboration, peer support, and access to resources and training opportunities were instrumental in enhancing teacher preparedness and confidence in delivering remote education.

Theoretical framework

This study was guided by two theories in order to gain deeper insights in the effects that the Covid- 19 pandemic had on the teaching and learning process.

Socio-ecological systems theory

The Socio-ecological Systems Theory emphasizes the interdependence and interactions between various elements within a system. It was developed by psychologist Urie Bronfenbrenner in the late 1970s as a way to recognize that individuals affect and are affected by a complex range of social influences and nested environmental interactions. In the context of this study, the theory helps to analyze the multifaceted impact of COVID-19 on teaching and learning, considering not only the educational aspects but also the broader social, economic, and environmental factors influencing the system. This theory highlights the interconnectedness of factors such as technology access, socioeconomic disparities, community support, and policy responses in shaping the effects of the pandemic on education.

Social cognitive theory

Social Cognitive Theory (SCT) focuses on the role of individual cognition, behavior, and the social environment in shaping learning outcomes. In the context of this study, SCT can be used to examine how teachers and students adapt to remote learning, cope with challenges, and develop self-efficacy in using technology. The theory highlights the importance of social support, observational learning, and self-regulation in facilitating effective teaching and learning in the face of disruptions caused by the pandemic.

Conceptual framework

The central component is Covid-19 which has a direct impact on teaching and learning and this is influenced by factors such as existing educational infrastructure, technological resources, socio-economic disparities and policy frameworks.

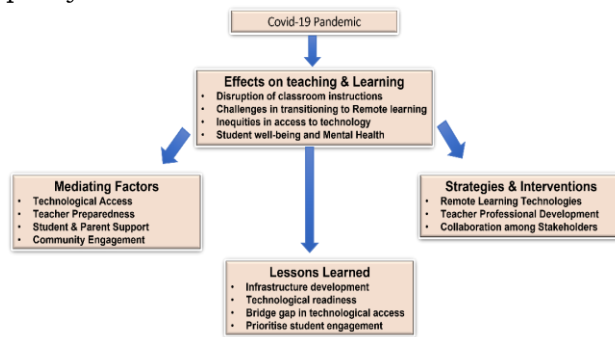


Fig 1: Conceptual Framework Source: Author (2022)

Strategies employed to mitigate the impact of COVID-19

In Zambia, during the closure of schools just like in other several countries worldwide and in the sub region, alternatives to in-class learning were introduced. Many countries including Zambia put in place alternative forms of learning such as online classrooms, web-based courses, and homeschooling, but these were inaccessible to most children in rural areas and those from poor economic background (Akseer et al., 2020; Sinha et al., 2020). The Ministry of General Education availed an educational programme on the national broadcaster and 'smart revision,' an online service that allowed learners in final examination classes to prepare for

examinations (UNESCO Report, 2020). Some of the measures introduced to mitigate short-term and longer-term effects of the school closures on learners included devising distance learning mechanisms. According to the Zambia Policy Report (July 2020), schools reopened for examination classes to ensure that end of year examinations continued as planned, schools were sanitized and provided with hand washing facilities and soaps, though there was still a need for more supplies in order to continue averting the effects of the coronavirus. The distance learning mechanisms put in place included the use of internet to facilitate learning on WhatsApp and other online platforms. However, a large proportion of households in Zambia do not have access to television, radio and internet. Rural learners were the most affected, with only 11% of rural households having access to electricity (World Bank, 2020). As a result, remote-learning was ineffective and not accessed by a large proportion of students. Educational institutions and stakeholders implemented various strategies to mitigate the impact of COVID-19 on teaching and learning. These strategies included the use of digital platforms and online learning tools, distribution of educational materials, and teacher training on remote instruction (Mwila et al., 2021). Collaboration among teachers, parents, and community members played a vital role in supporting student learning.

