EFFECTS OF POST COVID-19 PANDEMIC ON PUBLIC PRIMARY SCHOOL TEACHING AND LEARNING: A CASE OF KALAMBO DISTRICT

Angelina J. Masanyiwa[1], Frank Mwamakula[2], Michaela Mhagama[3]

[1,2,3]Department of Education Foundations, St. Augustine University of Tanzania

Corresponding Author:
angelinamasanyiwa90@gmail.com

Abstract

This study aimed to assess the effects of the post-COVID-19 pandemic on public primary school teaching and learning, with a focus on Kalambo District. The research was guided by specific objectives, including identifying the social and economic effects of the pandemic on teaching and learning, as well as determining measures to mitigate its negative impact. The study employed Albert Bandura's Social Learning Theory (1969) as its theoretical framework and a mixed research approach with the convergent parallel research design for data collection. The research included 176 respondents, including the District Educational Officer, head teachers, teachers, and students. Data was collected through interviews and questionnaires, and instrument validity was ensured. The findings revealed changes in classrooms, teaching methodologies, and the development of fear among pupils and teachers, along with unfortunate deaths of educators. Challenges included insufficient resources and government budget allocation. Recommendations encompassed reducing class sizes, improving ventilation, constructing additional schools, providing resources for teaching and learning, and offering modern teaching training. In conclusion, improving public primary school infrastructure, limiting class sizes, and enhancing resources were advised to mitigate future COVID-19 impacts.

Keywords: *Coronavirus pandemic, Post COVID-19 disease, effects, public primary schools, remote learning, technology, teaching and learning*

1. INTRODUCTION

Coronavirus Disease, known as COVID-19, is caused by the Severe Acute Respiratory Syndrome Coronavirus. It exhibits symptoms such as cough, fever or chills, sore throat, difficulty in breathing, fatigue, and body or muscle aches. The rapid and widespread nature of the pandemic has been deeply concerning. Research indicates that older individuals and those with underlying medical conditions like cardiovascular diseases, diabetes, chronic respiratory diseases, and cancer are more susceptible to severe illnesses caused by the coronavirus (WHO, 2020). The disease is believed to be transmissible among humans and between humans and other animals (Ahmad et al., 2020). The first COVID-19 outbreak was reported in Wuhan, China, in December 2019 (Huang, 2020). It was officially declared a "Public Health Emergency of International Concern" and a "pandemic" on December 31, 2019 (WHO 2020a, 2020b). The COVID-19 pandemic has profoundly impacted various aspects of the world, including education, the economy, politics, and social services (Paschal, Pacho &Adeoyin, 2022). Particularly in the education sector, the disease has been spreading at an alarming rate and presents a global threat to the provision of primary-level education. Primary education is typically the first stage of formal education after preschool and before secondary schools, provided by formal expertise at specific locations or organizations. Teaching and learning at this level of education typically spans seven to eight years and concludes with a level examination that awards a certificate (GEP Act, 2015). During the pandemic in China, where the outbreak began, they were among the first to suspend primary school teaching and learning. For instance, schools in China remained closed for the longest period globally, from March 2020 to August 2020, as the Chinese government implemented lockdown measures to contain the virus's spread. As a result of lockdowns and school closures, teaching and learning transitioned from traditional face-to-face methods to digital platforms (Paschal & Mkulu, 2020). This shift presented numerous challenges that demanded swift policy changes and procedures to ensure equitable and effective remote teaching and learning for primary school students during the pandemic. Despite advancements in educational technology over the last few decades in China, it proved to be especially valuable during this crisis (Dhawan, 2020). However, students residing in rural areas of Chinese provinces at the onset of the pandemic encountered challenges like limited internet access that they were unprepared to overcome (Chakraborty, 2020). Numerous scholars have conducted extensive research on educational practices to assess how COVID-19 has affected teaching and learning on a global scale (Chakraborty, 2020; Mahona & Pacho, 2021).

