Studies in Learning and Teaching (SiLeT)
Homepage: https://scie-journal.com/index.php/SiLeT
Email: silet@scie-journal.com

p-ISSN: 2722-399X; e-ISSN: 2722-1857
SiLeT, Vol. 4, No. 2, August 2023
Page 216-228
©2023 SiLeT

Teachers' Experiences With Online Teaching During COVID-19 in Kenya and Namibia

***E N Ngololo[1], H Nekongo-Nielsen[2], J Odhiambo[3]**
[1]Department of Multi-Disciplinary Research Services, University of Namibia, Namibia
[2]Office of Academic Affairs, University of Namibia, Namibia
[3]Center for Mathematics, Science and Technology Education in Africa, Kenya

Article Info

Article history:

Received January 26, 2023
Revised June 3, 2023
Accepted June 3, 2023
Available Online August 31, 2023

Keywords:

COVID-19;
Online learning;
Technology integration;
Collaborative learning theory;

ABSTRACT

During the COVID-19 pandemic across sub-Saharan Africa, the sudden closure of schools has interrupted and brought physical learning to a standstill. The rapid transition to emergency remote teaching posed many challenges and required innovative approaches to ensure continuity of teaching through information technology tools in Kenya and Namibia. Online Collaborative Learning (OCL) theory supports an effective teaching strategy for teachers to adopt appropriate technologies and clear educational goals, develop clear instructions for influencing students' online behavior, prepare and orientate students adequately, and select pertinent discussion topics. The study used a cross-sectional survey of secondary school teachers in both countries. The results show that teachers continued to provide education during the pandemic without proper guidance from the school leadership. Teachers lacked knowledge and support in developing appropriate online content, motivating students, and delivering quality teaching. Also, the results show no evidence-based online collaborative learning among teachers and/or schools. Similarly, schools lacked knowledge practices and digital resources, especially those in rural settings. The study recommends the improvement of continuing professional development in the respective countries, covering aspects of the school vision, leadership, practices of the teaching community, pedagogical approaches, school-level knowledge practices, and increased digital resources.

https://doi.org/10.46627/silet

INTRODUCTION

Access, equity, and quality education are determined by the resources and systems put in place by education institutions, as well as teachers' capabilities to use technological resources to cope with the pressures of teaching during these unprecedented times (UNESCO International Institute for Higher Education in Latin America and the Caribbean, IESALC, 2020). Achieving high-quality education requires consideration of equity principles, including access to good schools, challenging and engaging curricula, committed teaching, engaged learning, and the availability of appropriate teaching and learning resources (Scott, 2006; Maphosa, 2021). However, the school closure due to COVID-19 has caused many disruptions and uncertainties regarding teaching and learning, requiring school calendar re-adjustment without proper planning (Simamora, 2020). The closures have left teachers and learners stranded, needing new ways of coping with their education. At the same time, parents felt the negative impact on life's social, economic, and psychological spheres. It, therefore, meant ministries of education had

hastily begun to rethink educational provision and facilities appropriate for maintaining the access, equity, and equality education goals under conditions of social distancing.

Across the globe, online learning has been suggested as an option to ensure that education provision continues so that teaching is not adversely affected (UNESCO, 2020). Many African governments have devised alternative teaching and learning methods for teachers to ensure continuous teaching during the pandemic with caution and provide a safe working environment (OECD, 2020). This directive was poorly thought out, as teachers and learners needed to adapt rapidly to new teaching and learning methods in countries' varying economic and social environments. Also, being aware that the world is moving towards the Industrial Revolution education 4.0, schools were urged to adopt digital tools and processes posing challenges to all teachers (Verawardina et al., 2020). In response to the situation, tools were created hastily to generate profit, to the detriment of the public education service (Abioui et al., 2020). Schools had no option but to adopt a new normal that required the use of online teaching and, in the process of adoption, produced some aspirations and frustrations among teachers as they experienced a rapid migration from traditional face-to-face classes of active schooling to online teaching (Arshad, 2020). The unexpected change to online teaching also meant teachers had to acquire and learn how to use the technology. This paper describes Kenyan and Namibian secondary school teachers' readiness to provide and put measures in place to sustain teaching continually, address challenges faced in supporting and facilitating remote education, and use technologically based teaching modes during the COVID-19 pandemic.