METHODOLOGY

This study adopted a descriptive cross-sectional survey research design with a mixed method approach. The Likert type closed questionnaire, face to face interviews and focus group discussions (FGDs) were used to gather information in this study. The population of this study comprised all secondary school teachers and learners in Kapiri- mposhi District. This study sample size was 197, consisting of 50 grades 9 and 50 grade 12 learners, and 97 teachers from the ten selected secondary schools. A total of 10 schools were sampled using simple random by using a list of schools in the district that was obtained from the office of the District Education Board Secretary (DEBS).

Purposively, the examination grades i.e., grade 9s and 12s of 2020 were sampled in all the five selected rural and five urban secondary schools where data was obtained for use in this study. Quantitative data were analyzed using SPSS Version 22 and the qualitative data were analyzed based on the categorization of responses into themes generated from the objectives of the study.

FINDINGS AND DISCUSSION

The findings of this study are presented in line with the objectives of the study as follows:

Effects of Covid-19 on teaching and learning

Demographics of the Study

Table 1: Participants' Demographic

Characteristics (*n* = 197)

Characteristic		Value	
		Frequency (n)	Percent (%)
Gender	Male	114	57.9
	Female	83	42.1
Age in Years	≤ 18	90	45.7
	19 – 39	74	37.5
	≥ 40	33	16.8

Table 2: Frequency and Percentage Analysis of Teachers and learners' Perception of the Effects of COVID-19 on Teaching and Learning Processes in Kapiri- mposhi District. *n* = 197

Item description	Perception Category					
	Negative		Neutral		Perception	
	F	%	f	%	F	%
School closures may lead to unequal access to technology needed for continued teaching and learning	20	10.2	14	7.1	163	82.7
Stigmatization of infected learners and staff may heighten absenteeism	9	4.6	16	8.1	172	87.3
Shortened academic calendars may increase gap between low and high achieving learners	20	10.2	18	9.1	159	80.7
COVID-19 may lead to unequal access to educational resources	9	4.6	9	4.6	179	90.9
School closures may put strain on parents and teachers, to provide childcare and manage distance (remote) learning while learners are out of school	10	5.1	16	8.1	171	86.8
School closures may negatively impact	8	3.0	12	6.1	179	90.9

Social Status	Learner	100	50.8
	Teacher	97	49.2
School Status	Rural	107	54.3
	Urban	90	45.7

Source: Authors' Field Data (2020)

Table 2: presents a summary of the on-scale responses (the Likert scale of 1-5 from strongly disagree to strongly agree) to the survey instruments that presented 11 statements describing aspects of teachers' and learners' perceptions about the effects of COVID-19 on the teaching and learning processes in Kapiri- mposhi district. The findings on secondary school teachers' and learners' perceptions about effects of COVID-19, in form of descriptive statistics (percentages and frequencies) are summarized in Table 1. It must be noted that since the survey questionnaire measured the perceptions of teachers and learners about the effects of COVID-19 on the teaching and learning processes in Kapiri- Mposhi district in terms of either agreeing or disagreeing with each of the 11 questionnaire items in this section,

teaching and learning outcomes, especially for the underprivileged						
May promote public health in schools	24	12.2	37	18.8	136	69.0
Risky behaviors may increase that may lead to increased teenage pregnancies and substance abuse among learners	17	8.6	11	5.6	169	85.8
learners may substantially lag behind especially in reading and mathematical subjects	5	2.5	17	8.7	175	88.8
May bring about innovations in teaching and learning Strategies like use of e-platforms (zoom, TV, Podcast, etc.)	15	7.6	36	18.3	146	74.1
May lead to compromised nutrition for children in schools where food is provided: so, may impact negatively on their academic performance	37	18.8	42	21.3	21.3	59.9

Source: Author (2020).

The responses were re-coded into three categories, namely, 3 = positive perception, by combining the strongly agree (5) and agree (4) responses, neutral = 2, which was labeled 3 before collapsing the response categories, and 1 = negative perception, by combining the strongly disagree (1) and disagree (2) categories. For the purposes of interpreting the findings of this study, disagreement was considered to mean that participants had negative perception, while agreement meant a positive perception of each of the eleven questionnaire statements about COVID-19 effects.