In other parts of the world, such as America, several organizations conducted surveys in phases during the first four months of remote teaching and learning after school closures, especially at the primary level. The American Trends Panel survey of teachers and principals (Hamilton et al., 2020), conducted in late April to early May, complements the work of the Center on Reinventing Public Education (Gross & Opalka, 2020), along with their systematic review of school districts and charter management organizations' websites. The American Institutes of Research (AIR) also initiated a national survey on educators' responses to the coronavirus (Garet et al., 2020). This survey, carried out throughout the spring of 2021, gathered data from 2,500 school districts and organizations, including primary schools. The initial survey examined approaches and challenges related to distance learning, student well-being and safety, district policies regarding grading, assessment, and graduation. Policy briefs derived from this data have focused on three main areas of concern: teachers' lack of familiarity with learning tools, districts' ability to offer socio-emotional support to students, and the frequency of teacher-student interaction. In Africa, the opportunity costs of school closures in terms of students' future productivity were found to be substantial. Pedro et al. (2020) provides a global estimate suggesting that the present value of learning loss due to a five-month school closure amounts to $10 trillion. This loss implies that the world would face the equivalent of about a 16% reduction in the investments governments make in basic education for this cohort of students. Due to the pandemic-induced school closures, governments worldwide implemented a variety of responses to ensure learning continuity. These responses included national television broadcasts of educational programs, promotion of online learning through platforms like Microsoft Teams, Google Classrooms, and Zoom, the launch of websites for online education, creation of portals for students and parents, establishment of virtual spaces for consultations, and the development of home study programs, mobile learning initiatives, and printed materials for the most vulnerable students (Paschal, Pacho & Adewoyin, 2022; World Bank, 2020).

In response to the extended closure of schools in Malawi due to the pandemic, measures were taken to mitigate the potentially long-term negative effects on education. The Ministry of Education established distance learning opportunities, allowing students to continue their studies from home. These distance learning frameworks incorporated various technologies, including mobile devices, the internet, television, and radio (MoE, 2020a). Online learning materials, which relied on internet and mobile technologies, primarily targeted secondary and tertiary-level learners, while radio and television programs were specifically designed for primary school students. In rural areas where technology access was limited during school closures, primary school learners were provided with textbooks and printed materials (Department of Inspection and Advisory Services report, 2020). Remedial learning efforts were initiated in primary schools in Malawi following the outbreak and school closures due to COVID-19. While teachers were encouraged to provide remedial teaching for students falling behind, formal guidelines were lacking, and the majority of teachers did not receive formal training on implementing remedial learning. As observed by Ravishankar et al. (2016), primary education in Malawi exhibited characteristics such as low learning outcomes and learners progressing to higher grades without acquiring essential competencies.

In South Africa, school closures due to COVID-19 resulted in learning loss and mental distress, especially for primary school students. To address this, a blended learning approach was adopted, which included rotational access to online learning, radio lessons, and television educational resources. While teachers were encouraged to facilitate remote learning at the primary level, it remained beyond the reach of some students. Therefore, the South African government is actively promoting effective remedial programs for primary education to ensure students catch up and leverage emerging technologies to accelerate educational services (UNICEF, 2021). In East Africa, on March 16, 2020, Tanzania reported its first case of COVID-19. Months later, in April, the country's bustling region of Tanga also reported its first case. To help prevent the further spread of the virus, the government began to train health professionals in case investigation, contact tracing, home and community isolation, quarantine, infection prevention control (IPC), and case management, providing a strategy to respond to new cases (Franke, 2021). Furthermore, the Centers for Disease Control (CDC) aided Tanzania in hiring and training drug dispensary staff to monitor the number of people seeking COVID-19 treatment. This allowed pharmacists to watch out for potential cases in their communities to increase precautions and prevent the disease's spread. In total, the CDC helped train 116 healthcare personnel in COVID-19 response strategies, creating a holistic community response to detect and respond to the COVID-19 crisis (Daily News, 2020). The global statistics revealed that by January 23, 2021, almost 9.7 million cases had been confirmed in 219 countries, with deaths approaching 2.1 million (WHO, 2021). Confirmed cases by WHO in regions were 43,133,022 for the Americas; 31,857,099 in Europe; 12,627,306 in South-East Asia; 5,484,650 in Eastern Asia; 2,437,945 in Africa; and 1,336,632 in the Western Pacific (WHO, 2021). On March 17th, 2021, the sixth president of Tanzania released official COVID-19 statistics, marking more than a year since the last update. The president confirmed 100 new COVID-19 cases since the start of the third wave of the pandemic. Bringing hope to Tanzania, the president also allocated $470 million for the purchase of COVID-19 vaccines, aiming to protect the country's citizens from the pandemic virus (Franke, 2021). The World Economic Forum (2021) argues that the risk of COVID-19 has affected primary education in various ways, significantly altering the means of provision. A whole generation of young people has had to adapt to an unusual situation, with new factors and rules influencing their educational progress. In line with the guidelines for reopening schools during the pandemic, the Tanzanian education sector emphasized remedial teaching as a primary educational principle. These guidelines advised educators to prioritize remedial teaching to address the learning gap caused by the pandemic. They also recommended maximizing instructional time, extending timetables to accommodate daily remedial instruction, and making adjustments to timetables for remedial lessons before and after regular classes (MoE, 2020b). To facilitate the implementation of remedial education, teachers across all districts received training on remedial learning strategies and pandemic prevention in teaching and learning before schools reopened. Schools were instructed to conduct formative assessments in the first week of reopening to assess students' retention during the closures and conduct continuous assessments during remedial lessons to track progress (MoE, 2020b). The impact of COVID-19 extends beyond teaching and learning; it also affects the safety and professional development of students. These changes have manifested themselves worldwide, with varying degrees of impact depending on country-specific characteristics. Given the social significance of the pandemic, it is imperative to investigate changes in teaching and learning, as they pertain to primary education provision and their impact on training efficiency at the primary education level (United Republic of Tanzania, 2020). The massive efforts made in a short time to respond to the shocks to education systems serve as a reminder that change is possible. The current situation presents an opportunity to explore new approaches to address the learning crisis and implement solutions previously considered difficult or impossible. Therefore, this study will delve into the effects of the post-COVID-19 pandemic on public primary school teaching and learning, particularly in Kalambo District, Rukwa Region.