Context of the study

Namibia made great strides in developing legislation and key policies to ensure access to equitable quality education during the COVID-19 pandemic. In the quest to attain equitable and quality teaching, great emphasis was put on reaching the most vulnerable children, poor communities, and those with disabilities (Ngwacho, 2020). According to the Office of the President (2017), Namibia introduced Universal Primary Education (UPE) and Universal Secondary Education (USE) in 2013 and 2016 to achieve accessible and equitable quality education. In the same vein, looking at the educational landscape in Namibia, some progress has been made in developing physical infrastructure, acquiring educational resources, and improving sanitary conditions in primary and secondary schools located in rural areas. However, some schools are still made of prefabricated classrooms, and students are being taught under trees and in dilapidated buildings. Thus, the general maintenance of physical infrastructure and provision of school physical facilities, especially for physically challenged students, remains an issue. Over time, there has been an improvement in the number of qualified teachers, with most teachers having undergone an Information Communication Technology (ICT) literacy course at an institution of higher learning (Kanandjebo, 2022; Kanandjebo & Lampen, 2022). Teachers might have been equipped with ICT skills to teach but not exposed to the Emergency Remote Teaching (ERT) approach used in emergencies (Villet, 2020).

Likewise, the Government of Kenya has committed to ensuring that no child should be left behind in respect to access to education as per the provisions of Articles 43 (f) and 53(1) (b) of the Constitution. According to the Kenyan Basic Education Act (2013[JO1]), education is a right, accessible, and compulsory at the primary level. The Gachathi report of 1976 called for the change to increase the technical and vocational aspects of the curriculum. This report resulted in the structure of education referred to as the 8-4-4 system (eight years of primary school, four years of secondary school, and four years of university education) aimed at increasing graduates and resolving the challenges of unemployment and underemployment of the 7-4-2-3 system of education. Public primary education has been free and compulsory in Kenya since 2003, and the curricula comprise languages, mathematics, history, geography, science, craft, and religious studies. The National Education Sector Strategic Plan (NESSP 2018-2022) was thus developed through an inclusive consultative process to provide quality and inclusive education, training, and research for sustainable development. It was expected to provide, promote, and coordinate

competency-based equitable learner-centered education, training, and research relevant to the labor market.

Currently, the Government has embarked on a Competency Curriculum, which follows the 2-6-3-3 education system (two years of pre-primary, three years of lower primary, three years of upper primary, three years of junior secondary, and three years of senior secondary). The system seeks to nurture every learner's potential by ensuring all learners acquire the core competencies while emphasizing formative rather than summative evaluation (which leads to cutthroat completion for grades). The Kenyan Government hopes to phase out the 8-4-4 curriculum entirely by 2026. In continuing to improve the education system, the Kenyan Government has taken cognizance of the role played by digital literacy in the education sector as one of the core competencies that learners need to acquire (Fingo, 2021). In so doing, the national project undertakes analyses on e-readiness assessment, teacher capacity, technological infrastructure, and digital content to introduce the digital literacy program meant to provide digital devices to learners in lower primary schools. The idea is to expose young minds to digital literacy in their formative years of formal education. Computer learning labs were established in the process, especially for senior primary and secondary schools nationwide. This action strengthened the Digital Literacy Programme (DLP) project into a more sustainable, cost-efficient implementation model. Also, the study conducted by the Kenyan Teachers Service Commission (TSC) identified some of the challenges faced by the project, including most of the devices not used due to a lack of trained personnel and lack of electricity in some schools, and 80% of teachers have knowledge gaps on ICT.

Statement of the problem

When the World Health Organisation (WHO) declared COVID-19 a global public health emergency of international concern, many governments took measures to curb the increase of the pandemic (Cucinotta & Vanelli, 2020). Such efforts have been extensive in most countries, including decisions to suspend conventional education activities that might remain until effective vaccines are available (Scully et al., 2021). The unplanned closure of schools has negatively impacted teachers because they were prepared to continue teaching or learning through online modes (UNESCO, 2020; Zhang et al., 2020). Although schools endeavored to continue provision during the closures, challenges were reported, particularly in rural schools and those serving disadvantaged cohorts (Scully et al., 2021). Further, Scully et al. (2021) noted that teachers' 'digital competence' is an area 'needing development' and pointed out that the pandemic may have motivated this. According to Villet (2020), amidst the request for continuity of learning during the pandemic, evidence is scarce in Southern African Development Community (SADC) countries concerning teachers' readiness and support to facilitate remote teaching using technologically based teaching modes. How SADC governments supported teachers to implement this new demand is also unclear.