The positive perception of the participants about the effects of COVID-19 on the teaching and learning processes was generally high going by the results as tabulated in table 1 that show that the out of the 197 respondents, 59.9% to 90.9% agreed with the 11 statements that were used to measure the perceptions of teachers and learners about the effects of COVID-19 on the teaching and learning processes. In this regard, out of 197 respondents, most of the participants (90.9%) agreed that COVID-19 may lead to unequal access to educational resources, and also that school closures may negatively impact teaching and learning outcomes, especially for the underprivileged (Table 1). This finding is in line with the findings of the study by Judd et al., (2020). Further, 88.8%, 87.3%, 86.8% and 85.8% of the respondents were of the opinion that learners may substantially lag behind especially in reading and

mathematical subjects, stigmatization of infected learners and staff may heighten absenteeism, school closures may put strain on parents and teachers to provide childcare and manage distance (remote) learning while learners are out of school, and risky behavior may increase that may lead to increased teenage pregnancies and substance abuse among learners, respectively. Results also show that, out of the 197 respondents who answered the survey questionnaire, 82.7% felt that school closures may lead to unequal access to technology needed for continued teaching and learning, and 80.7% felt that shortened academic calendars may increase gap between low and high achieving learners. In line with the findings of the current study, various other studies, it was reported that because most governments around the world had temporarily closed educational institutions in an effort to curb the spread of the COVID-19 pandemic, educational activities that existed throughout the world were inhibited (Nkwain and Simwanza, 2020; Praghlapati, 2020; and UNESCO, 2020). This is also supported by Obiako and Adeniran, (2020) who found that the pandemic has impacted education in three major ways, including missed learning for most of the pre-pandemic students, loss of access to vital school- provided services and leaving more kids behind. Other than this, learners in schools that lack the resources or capacity to transition to online learning delivery will miss out on learning (Leung and Sharma, 2020).

However, this study also revealed that participants perceived Covid-19 as having had some positive effects on the teaching and learning processes. For instance, 74.1% of the 197 survey respondents believed COVID-19 may have brought about innovations in teaching and learning strategies like use of e-platforms (Zoom, TV, Podcast, etc.). This effect may be generally considered a positive effect of COVID-19. Additionally, of the 197 survey participants, 69.0% agreed that COVID-19 was likely to promote public health in schools, while 59.9% felt that COVID-19 may lead to compromised nutrition for children in schools where food is provided and that may impact negatively on their academic performance.

The qualitative information about the opinions of the respondents regarding the effects of Covid-19 on the teaching and learning processes were obtained through the face-to-face interviews and the FGDs with the participants. The responses were further categorized into themes according to the objectives. Some of the key results captured using interviews and FGDs are presented below.

The teachers' responses revealed that the teaching and learning process in the schools was greatly disrupted due to the closure of the schools and the social distancing that was implemented upon resumption of learning.

Out of the ten schools that participated in this study three schools which are grant aided schools stated that they were following the normal schedule of teaching and learning.

The findings from the teachers who participated in this study revealed that the teaching and learning process was negatively affected both during the closure of the schools and when the schools reopened. This was because the measures that were put in place to mitigate the spread of COVID-19 had reduced the time for teaching.

Due to the splitting of classes the teaching time in the schools was reduced from 9 to 6 periods, in some cases. This reduction resulted into reduced contact and interaction time with learners.

Furthermore, the splitting of classes resulted into teachers teaching 2 or 3 sessions in a day and as a result they were fatigued.

In some schools, the study revealed that some grades were skipping days whereby they

would only report two days in a week which led to a drastic reduction in learning time.