1.1 Statement of the Problem

The outbreak of COVID-19 has had severe consequences, both nationally and globally. It brought life-threatening alerts that necessitated measures to combat the virus, such as lockdowns, mask-wearing, sanitizer use, and the avoidance of unnecessary gatherings and handshakes. The worldwide impact of the coronavirus has manifested in numerous post-effects on teaching and learning at the primary level. As a result of the COVID-19 pandemic, various consequences, both negative and positive, have emerged. These include the closure of schools and educational institutions. Following the emergence of COVID-19 in Tanzania, the pandemic spread to other parts of the country. In Rukwa region, especially in Kalambo district, the pandemic has hindered progress towards achieving the Sustainable Development Goal of quality education by 2030. This is the reason why this research needs to be conducted to identify strategies for addressing the post-effects of this pandemic and proposing measures for effective teaching and learning. Therefore, this study aims to assess the effects of the post-COVID-19 pandemic on public primary schools' teaching and learning in Kalambo District, Rukwa region.

1.2 Objectives of the Study

The study was guided by the following objective

i) To determine possible measures to mitigate the negative impact of the COVID-19 pandemic and enhance public primary school teaching and learning in Kalambo District.

2. LITERATURE REVIEW

According to the Ministry of Education (MoE) in 2020, in their article "Guidelines for Schools in Malawi: Prevention and Management of Covid-19," various programs were created for primary school learners. However, these online materials required internet access and technology, which posed challenges for all learners, including public primary

school students. Remedial learning was emphasized, and given that most classes in Malawi have 70 to 100 learners, this setup could potentially encourage the spread of the coronavirus due to its mode of transmission. In response, the Ministry of Education provided guidelines for reopening schools, recommending an ideal class size of 40 learners per class after the eruption of Covid-19. Some suggested strategies included splitting large classes using existing extra rooms, such as dining halls, open-air classrooms, and tents, to increase the amount of learning space. Another approach was the implementation of a double-shift system, where large classes would be split into two, with one class in the morning and the other in the afternoon, along with employing more teachers and redistributing them. In their 2020a report, the MoE discussed efforts to mitigate the effects of extended school closures due to the pandemic. The Ministry of Education in Malawi organized distance learning opportunities to allow learners to continue their education at home. These remote learning frameworks included the use of radio, television, internet, mobile devices, and teachers to support students who were falling behind.

In Kenya, it is crucial to emphasize parental involvement in addressing the impact of Covid-19 on inclusive education. For instance, parents could assist students in accessing their coursework on computers when there are no applications available for reading out loud. Additionally, the government should allocate resources for inclusive education, including setting up an emergency fund for students with special needs (Angode & Resa, 2021). Government interventions should include providing smart devices to both teachers and students to ensure readiness and familiarity with distance learning, rather than relying solely on in-person teaching (Malpass, 2020). Another researcher recommended increasing resources for education provision, as children are particularly vulnerable in emergency situations like the Covid-19 pandemic. This entails leveraging the available low-cost technology to maintain educational activities, monitor teacher and student progress, invest in future technology advancements, and support parents in managing the home learning environment to mitigate learning losses (Msigwa, 2018).