However, Bacher-Hicks et al. (2020) noted that school-based learning resources have doubled for better internet access, and fewer rural schools saw substantially larger investments to address the technology gap between rural and urban settings. Given their socio-economic status, teachers from low-income communities and schools would likely need more attention and resources and lower engagement with online learning and resource allocation (Bacher-Hicks et al., 2020; Aborode et al., 2020). Other difficulties affecting educational systems were the inexperienced teachers, the information age gap, and the complex home environment (Zhang et al., 2020). The unexpected turn of events required adaptability of teaching methods and resource provisioning to deliver high-quality and effective teaching online. However, the teaching content's quantity, difficulty, and length must match academic readiness. With the unprecedentedly challenging circumstances of providing education online, it is unclear what teaching modes and pedagogical support were most effective for online teaching in the two countries. Teachers in the two countries were provided with implicit policy guidelines, if not explicit, regarding teaching practices during the pandemic that national and school leaders knew little about. The following research question,

therefore, guided this study: How did Kenyan and Namibian teachers provide continuity of teaching during the COVID-19 pandemic?

Literature review

Conventional educational institutions have long embraced online teaching and learning (Jung, 2007; McIntosh & Varonglu, 2005). However, teachers were not well prepared during many continuing professional development programs or teacher training programs before graduation (Schuck et al., 2018). It has been emphasized that for the construction of knowledge, any platform for learning should aim to support education facilitated by the use of interactive ICT in teaching and learning (Stein & Wanstreet, 2006; Tenenbaum et al., 2001). Others argue that the learning process is usually strengthened when groups work and collaborate on tasks, sharing prior knowledge and interacting with each other (Roschelle, 1995). Good teachers have a kind of 'personal practical knowledge' that helps them to understand what is going on with their learners in every learning situation (Bransford et al., 2002). Thus, teachers must make sense of their practice and create communities of practice, working together to develop new practice-based knowledge, especially during these unprecedented times (Nurvitasari, 2021). Moreover, teachers need to be provided with capacity at both the pre-service and professional levels and systems that can assist them in organizing the learning environment for learning (Instefjord & Munthe, 2017). Furthermore, Instefjord and Munthe (2017) stress that teachers must be provided with continuing professional development, technological proficiency, pedagogical compatibility, and social awareness. To enhance and transform their practices, teachers must also negotiate the social aspects of the school culture and successfully integrate technology into their roles, including communication (Pokhrel & Chhetri, 2021).

Yang (2020) found that most teachers in China were experienced and therefore supported online programs as a control and epidemic prevention measure. Further, Yang explained that teachers with less experience in online teaching were provided with continuing professional development opportunities to upskill themselves. However, sometimes teachers experienced a short interval between receiving training and delivering online courses, yet they ensured continuity in teaching. The situation in Africa was different. The Association of the Development of Education in Africa (ADEA, 2021) study found some concerns regarding teaching and learning during the COVID-19 pandemic; for instance, schools struggled to cope with strict protocols. Teachers in rural areas could not participate in teaching activities due to erratic power supply, exorbitant costs to acquire low-tech software, severe inadequacies in infrastructure for open and distance education, and a lack of resources to connect to the internet and learning management systems (Aborode et al., 2020; Dube, 2020; Okebukola et al., 2020; Wodon, 2020). Moreover, teachers needed additional support for managing emerging teaching and learning adaptations, including the provision of professional development opportunities, psychosocial support, low teacher motivation, and challenges of inducting newly recruited teachers (ADEA, 2021). African governments appeared to have limited resources to finance the necessary activities to cope with the new normal (Faturoti, 2022). Besides, school leaders are poorly prepared to guide online teaching (ADEA, 2021). Providing adequate budgets to schools would enable principals to encourage teachers to use technology.