Some of the notable individual responses regarding the effects of COVID-19 on the teaching and learning processes were as follows:

One teacher said, *'teaching 2 sessions is very exhausting for the teachers, learners who needed extra attention were not getting it because the teachers are fatigued.'*

In other teacher's words, this study found out that ... *'the teaching is being hushed because the teachers are panicking in order to cover the syllabus before the examinations.'*

Another teacher observed that, ... *'teachers had a lot of work to do in order to make up for lost time, teaching had to start from where they had stopped before the closure of the schools.'* The same teacher further added that ... *'this was because not much teaching and learning took place during the closure of schools...'*

The teachers further stated that they were extremely overloaded and fatigued from teaching more than one session. For example, one teacher said ... *'we are extremely fatigued, and the teaching has become monotonous through teaching the same topics to the same class which has been split into two or three groups.'*

The teachers also revealed that the corona virus pandemic caused psychological effects on both the teachers and the learners. To emphasize this view, the following were some of the practical statements by some teachers ... *'There was a lot of anxiety, inertia and uncertainty among learners.'* *Who felt that the teachers will give them the virus?*

... *'Teachers were also afraid to interact with the learners, they were scared of even marking their books for fear of getting infected with the corona virus.'*

Overall, the responses from both the teachers and learners revealed that there was not so much teaching and learning that took place during the closure of the schools.

Similarly, opinions from the Head teachers regarding the effects of learning during COVID-19 included the following.

The Ministry of Education had directed that teaching and learning should continue during this time. However, the findings from this study showed that both the teachers and learners faced a lot of challenges. The Ministry

of Education had come up with the initiative of creating education channels on Zambia National Broadcasting Corporation and also schools were directed to use forums like WhatsApp and other internet options for online teaching. Regarding these strategies.

One Head teacher said *'The majority of the learners failed to access the online materials and lessons due to lack of internet gadgets like smart phones; the few who were able to access were those who came from wealthy families or those who lived in urban areas.'*

While another teacher said ... *'smart phones, laptops are expensive.'*

Other notable statements captured from discussions with the Head teachers were:

.... *'There was only one education channel on ZNBC and those in rural areas where there is no electricity had challenges to access this channel.'*

... *'There was a lot of repetition of topics.'*

... *'Some presenters of topics on the national televisions were not competent enough.'*

... *'A lot of disturbances from home environments from parents, guardians and siblings.'*

... *'Internet connectivity challenges led to some learners not covering much at home.'*

Furthermore, the learners were also asked for some opinions regarding the effects of COVID-19 on the learning and teaching processes. The responses from many learners revealed that their learning time was reduced which in turn affected the preparation (study time) which was reduced or in some cases completely scrapped off in some schools. Specifically, the following were the more notable responses from the individual learners.

'One learner said ... 'before COVID-19 there was enough time for teaching and learning but now there is no prep time; our classes start at 07hrs to 11 hours, thereafter teachers have to teach other groups.'

A grade 9 female learner said.... *'our parents and siblings expected us to carry out house chores and especially for us girls..., like in my case, I had several instances where, while in the middle of an online class at home, either mum or my siblings would ask me to make coffee for her or my siblings, which I found disruptive...'*

Another learner said ... *'we are lagging behind in most of the subjects.'*

The other notable voices of learners included the following:

...*'teachers are teaching in a hurried way, and they are not marking our books for fear of catching the virus.'*

'Teacher-Learner interaction has greatly reduced; we can no longer go to consult teachers in their departmental rooms because they cite social distancing.'