Onyango and Mhagama (2020), in their article on "Educational Technology for Continuation of Teaching and Learning During the Covid-19 Pandemic," suggested that developing countries, including Tanzania, should establish online learning infrastructure, including providing computers and ensuring a stable power supply, which are crucial for effective online learning. Furthermore, there is a need to enhance community involvement in their children's education by equipping them with the necessary knowledge about technology use in teaching and learning, as well as knowledge about managing potential Covid-19 outbreaks. They argued that the government must invest in teaching and learning by recruiting more teachers and deploying them to schools with insufficient teaching staff to improve the quality of education post-Covid-19. Additionally, Gougou & Paschal, (2023); Paschal & Ismael, (2023) there is a need to encourage communities to invest in technology to facilitate online learning not only during a pandemic but also to expand access to education at all levels.

3. RESEARCH METHODOLOGY

This study used a mixed research approach where both quantitative and qualitative approaches were employed because a mixture provides a comprehensive understanding of the research. Again, a convergent parallel research design was employed where data were analyzed separately while keeping a comparison of both qualitatively and quantitatively, and interpretation of the results was done together. The study population consisted of the District Education Officer (DEO), Primary School Head Teachers, primary school teachers and pupils with a total of 10,000 respondents. The sample size involved 176 respondents and it was convenient as it provided the required information. The study applied both probability (simple random) to select students and teachers (through counting up numbers and taking the tenth in each count) and nonprobability (purposive) to 5 heads of schools and one (1) DEO. The basis for using purposive sampling to select heads of schools was because of being the only one in the schools which were selected randomly (lottery) to participate in the study. The DEO was also the only one for primary education in the district. Questionnaires (close ended) were used for collecting quantitative data while structure interview (face to face) were used in collecting qualitative data. For the purpose of determining validity and reliability of the research instruments the study employed face and content validity and Cronbach Alpha (with a reliability coefficient of more than 0.7) respectively. Piloting test was conducted at one primary school which was not among the sampled schools. Quantitative data from closed-ended questionnaires were analyzed using descriptive statistics with the assistance of Statistical Package for Social Science (SPSS) version 21. Qualitative data were analyzed thematically. The requirements and directives of research ethics were observed and citation of all the sources of information throughout this study was properly done adhering to APA Manual 7th edition to avoid plagiarism.