To ensure continuous teaching, African countries relied on the supply of ready-made materials to schools via newspapers, radio, and television. In addition, teachers were tasked to develop learning activities for their learners, which parents could fetch and return to school upon completion by learners within a prescribed time. In contrast, some online activities were delivered via Zoom, Google Classroom, and other online platforms (Villet, 2020). Furthermore, Villet stressed that there was no evidence that the online materials were of good quality as there was an absence of online teaching communities that could allow for the development, assessment, and sharing of appropriate pedagogical approaches and digital teaching resources. It has been noted with great concern that educational institutions have rushed to provide online

learning during the COVID-19 pandemic without considering the difficulties of changing teaching strategies for effective teaching and learning (ADEA, 2021; Boer & Asino, 2022).

Online teaching and learning can be an effective tool to facilitate learning and helpful during the pandemic and in a digitally advanced world (Basilaia & Kvavadze, 2020). In the same vein, Boer and Asino (2022) identified five knowledge criteria around the learning design and innovative processes of emergency remote teaching. According to Boer and Asino (2022), the knowledge criteria include the Professional and School Context, Emotions of the participants at the time, Perspectives and actions to meet the Challenge, Process, and Preparations for Remote teaching, Learning Design Context-based Decisions (including the processes used; the outcomes, and teaching artifacts. More recent studies have confirmed that effective online learning requires schools to focus on transferring the content digitally and applying learning strategies through online delivery modes, creating conducive teaching environments for teachers and providing them with learning opportunities to learn new skills during unprecedented times (Kanandjebo, 2022). Moreover, continuing professional development opportunities should offer high-quality learning experiences in different learning situations rather than re-create face-to-face teaching (Dedić & Marković, 2012; Marjanovic & Orlowska, 2002). Several factors have to be taken into consideration with strategies on how to curb the following possible shortfalls: infrastructure resources, teaching staff, technical experts, and Information Technology technicians to keep teaching active (Ali, 2019); and improving teacher-learner interaction and relationships (Cooshna-Naik, 2012; Kubiatko, 2017). The CPD should also address the dependency of teachers on others for material upload on the learning management system (Boer & Asino, 2022). Hence, learning management systems are vital in contributing to effective teaching and subsequently increasing students' success and performance (Dedić & Marković, 2012).

With the same objective, other authors also emphasize that teaching through technology should be based on sound knowledge that enables teachers to collaborate to organize learning environments where they can actively and effectively work together to create new learning practices (Kop et al., 2011; Kubiatko, 2017). Kop et al. (2011) argue that when considering technology for teaching, "one of the major challenges is to create a pedagogy that supports human beings in their learning where the social connections people make can provide the learning support." Researchers found these social connections necessary to teaching and learning environments, as they seem to support human interactions and help teachers interact and develop learning skills they can pass on to their learners. Thus, receiving the right learning content timely will likely create an accurate understanding of the issues and limit the chances of getting unverifiable information from other sources (Kubiatko, 2017).

The study adopted the Online Collaborative Learning (OCL) Theory, proposing that teachers have academic and conceptual development and discussions and be well-organized to provide the necessary support to enhance students' academic achievement. According to Zhang (2016), the theory supports an effective teaching strategy for teachers to adopt appropriate technologies and educational goals, develop clear instructions for influencing students' online behavior, prepare and orientate students adequately, and select pertinent discussion topics. The theory also recognizes the cultural diversity and epistemological issues that may be a challenge for teachers in the process of using OCL. However, it is the researchers' understanding that teachers might have different backgrounds with varying attitudes and perspectives towards discussion-based collaborative learning, developing online activities, and receiving support from educational authorities in the respective countries. Teachers should also be aware that students may have language, cultural, or epistemological difficulties.

Furthermore, Zhang et al. (2016) stress that the OCL theory emphasizes the learning environment, learning interaction, and learning design constructs, assuming that a flexible and accessible environment positively influences promoting and enhancing teacher interaction and collaboration. In this case, interaction means involving teachers with other teachers and building and supporting relationships between teachers and students. Teachers should be able to select appropriate collaboration technologies to create and test motivating learning designs. In addition,

teachers are expected to provide students with diverse resources and comprehensive learning activities and use different learning styles to stimulate effective learning (Zhang et al., 2009). Thus, the study used OCL to explore how Kenyan and Namibian teachers provided continuity of teaching during the COVID-19 pandemic.