... *'Group study has also been affected because everyone is scared of corona.'*

However, in some of the schools especially the public and rural schools, the learners in general stated that the teaching and learning was adversely affected due to lack of classroom space and furniture. For example, one voice of a learner said

... *'We don't have enough classrooms and desks, and this makes us not to be able to maintain social distance.'*

While another learner said

... *'As a result ... (of lack of classrooms) our schools make us to learn on alternative days, like 3 days in a week.'*

One other learner added that ... *"using masks all the time is very stressful; sometimes we feel like suffocating, and also you can't get what the teacher or your classmates are saying..."*

Lessons learned from the COVID- 19 pandemic

- The findings of this study showed that overall the COVID-19 pandemic affected the teaching and learning process in both urban and rural schools in Kapiri- Mposhi district. While it is recognizable that the teaching and learning process in the district may have had various challenges, this study revealed that the COVID-19 pandemic has created new challenges in teaching and learning for secondary school teachers in the district specifically and probably in Zambia in general. These new challenges are of different dimensions ranging from psychological, health, infrastructure, methods of teaching and learning to technology. Evidently, most (59.9% to 90.9%) of the participants of the current study perceived COVID-19 as having had largely negatively affected the

teaching and learning process in the district. This was because the measures that were put in place to mitigate the spread of COVID-19 had reduced the time for teaching and learning. Due to the splitting of classes the teaching time in the schools was reduced from 9 to 6 periods, in some cases. This reduction resulted into reduced contact and interaction time with learners. Furthermore, the splitting of classes resulted into teachers teaching 2 or 3 sessions in a day and as a result they were fatigued. (Kabeta et al., 2022).

Thus the effects of the COVID-19 pandemic on teaching and learning yielded several valuable lessons for the education sector as follows:

1. The importance of technological readiness and infrastructure development has become evident, emphasizing the need for investment in digital devices, internet connectivity, and online learning platforms (Chen et al., 2020).
2. The government must also introduce blended learning in schools so that even when there is an emergence, teaching and learning will continue and there wouldn't be social and technological shocks and unnecessary panic in the delivery of education as was evidenced during the Covid-19 pandemic.
3. The awareness created by the findings of this study will contribute to proper planning and preparedness for future pandemics in terms of teaching and learning. This is because when people are knowledgeable and aware of something, it becomes easier to prevent and control (Kabeta, et al., 2022)
4. Addressing inequities in access to education requires targeted efforts to bridge the digital divide and ensure equal learning opportunities for all students.
5. Prioritizing student engagement, well-being, and mental health support is essential for maintaining positive educational outcomes in challenging circumstances.

6. Teacher professional development and support should be ongoing to equip educators with the skills and competencies necessary for flexible and effective instructional delivery (Dhawan, 2020)
7. Collaborative partnerships between educational stakeholders, including schools, communities, and government agencies, are crucial for addressing complex challenges and ensuring educational resilience in times of crisis.

CONCLUSION

The COVID-19 pandemic has had far-reaching effects on teaching and learning in secondary schools in Kapiri-Mposhi District, Zambia. The findings of this study have highlighted the challenges faced, the strategies employed to mitigate the impact, and the valuable lessons learned from the experience. By understanding these effects and lessons, educational stakeholders can proactively enhance educational preparedness and resilience to future disruptions. The recommendations provided can guide policymakers, school administrators, and educators in developing effective strategies to ensure continuity of quality education in the face of future challenges.

RECOMMENDATIONS FOR EDUCATIONAL PREPAREDNESS:

1. Investment in technology and infrastructure

Investment in technology and infrastructure is essential for educational institutions to effectively adapt to the digital age and provide modern learning environments. The government must also introduce blended learning in schools so that even when there is an emergency, teaching and learning will continue and there wouldn't be social and technological shocks and unnecessary panicking in the delivery of education.

2. Equitable access to education

Achieving equitable access is essential for promoting social inclusion, reducing

educational disparities, and fostering a more equitable society. Promoting equitable access to education requires a comprehensive and multifaceted approach. By addressing barriers, implementing inclusive policies, leveraging technology, and engaging with communities, educational institutions can work towards creating an inclusive and equitable education system that provides equal opportunities for all individuals.

3. **Teacher training and professional development programs**

The Ministry of Education should consider designing some training activities aimed at reducing the effects of future pandemics like COVID-19. Investing in professional development programs for teachers and staff is crucial to ensure they have the necessary skills to effectively integrate technology into the learning process. Training sessions, workshops, and coaching can enhance their digital literacy, pedagogical approaches, and ability to use technology for instructional purposes.