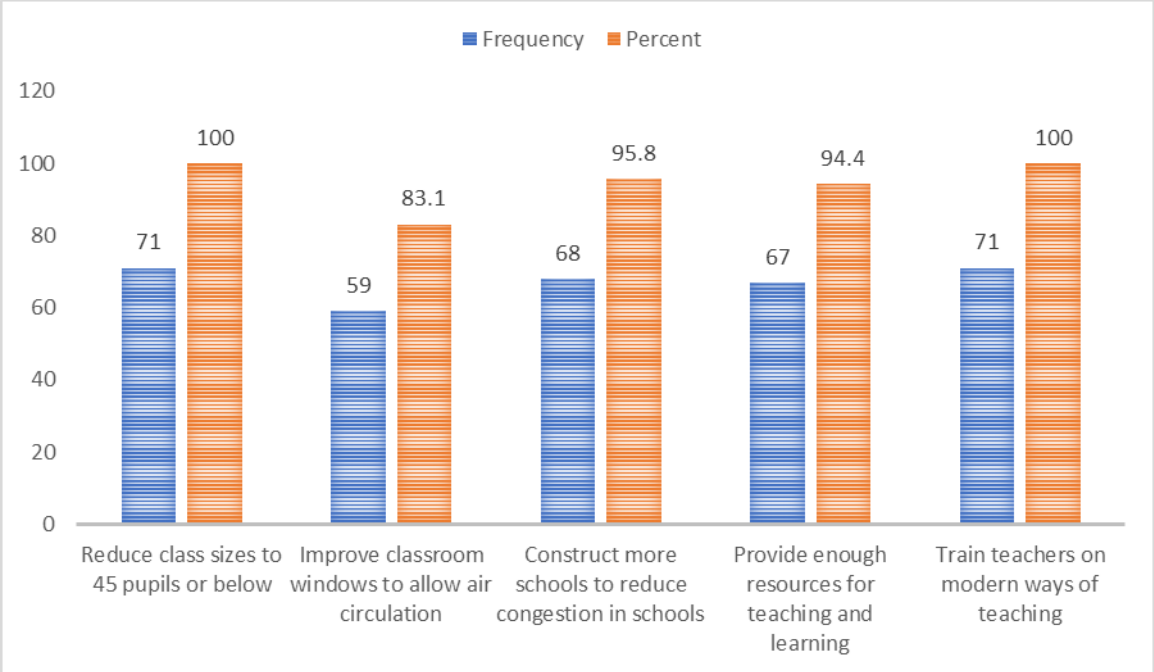
4. RESULTS AND DISCUSSION

Results and discussion are presented thematically on the basis of the objective guiding this objective.

4.1. Possible Measures to Mitigate the Negative Impact of COVID-19 Pandemic and Enhance Public Primary School Teaching

The study sought to determine the possible measures to solve the negative impact of COVID-19 pandemic and enhance public primary schools' teaching and learning in Kalambo District. A sample of 71 teacher respondents was asked to tick an appropriate statement from the statements suggested as suitable measures for mitigating the negative impact of COVID-19 and enhance primary school teaching. Figure 1 presents their responses:

Figure 1 *Measures for solving negative impact of COVID-19 and enhance teaching and learning in public primary schools*



Source: Field Data, 2023

Results from Figure 1 shows various measures that were identified by the 71 teacher respondents for solving negative impacts of COVID-19 and enhance teaching and learning in public primary schools. These include reducing class sizes to 45 pupils or below (71 percent), improving classroom windows to allow air circulation (59 percent), constructing more schools to reduce congestion of pupils in schools (95.8 percent), providing enough resources for teaching and learning in public primary schools (67 percent) and training teachers on modern ways of teaching (71 percent).

Reducing Class Sizes to 45 Pupils or Below

The study findings from questionnaires indicated that reducing class sizes to 45 pupils or below is a strategy for solving the effects of COVID-19 and enhancing teaching and learning in public primary schools. As a confirmation, quantitative information presented in Figure 1 indicates that 100 percent of the teacher respondents accepted the idea. During the interview sessions, the information collected from respondents seemed to agree with the quantitative findings provided above. For example, one of the respondents had the following to say during the interview sessions:

Big class sizes like the one we have, where you sometimes find 70 to 100 pupils or more in a single classroom, are very dangerous for the infection of the pandemic as they encourage sharing of breath and easy, unacceptable contacts because of congestion. Therefore, reducing class sizes can help learners avoid infection because of the presence of good air circulation (Interview; HT_3: August 2023).

This implies that reducing class sizes to smaller ones can be a good strategy for reducing or solving the effects of COVID-19 by avoiding new infections. This agrees with the MoE (2020), whose guidelines for reopening schools suggested an ideal class size of 40 learners per class after the eruption of COVID-19. The suggestions for implementing the reduction of class sizes to 40 pupils included splitting large classes using extra existing rooms like dining halls, open-air classes, and tents to increase the amount of learning space.

Improving classroom windows to allow air circulation

Again, from the questionnaire findings, the study indicated that the improvement of classroom windows to a size big enough to allow air circulation was among the measures to solve the effects of COVID-19 and enhance teaching and learning in public primary schools. This is also verified by the quantitative information presented in Figure 4.8, where it is shown that 83.1 percent of the teacher respondents accepted the improvement of windows to allow air circulation as a measure for solving the effects of COVID-19. Interview information collected from the respondents during the interview and qualitative questions on the pupils' questionnaires correspond to the quantitative information provided above. For example, one of the pupils wrote,

Our classrooms are small, and the windows are very small. This causes classrooms to lack enough light and air. We therefore request that the government improve them to enable enough circulation of air and light. Since COVID is transmitted through air, this situation, assisted by our number in the classroom, is not safe for pupils if COVID-19 pandemic reoccurs (Questionnaire: Pl_{55}: 10 August 2023).

The quotation above reveals that some of the schools' classrooms do not allow enough air circulation which can then simplify the possibility of COVID-19 infection to learners and teachers. Additionally, during the interview sessions, one of the respondents had the following to say:

Some of the classrooms in our schools have small windows, which do not allow good circulation of air. Due to the nature of the transmission of coronavirus, the windows have to be widened and the class walls be increased in length to allow enough circulation of air and light in classrooms. By so doing, we shall be reducing the possibility of infection and its resultant effects (HT4: August 2023).