RESEARCH METHOD

This study is cross-sectional and descriptive to produce an overview of the school situation at a particular time (Cohen et al., 2000). The study attempted to describe and gain insightful information about teachers' readiness and support to facilitate remote teaching during the COVID-19 pandemic using technology in secondary schools in Kenya and Namibia. The study used a non-probability, volunteer, and unrestricted sampling method where anyone could complete the questionnaire, noting that it may have limited representatives, including those without internet access. A closed structured online questionnaire was developed with five Likert scales and administered online via WhatsApp groups, email, and Facebook platforms to teachers to source their range of views. The questionnaire covered demographic profiles, competencies, availability of resources, support, and collaboration. In addition, the questionnaire had open-ended questions where the respondents could write their perceptions of the constructs. A pilot study was conducted with experts in student support services and technology education. Thus, content validity and reliability tests were performed. Participants were assured of anonymity and confidentiality. Participation was voluntary, and one could withdraw at any survey stage. A total of 140 completed questionnaires were received from Kenya and Namibia. All completed questionnaires were captured in the Excel spreadsheet using a designed template. The information entered was verified and validated before analysis. Descriptive statistics were produced in the form of percentages of respondents. Positive results were added together to present the perceptions and vice versa to yield negative views, giving short summaries and measures of the data. Text data was analyzed thematically to provide meaning to some descriptive information.

RESULTS AND DISCUSSION

The survey results show that the internal validity of the 28 items questionnaire and the value for Cronbach's Alpha for the survey was $\alpha = .98$. The response rate showed a total of 140 teachers (11% Namibian and 89% Kenyan) responded to the questionnaire, with about 50% being young between 31-40 years of age, 70% male, and 91% from public schools. Most respondents taught Grade 12 (Namibia) or Form 4 (Kenya) in rural settings; the overall results showed that 77% of the respondents were rural-based. About two-thirds of the respondents indicated they were highly confident (63.6%), and one-third somewhat confident (33.6%) in remote teaching. However, slightly more than half of the teachers (53.2%) were not teaching live (synchronous) online lessons in real-time and used a quiet room without distractions to deliver their lessons (44.3%). The teaching mode was primarily delivered via WhatsApp, as alluded to by one of the teachers:

> *Online teaching is the way to go. WhatsApp has for a long time proved to be a better option for most of my students since it is less costly than online apps like Zoom as they consume a lot of data bundles.*

For Kenyan and Namibian teachers, WhatsApp seemed to be the leading online platform for teaching purposes, and Google as a search engine during teaching preparation. At the same time, teachers also noted that online learning has its shortcomings, especially as a tool to reach learners during the COVID-19 pandemic. One of the teachers stated:

> *Online teaching/learning can be successful if the learners are provided with the necessary materials with clear instructions to be followed and learners should be monitored by their parents/guardians at home; otherwise, some may switch to destructive sites and activities.*

In addition, teachers (81.4%) stated that they teach asynchronous (offline) lessons where they send activities for students to complete at home with parents acting as guardians. However, when teaching online, teachers indicated they needed assistance creating real-time video lessons, accessing the platform for launching online work, teaching and data management, computation and PowerPoint presentations, synchronizing and uploading file attachments, and using Word documents and Spreadsheets. Furthermore, the teachers indicated that they needed help in areas of teaching offline, including the setting quality activities, instructor materials, offline engagements, assessments, and writing equations and formulae as stated:

> *Evaluation of learners becomes difficult since we depend on parents to take the roles of the teachers, and administration might be challenging, so feedback will not be easy.*

Teachers recognized the lack of online assessment skills, and one of them elaborated on the need for advanced skills in this area:

> *It is important to advance our skills in online monitoring and administration of exams so that effective and examinable teaching can take place even when learners are at home. In this era of COVID-19, online teaching and learning is the best way to go. Unfortunately, many learners may not access assessment tasks due to network problems, electricity problems, and lack of internet bundles.*

Results from the survey indicated more challenges, including coordination with parents to monitor the remote students; getting learners to respond to tasks in good time; aspects of sciences, physics simulations, and videos; designing assessment tools; creation of captivating online worksheets; identifying students' awareness and attitudes to be engaged; and developing subject content. However, most (81.4%) teachers were confident in building relationships with other teachers teaching the same subjects online. Teachers formed groups to share teaching and learning materials within and beyond their schools. In addition, teachers have indicated that what would be most helpful during online teaching are techniques to create receptive skills activities such as reading and listening and productive skills such as speaking and writing.