4. **Collaboration and partnerships**

Schools can leverage partnerships with technology companies, government agencies, and community organizations to access funding, expertise, and resources for technology and infrastructure investments. Collaborative efforts can help maximize the impact and cost-effectiveness of these investments.

5. **Developing contingency plans**

Developing contingency plans in response to the effects of COVID-19 on teaching and learning is crucial to ensure educational continuity and minimize disruptions. Set clear objectives for the contingency plans, such as ensuring the continuity of learning, providing equitable access to education, maintaining student engagement, and safeguarding the well-being of students and staff. Identify Alternative Instructional Methods: Explore alternative instructional methods that can be implemented during disruptions.

ACKNOWLEDGMENTS

The authors acknowledge the invaluable efforts of all the people who participated in this study.

FUNDING

This study was supported financially by Mulungushi University Research grant Funds.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interests.

REFERENCES

- Ainley, J., Biswas, T., & O'Neil, C. (2020). COVID-19 school closures: A missed opportunity to rethink education. UNESCO. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf000373437>
- Akseer, N., Kandru, G., Keats, E.C., Bhutta, Z.A. COVID-19 pandemic and mitigation strategies: implications for maternal and child health and nutrition. *Am J Clin Nutr.* 2020 Aug 1;112(2):251-256. doi: 10.1093/ajcn/nqaa171. PMID: 32559276; PMCID: PMC7337702.
- AlZboon, S. (2013). Social Adaptation and Its Relationship to Achievement Motivation among High School Students in Jordan. *International Education Studies.* 6. 63-69. 10.5539/ies.v6n10p63.
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* W.H. Freeman and Company, New York.
- Beamish, W. (2004). *Consensus about program quality: An Australian study in early childhood special education.* Unpublished doctoral dissertation, Griffith University, Queensland, Australia.
- Bozkurt, A., and Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education,* 15(1), i-vi. Retrieved from <https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/447>
- Burgess, S., and Sievertsen, H.H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. *VOX, CEPR Policy Portal,* 1 April [online article]. Retrieved 8

August

2020mfrom <https://voxeu.org/article/impact-covid-19-education>.

Hapompwe, C.C., Kukano, C. and Siwale, J. (2020). Impact of Covid-19 on Zambia's 2020 General Education Examination Candidates' Academic Performance in Lusaka: E-Learning Issues. *International Journal of Scientific and Research Publications, Volume 10, Issue 5*, May 2020647 ISSN 2250-3153 DOI: 10.29322/IJSRP.10.05.2020.p10175 <http://dx.doi.org/10.29322/IJSRP.10.05.2020.p10175>

Huber, S. G., and C. Helm. 2020. "COVID-19 and Schooling: Evaluation, Assessment and Accountability in Times of Crises—reacting quickly to Explore Key Issues for Policy, Practice and Research with the School Barometer." *Educational Assessment, Evaluation and Accountability* 32: 237–270. doi:10.1007/s11092-020-09322-

y. [[Crossref](#)], [[Web of Science](#)], [[Google Scholar](#)]

Judd, J., B.

A. Rember, T. Pellegrini, B. Ludlow, M and J. Meisner (2020). "This is Not Teaching": The Effects of COVID-19 on MTechers. Accessed 25 July 2020. https://www.socialpublishersfoundation.org/knowledge_base/this-is-not-teaching-the-effects-of-covid-19-on-teachers/ [[Google Scholar](#)]

Kabeta, R., Chilinga, G., & Sakakombe, L. (2022). Teacher and Learner Knowledge of Covid- 19 and its Mitigation Strategies in Selected Secondary Schools in Kapiri Mposhi District, Zambia. *African Journal of Education and Practice*, 8(5), 90–107.