The quotations above indicate that improvements in the sizes of classroom windows and the height of classroom walls allow for good circulation of air, which can limit the possibility of easy transmission of coronavirus. This can therefore serve as a measure for solving the effects of the COVID-19 pandemic and enhancing teaching and learning in public primary schools.

Constructing More Schools to Reduce the Congestion of Pupils in Schools

Furthermore, questionnaire findings indicated that the construction of more primary schools can also be a measure of reducing or solving the effects of the COVID-19 pandemic through the reduction of pupils in schools. Constructing more schools to reduce the congestion of pupils in schools. This is confirmed by the quantitative findings presented in Figure 1, which indicates that 95.8 percent of the teacher respondents accepted that the construction of more schools is a strategy for solving the effects of the COVID-19 pandemic. During the interview sessions, qualitative information collected from respondents seemed to support the view that the construction of more primary schools is a measure for solving the effects of the COVID-19 pandemic. For example, one of the respondents had the following views during the interview sessions:

To solve the effects of COVID-19 in public primary schools, it would be better if more primary schools were built in order to reduce the congestion of pupils in a single school. Today, it is common to find seven hundred or more pupils in a single school. In some of the schools, you may find even one thousand pupils in a single school, which is very dangerous in cases like COVID-19. Therefore, the reduction of pupils from schools through the construction of new schools can be a suitable strategy (Interview; HT1: August 2023).

This indicates that the construction of schools can be a suitable strategy for solving the effects of COVID-19 and enhancing teaching and learning in public primary schools by reducing the congestion of pupils in schools and encouraging ideal class sizes appropriate for effective teaching and learning. However, no previous studies have mentioned the construction of schools as a strategy for solving the effects of COVID-19, although in Tanzania, reports indicate that after COVID-19, the country constructed more classrooms in schools and planned to build 18,000 and 1,000 schools throughout the country (Takwa, 2021; Kapama and Mtema, 2021).

Providing Enough Resources for Teaching and Learning

From the questionnaire findings, the study indicated that the provision of enough resources for teaching and learning is another measure for solving the effects of the COVID-19 pandemic. Quantitative findings presented in Figure 1, as a support to this argument, shows that 94.4 percent of the respondents mentioned the provision of resources to schools as a strategy for solving the effects of the COVID-19 pandemic. Information collected throughout the interview indicates that the provision of resources includes the provision of financial resources for improving and implementing various teaching and learning activities and even for improving the learning environment both in classrooms and outside environments. Interview findings from respondents during the interview sessions correspond with the questionnaire findings presented in Figure 1. One of the respondents had the following views:

It is better if schools are supplied with enough resources to improve the teaching and learning activities. In some schools, the climate is not pleasing because of the absence of resources like water. Since one of the strategies for avoiding coronavirus infection is washing hands with detergents or soap from time to time, we fail to implement that practice because of the absence of water, financial resources for buying soap or detergents for all pupils, and buckets for keeping water. The provision of resources can therefore help in the fight against coronavirus infection (Interview; HT5: 10 August 2023).

This implies that some of the primary schools miss the necessary resources for teaching and learning and social services like water, which could simplify the application of strategies for combating COVID-19, like washing hands every time one feels the need to do that. The findings indicate that the provision of enough resources to schools can be used as a measure for solving the effects of the COVID-19 pandemic and enhancing teaching and learning in public primary schools. This concurs with Gougou & Paschal (2023); Malpass (2020), who suggested that there should be government interventions on the provision of smart devices to teachers and also students to make sure those students are ready and familiar with distance learning instead of waiting for teachers to be in class to provide a certain syllabus physically, while Msigwa (2018) suggested the addition of resources in education provision activities like teaching and learning because children are like vulnerable people in emergence situations, for example, the COVID-19 pandemic eruption.

Training Teachers on Modern Ways of Teaching

Training teachers on modern ways of teaching was also found to be among the measures for solving the effects of the COVID-19 pandemic, as indicated by the findings of the study. This is verified by the questionnaire findings presented in Figure 1 above, which indicate that 100 percent of the respondents accepted training of teachers on modern ways of teaching as one of the measures of solving the effects of COVID-19 pandemic. According to the study's quantitative findings, the modern ways of teaching spoken about here are the application of the internet and other electronic programmes, which can enable the teacher to teach learners even if they are at home. Information collected from respondents during the interview sessions seems to support the quantitative findings provided above. For example, one of the respondents had the following to say during the interview sessions:

Teachers need to be trained on the application of computer-assisted ways of teaching, which can enable them to teach learners even when pupils are at home. This can enable them to teach in critical situations, like the closure of schools, by avoiding infections (Interview; HT2: August 8, 2023).