Furthermore, survey results showed that teachers needed more help on what to include in setting schemes of work at home, developing engaging activities students can do at home and opportunities to participate in Webinars on other remote teaching techniques and ideas, and designing tasks for offline learning. In addition, teachers stated that what would be of help to them is professional development that is directly related to teaching remotely; forums and spaces for communicating with other teachers and sharing ideas; video guidance for support in teaching remotely; ideas for differentiation or mixed ability classes; and how to communicate with parents. Teachers strongly expressed the need to include life skills subjects that will guide the students during unprecedented times; as one teacher stated,

> *Among all the subjects, Life skills are basic to learners, especially adolescents, and now that they are at home and likely to be exposed a lot to the environment.*

The findings show that teachers in the two countries were caught unprepared. The capacity of middle-income countries like Namibia and Kenya to respond to emergencies of this magnitude is much weaker, and they have a limited budget to mount aggressive policy responses, let alone introduce mitigating measures in emergencies (Wodon, 2020; Okebukola et al., 2020). However, the two governments have responded by adopting relevant policies to ensure teaching continuity during the pandemic. Even though the efforts were not well coordinated, teachers conducted

online and remote teaching simultaneously with limited professional and resource-wise support. This finding is evident in other African countries that equally lamented how this transition was adopted (ADEA, 2021; Boer & Asino, 2022; UNESCO, 2022) but achieved through collaboration with private institutions committed to combating the adverse effects of COVID-19 on the education system (Mhlanga & Moloi, 2020; Maphosa, 2021).

Teachers demonstrated some aspects of online collaborative learning by developing networks within the same school and across subjects by preparing and co-teaching with peers teaching the same subjects. To some extent, teachers have developed solutions and enabled continuous teaching during an emergency, primarily via WhatsApp, the most cost-effective platform. This finding aligns with Boer and Asino (2022), who posit that WhatsApp was used mainly to maintain communication between teachers, students, and parents. Thus, teachers explored possible solutions within the limited resources available.

In addition, teachers with advanced skills supported and motivated their peers' students to participate in teaching and learning activities amidst technological challenges. However, some teachers, especially from public schools, were not prepared to teach online partly due to the lack of capacity to do so (Boer & Asino, 2022). There was evidence that teachers were exposed to innovative pedagogical approaches through online collaborations that would stimulate creativity in developing teaching material and appropriate pedagogical activities and, in turn, stimulate higher-order thinking skills among students (Fadillah et al., 2022). However, the quality of activities conducted via online platforms was not assessed to determine their value and effect on teaching. The unpreparedness of teachers to use online platforms and tools has caused a disruption of educational schedules and plans and a critical overload of teachers, consequently affecting the quality of teaching and learning (Abioui et al., 2020; Angula & Mutelo, 2021). It was also suggested that teachers adopt a framework that teachers could adopt for quality teaching (Angula & Mutelo, 2021). Interestingly, teachers sending activities with students to complete at home also meant that parents and guardians needed to be provided with some skills to carry out the required monitoring responsibility. Thus, this finding highlights that effective online collaboration networks for teaching are required in order to extend the preparedness to other education-sector partners involved in ensuring the education of the child, including parents as part of the civil society, thereby fulfilling the implementation of Goal 4 of the Sustainable Development Goals (UNESCO, 2016).

Teachers experienced challenges in effectively conducting online assessments due to a lack of knowledge and skills. This finding could be attributed to the fact that teachers were unfamiliar with not only the learning management systems that could be used to conduct assessment activities but also the different types of assessments (Abduh, 2021). The situation was exacerbated by parents' and guardians' involvement in supervising the learning activities, including assessment. This finding echoes challenges experienced globally by teachers and schools, as reported by UNICEF. According to UNICEF (2020), these challenges are due to the fact that the new protocols of online learning do not provide teachers with skills for setting and administering online assessments or schools with guidelines on how to use digital platforms for assessment purposes.