<https://doi.org/10.47604/ajep.1648>

Kabeta, R., Chilinga, G., & Sakakombe, L. (2022). Perceptions of Teachers and Learners of the Effects of Covid- 19 on the Teaching and Learning in Selected Secondary Schools in Kapiri Mposhi District, Zambia. *African Journal of Education and Practice*, 8(6), 30–48. <https://doi.org/10.47604/ajep.1648>

Karlidağ-Dennis, Ecem & Hazenberg, Richard & Dinh, Anh-Tuan. (2020). Is education for all? The experiences of ethnic minority students and teachers in North-western Vietnam engaging with social entrepreneurship. *International Journal of*

Educational Development. 77. 102224. 10.1016/j.ijedudev.2020.102224.

Kaya, Ö.S., and Akgün, E. (2016). The study of school adjustment of preschool children in the point of some variables. *Elem. Educ.* 15, 311–324. Google Scholar

Leung, M., & Sharma, Y. (2020). Online classes try to fill education gap during epidemic. University World News. Retrieved from

<https://www.universityworldnews.com/post.php?story=2020022108360325>

Ministry of General Education. (2020a). Education contingency plan for novel Coronavirus (COVID-19). Republic of Zambia. Lusaka

Ministry of General Education. (2020b). COVID-19 Guidelines for schools. May 2020. Republic of Zambia. Lusaka.

Murphy, M.P.A. (2020) COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy, *Contemporary Security Policy*, 41:3, 492-

505, DOI: [10.1080/13523260.2020.1761749](https://doi.org/10.1080/13523260.2020.1761749) □[[Taylor & Francis Online](#)], [[Web of Science](#)], [[Google Scholar](#)]

Nkwain, A. and Simwanza, C. (2020). [Understanding the Implications of the Covid-19 School Closure on Learners in Zambia](https://saipar.org/wp-content/uploads/2020/12/Understanding-the-Implications-of-the-Covid-19-School-Closure-on-Learners-in-Zambia-online-article.pdf)[online article]. Retrieved 12 August, 2021 from [https://saipar.org/wp-content/uploads/2020/12/](https://saipar.org/wp-content/uploads/2020/12/Understanding-the-Implications-of-the-Covid-19-School-Closure-on-Learners-in-Zambia-online-article.pdf)

Obiakor, T., & Adeniran, A. P. (2020). Covid-19: Impending situation threatens to deepen Nigeria's education crisis. Centre for the study of the Economies of Africa (CSEA). Retrieved from

<https://media.africaportal.org/documents/COVID19-ImpendingSituation-Threatens-to-Deepen-Nigerias-Education-.pdf>

Olutola, A. T., & Olatoye, O. O. (2015). Challenges of e-learning technologies in Nigerian university education. *Journal of Educational and Social Research*, 5, 301-301.

Perry, K. E., & Weinstein, R. S. (1998). The social context of early schooling and children's school adjustment. *Educational Psychologist*, 33(4), 177–194.