This implies that most teachers have no knowledge of advanced technological ways of teaching, like the use of computer programmes in teaching and learning activities. Additionally, another respondent said,

Pupils can also be taught using radio and television programmes, but teachers should know how to prepare lessons for radio or television programmes. This can also help pupils avoid infection when the situation is critical (Interview; HT5: 10 August 2023).

The quotation above means that after the COVID-19 eruptions, the use of electronic devices and remote learning like computers, televisions, and radios was opted for as methods of teaching in some places. However, in Tanzania, such methods were not as applicable because of a number of challenges, including teachers' lack of knowledge of preparing lessons and using those methods. This indicates that, through modern ways of teaching and learning, the effects of COVID-19 can be fought. This agrees with MoE (2020) that, in an attempt to moderate the effects of extended school closures due to the pandemic, the Ministry of Education in Malawi organised some distance learning opportunities for learners to continue learning at home. Remote learning frameworks included the use of radio, television, internet and mobs and teachers to student who were falling behind. This indicated that training teachers in modern ways of teaching can also help in solving the effects of the COVID-19 pandemic, especially in critical situations. The findings indicate that teaching that employs the use of computers can be useful during school closures because of the infections. This concurs with MoE (2020), who unveils that among the guidelines for prevention and management of COVID-19 was online teaching, the materials of which demanded internet and internet technologies for all levels of learners, including public primary school students. This may be viewed as impossible because of insufficient power supply and a lack of knowledge on internet applications among teachers and pupils. However, when training is given to teachers and pupils, the strategy can be used to avoid the effects of COVID-19 pandemic in critical situations. In general, the study identified a number of measures that can be used to solve the effects of the COVID-19 pandemic, including reducing class sizes to 45 pupils or below, improving classroom windows to allow air circulation, constructing more schools to reduce the congestion of pupils in schools, providing enough resources for teaching and learning, and training teachers on modern ways of teaching.

5. CONCLUSION AND RECOMMENDATIONS

On the basis of the findings of this study, it is concluded that there are measures that can be taken to solve the negative effects of the COVID-19 pandemic and enhance teaching and learning in public primary schools, including reducing class sizes to 45 pupils or below per classroom, improving classroom windows in order to allow air circulation, constructing more schools to reduce congestion of pupils in a single school, the government providing enough resources for teaching and learning, and training teachers on modern ways of teaching. If implemented effectively, this can reduce the intensity of the effects of the COVID-19 pandemic and enhance teaching and learning in public primary schools in Kalambo District. The study recommends to the Ministry of Education, Science, and Technology and the President's Office, Regional Administration, and Local Government to think about how public primary schools' infrastructure can be improved to enable each school to have class sizes of not more than 45 pupils per classroom in order to allow space, which limits the effects of the COVID-19 pandemic in case of reoccurrence, equip public primary schools with computer laboratories to enable teachers and pupils to learn how to improve their teaching through the use of computer programmes. Further, the study recommends to policymakers, managers, and education planners that they think of how courses on modern ways of teaching using internet applications and computers can be included in the curriculum to enable teacher graduates to have the ability to use modern technology in teaching. Heads of schools and teachers, in cooperation with the community, should think about how to improve classrooms and buy furniture and other equipment in order to simplify teaching and learning. Teachers should study the application of computers in teaching.

REFERENCE

[1]. Ahmad, T., Khan, M., Musa, T. H., Nasir, S., Hui, J., Bonilla-Aldana, D. K., & Rodriguez-Morales, A. J. (2020). COVID-19: Zoonotic aspects. *Travel Medicine and Infectious Disease*, *36*, 101607-101607.

[2]. Angode, C., & Ressa, T. W. (2021). The impact of covid-19 pandemic on students with special needs. A case study of Kakamega County Kenya. *Journal of Students with Learning Disabilities*, 189(2), 121-141

[3]. Chakraborty, P., Mittal, P., Gupta, M. S., Yadav, S., & Arora, A. (2021). Opinion of students on online education during the COVID-19 pandemic. *Human Behavior and Emerging Technologies*, *3*(3), 357-365.