Teachers indicated they needed further training in setting schemes of work, learning techniques to create receptive skills activities such as reading and listening, productive skills such as speaking and writing, and developing engaging activities students can do at home. In addition, teachers indicated that it would be most helpful to be provided with opportunities to participate in Webinars on remote teaching techniques and designing tasks for offline learning. Teachers further expressed the need to attend Continuous Professional Development (CPD) sessions on differentiation in teaching mixed-ability classes and how to communicate with parents. This finding is evidence of the lack of content in the training interventions provided to improve teaching during the pandemic (reference?). It is also in line with Hepp et al. (2014) belief that teachers need both initial and continuous teaching training programs to develop the

competencies teachers need in using information and communication technologies (ICTs) for educational purposes.

Despite the challenges, schools in Kenya and Namibia continued to provide teaching during the pandemic without proper guidance from the school leadership, as the school's vision was not aligned to respond to the pandemic. This finding is affirmed by Harris and Jones (2020) in that principals relied on guidance about COVID-19 procedures and fluid protocols as they changed almost overnight, depending on how the virus developed. Principals lacked crisis and change management skills to allow them to make appropriate decisions that fit the situation at hand. The network of teachers created some activities within and between schools but without evidence of robust pedagogical practices to stimulate higher-order thinking skills. This finding is contrary to Susilowati and Suyatno (2021), where training and education programs on competence were made to increase teachers' competence by implementing Higher Order Thinking Skills (HOTS) oriented learning. Besides, schools lacked knowledge practices and digital resources, especially those in rural settings. Assuming schools are well-resourced and teachers well-capacitated in online learning practices, principals are critical in encouraging and supporting technology use. Principals could also be instrumental in developing suitable strategic visions and contemporary interventions to help respond to emergencies. The educational and school leadership is expected to ensure teachers are exposed to newer pedagogical practices from their peers, broadening and strengthening their network to tackle the hindrances to continued teaching.

CONCLUSION

After reviewing the evidence presented in this paper, we affirm that online learning has become a delivery mode for education during and post-COVID-19. Opportunities for online teaching in both countries were not well established. Initially, no modalities were stipulated in national documents on how teaching should be delivered. Thus, teachers based online learning and remote teaching on their limited ICT knowledge and skills from CPD before the pandemic. Therefore, the school vision, leadership, practices of the teaching community, pedagogical approaches, and school-level knowledge practices became redundant but improved gradually with increased levels of preparedness to tackle the challenges by governments. However, the lack of the necessary digital resources remained a significant obstacle to teaching online in both countries. The study recommends that continuous training programs should be organized around customized subjects/content and also include autonomous learning so that teachers can develop local content that would be more beneficial in rural settings, given the skewed resource allocations towards urban areas by the two governments. The CPD program should include aspects of school vision, leadership, practices of the teaching community, contemporary pedagogical approaches, and school-level knowledge practices to ensure continuity of teaching during these unprecedented times. Collaborative network support systems should be established with clear guidelines to enhance online learning. Partnerships should be enforced between teachers teaching the same subjects and across schools within educational regions/districts to share the limited resources available to improve teaching. Partnerships with parents and guardians should be established with clear goals to support students during the pandemic.

REFERENCES

Abduh, M. Y. M. (2021). Full-time online assessment during COVID-19 lockdown: EFL teachers' perceptions. *Asian EFL Journal*, 28(1.1), 26-46.

Abioui, M., Dades, M., Kostyuchenko, Y., Benssaou, M., Martínez-Frías, J., M'Barki, L., ... & de Carvalho, C. N. (2020). Covid-19 and education in Morocco as a potential model of concern for North Africa: A short commentary. *International Journal of Ethics Education*, 5(2), 145-150.