https://doi.org/10.1207/s15326985ep3304_3

- Phelps, C., & Sperry, L. L. (2020). Children and the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S73.
- Pokhrel, S. and Chhetri, R. (2021). A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning. *Higher Education for the Future* 8(1), 133 -141.DOI: 10.1177/2347631120983481
- Pragholapati, A. (2020, May 11). COVID-19 Impact on Students. <https://doi.org/10.17605/OSF.IO/NUYJ9>
- Pragholapati, A. (2020, May 11). COVID-19 Impact on Students. <https://doi.org/10.17605/OSF.IO/NUYJ9>
- Quaife, M., van Zandvoort, K., Gimma, A. et al. (2020). *The impact of COVID-19 control measures on social contacts and transmission in Kenyan informal settlements*. BMC Med 18, 316 (2020). <https://doi.org/10.1186/s12916-020-01779-4>
- Sinha, I.P., Lee, A.R., Bennett, D., McGeehan, L., Abrams, E.M., Mayell, S.J., Harwood, R., Hawcutt, D.B., Gilchrist, F.J., Auth, M.K. and Simba, J.M., (2020). Child poverty, food insecurity, and respiratory health during the COVID-19 pandemic. *The Lancet Respiratory Medicine*, 8(8), pp.762-763.
- Sintema, E. J. (2020). Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), 1–6.
- UN (2020). *United Nations COVID-19 Emergency Appeal Zambia may -2020*. <http://www.zm.one.un.org/>
- Unesco, C., (2020). Education in times of the COVID-19 pandemic. *Latin American Journal of Comparative Education: RELEC* , 11 (18), pp.250-270.
- UNESCO, UNICEF, . & Bank, W., (2020). What Have We Learnt? : Overview of Findings from a Survey of Ministries of Education on National Responses to COVID-19, Paris, New York, Washington D.C.: UNESCO, UNICEF, World Bank. Retrieved from <https://policycommons.net/artifacts/1278937/what-have-we-learnt/1869007/> on 07 Sep 2022. CID: 20.500.12592/1vz0bc
- United Nations (2020). *United Nations COVID-19 Emergency Appeal Zambia (2020)*. <http://www.zm.one.un.org/>
- Viner, V.R., Russell, S.J., Croker,H., Packer,J., Ward, J., Stansfield, C., Mytton,O., Bonell, C., and Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review, *The Lancet Child & Adolescent Health*, Volume 4, Issue 5,2020,Pages 397-404,ISSN 2352-4642, [https://doi.org/10.1016/S2352-4642\(20\)30095-X](https://doi.org/10.1016/S2352-4642(20)30095-X)
- World Bank (2020). What Have We Learnt? : Overview of Findings from a Survey of Ministries of Education on National Responses to COVID-19, Paris, New York, Washington D.C.: UNESCO, UNICEF, World Bank. Retrieved from <https://policycommons.net/artifacts/1278937/what-have-we-learnt/1869007/> on 07 Sep 2022. CID: 20.500.12592/1vz0bc.
- World Health Organization (2020a). Coronavirus disease 2019 (COVID-19) Situation Report - 52. Geneva: World Health Organization. March 12, https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200312-sitrep-52-covid-19.pdf?sfvrsn=e2bfc9c0_4. Accessed 11 March 2021.
- Zambia Policy Brief (2020): COVID-19 & its Impacts on Children's Education in Zambia, July 2020. <https://www.wvi.org/publications/policy-briefing/zambia/policy-brief-covid-19-its-impacts-childrens-education-zambia#>
- Zhang, W., Yuxin, W., Lili, Y., and Chuanyi, W. (2020). "Suspending Classes Without Stopping Learning: China's Education Emergency Management Policy in the COVID-19 Outbreak" *Journal of Risk and Financial Management* 13, no. 3: 55. <https://doi.org/10.3390/jrfm13030055>
- Zhong B-L, Luo W, and Li H-M, et al. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19

outbreak: a quick online cross-sectional survey. *Int J Biol Sci.* 2020;16(10):1745–1752. doi:10.7150/ijbs.45221 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. Retrieved from <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>

McLoughlin, C., & Lee, M. J. W. (2020). Teaching in a pandemic: Exploring the pedagogical affordances of digital technologies for resilience and transformation. *Asia-Pacific Journal of Teacher Education*, 48(3), 243-254. doi: 10.1080/1359866X.2020.1776057

Ministry of General Education, Zambia. (2021). *Guidelines for the Continuity of Learning during the COVID-19 Pandemic*.

UNESCO. (2020). Adverse consequences of school closures. Retrieved from <https://en.unesco.org/covid19/educationresponse/consequences>

United Nations. (2020). Policy Brief: Education during COVID-19 and beyond. Retrieved from https://www.un.org/development/desa/dsp/d/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

World Health Organization. (2020). Mental health and psychosocial considerations during the COVID-19 outbreak. Retrieved from <https://www.who.int/publications/i/item/WHO-2019-nCoV-MentalHealth-2020.1>