[4]. Daily News. (2020, April 28). Tanzania: Let's see far to mitigate impact of Covid-19 threat on tourism. The Daily News. https://dailynews.co.tz/news/2020-04-285ea7e34da15ee.

[5]. Department of schools inspection (2020). *Covid-19series; briefing on schools: http//assets.publishing.*

[6]. Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22.

[7]. Franke, C. (2021). *The impact of COVID-19 ON poverty in Tanzania Retrieved from* https://borgenproject.org/impact-of-covid-19-on-poverty-in-tanzania

[8]. Garet, M., Rickles, J., Bowdon, J., & Heppen, J. (2020, July). National Survey on Public Education's Coronavirus Pandemic Response. American Institutes for Research.*https://www.air.org/sites/*

[9]. Gougou, S. A-M., & **Paschal, M. J.** (2023).Integrating open Educational Resources to support Transformative Approach in English as a foreign Language in Africa. *Canadian Journal of Language and Literature Studies, 3(3), 26-44. https://cjlls.ca/index.php/cjlls/issue/view/16*

[10]. Gross, B., & Opalka, A. (2020). *Too many schools leave learning to chance during the pandemic*. Center on Reinventing Public Education. https://www.crpe.org/sites/ default/files/final_national_

[11]. Hamilton, L. S., Kaufman, J. H., & Diliberti, M. (2020). Teaching and Leading through a Pandemic: Key Findings from the American Educator Panels Spring 2020 COVID-19 Surveys. Data Note: Insights from the American Educator Panels. Research Report. RR-A168-2. *RAND Corporation*.

[12]. Huang, R. (2020). Disrupted classes, undisrupted learning during Covid -19 outbreak in China: *Application of Open Education Practice and Resource* 1(2) 1-9

[13]. Kapama, F. & Mtema, N. (5th May, 2021). *Tanzania: Covid-19 Response Classrooms Construction Ready in Babati.* Tanzania. Daily News.

[14]. Mahona, P. & Pacho, T. (2021). Reshaping Education in the Post-COVID-19 Pandemic in Africa. *African Research Journal of Education and Social Sciences (ARJESS), 8(3), 13-26.* http://arjess.org/education-research/reshaping-education-in-the-post-covid-19-pandemic-in-africa-.pdf

[15]. Msigwa, F. M. (2020). COVID-19 Pandemic and its implications on education systems in Tanzania. *International Journal of Science and Research*, *9*(9), 167-171.

[16]. Opondo, J. O. & Paschal, M. J. (2023). Blended Learning: An Emerging Pedagogy for Learning in Higher Education. *In OS. Ambili & M. Omanaseelan (Eds.), Metamorphosis in Education, 47-59, Taran Publication, New Delhi.*

[17]. Paschal, M. J. & Gougou, S. A-M. (2022). Promoting 21st Century Skills in English Language Teaching: A Pedagogical Transformation in Ivory Coast. *Global Journal of Educational Studies, 8(2), 50-74* https://doi.org/10.5296/gjes.v8i2.20333

[18]. **Paschal, M. J.** & Ismael, K. (2023) Embracing the Digital Era: How Technology is transforming Education in Africa. *In T. S. Sanjayan (Editor.), Digital Divides: Empowering Youth and Educators with digital competences (p. 72-82). Taran Publication, New Delhi. India*

[19]. Paschal, M. J. & Mkulu, D. G. (2020). Online Classes during COVID-19 Pandemic in Higher Learning Institutions in Africa. *Global Research in Higher Education 3(3), 1-21.* https://doi.org/1022158/grhe.v3n3p1

[20]. Paschal, M. J. Pacho, O. T & Adewoyin, O. (2022). Teaching methods applied in higher education during COVID-19 pandemic in Africa. *International Journal of Educational Policy Research and Review. 9(1),* https://doi.org/10.1579/IJEPRR.22.003

[21]. Takwa, M. (2021, December 30th). Ummy to issue detailed plan for classroom construction. *Tanzania. Daily News.*

[22]. United Nations Children's Fund. (2021). At least 200 million school children live in countries that remain unprepared to deploy remote learning in future emergence school closures. https://www.unicef.org/press-releases/least-200-schoolchildren-live-countries-remain-unprepared-deploy-remote.

[23]. World Bank. (2020). *World bank groups response to covid- 19 Pandemic; https:www.worldbank.org.*

[24]. World Health Organization (2021). WHO *coronavirus disease* (COVID-19) dashboard. covid19. who.int/coronavirus/dashboard