Aborode, A., Anifowoshe, O., Ayodele, T. I., Iretiayo, A. R., & David, O. O. (2020). Impact of COVID-19 on education in Sub-Saharan Africa. *Preprints*. https://doi.org/10.20944/preprints202007.0027.v1

Ali, M. B. (2019). Multiple perspective of cloud computing adoption determinants in higher education a systematic review. *International Journal of Cloud Applications and Computing*, 9(3), 89-109.

Angula, N., & Mutelo, S. (2021). The usage of e-learning challenges in the Namibia educational institutions: A Namibian experience during Covid-19. *International Journal, 1*(1), 31-34.

Arshad, M. (2020). COVID-19: It's time to be thankful to our ICT professionals. *Information Technology & Electrical Engineering*, *9*(2), 23-31.

Bacher-Hicks, A., Goodman, J., & Mulhern, C. (2020). *Inequality in household adaptation to schooling shocks: Covid-induced online learning engagement in real time*. National Bureau of Economic Research.

Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (Covid-19) pandemic in Georgia. *Pedagogical Research*, *5*(4), 1-9.

Boer, P. J., & Asino, T. I. (2022). Learning design experiences of the Namibian teachers during the Covid-19 pandemic: An ethnographic perspective. *TechTrends,* 66, 29–38. https://doi.org/10.1007/s11528-021-00684-8

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2002). *How people learn: Brain, mind, experience, and school*. National Academy Press.

Faturoti, B. (2022). Online learning during COVID19 and beyond: A human right based approach to internet access in Africa, *International Review of Law, Computers & Technology*, *36*(1), 68-90. https://doi.org/10.1080/13600869.2022.2030027

Cohen, L., Manion, L. & Morrison, K. (2007). *Research methods in education*, (6th ed.).

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th Ed). Routledge.

Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio-Medica: Atenei Parmensis*, *91*(1), 157-160.

Dedic, V., & Markovic, S. (2012). Influence of learning styles on graphical user interface preferences for e-learners. *European Journal of Open, Distance and E-learning*.

Dube, B. (2020). Rural online learning in the context of COVID 19 in South Africa: Evoking an inclusive education approach. *Multidisciplinary Journal of Educational Research*, *10*(2), 135–157. https://doi.org/10.17583/remie.2020.5607

Fadillah, R. N., Jatmiko, B., & Widodo, W. (2022). Critical thinking profile of senior high school students in terms of argumentation-based learning. *Studies in Learning and Teaching, 3*(3), 149-162.

Fingo Power Bank Project. (2021). *Landscape report on digital education in Kenya*. https://fingo.fi/wp-content/uploads/2021/01/landscape-report-digital-education-kenya-fingo-powerbank.pdf

Government of Kenya (GoK). (2013). *Basic education act no. 14, 2013*. https://www.education.go.ke/index.php/downloads/file/96-basic-education-act-no14-of-2013

Government of Kenya. GoK (2010). *Constitution of Kenya*, 2010. http://www.kenyanlaw.org:8181/exist/kenyale/actview.xql?actid=const2010

Harris, A., & Jones, M. (2020). COVID 19–school leadership in disruptive times. *School Leadership & Management, 40*(4), 243-247. https://doi.org/10.1080/13632434.2020.1811479

Hepp, K. P., Fernández, M. À. P., & García, J. H. (2015). Teacher training: Technology helping to develop an innovative and reflective professional profile. *RUSC. Universities and Knowledge Society Journal*, *12*(2), 30-43. https://doi.org/10.7238/rusc.v12i2.2458

Instefjord, E., & Munthe, E. (2017). Educating digitally competent teachers: A study of integration of professional digital competency in teacher education. *Teaching and Teacher Education, 67*, 37–45. https://doi.org/10.1016/j.tate.2017.05.016

Johnson, D. W., & Johnson, R. T. (1996). Cooperation and the use of technology. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 1017-1044). Simon and Schuster Macmillan.

Jung, J. J. (2009). Social grid platform for collaborative online learning on blogosphere: A case study of eLearning@BlogGrid. *Expert Systems with Applications*, *36*(2), 2177-2186. https://doi.org/10.1016/j.eswa.2007.12.018

Kanandjebo, L. N. (2022). *A professional development framework for teaching mathematics meaningfully with technology in Namibian secondary schools: A design-based research study*. University of Stellenbosch.

Kanandjebo, L. N., & Lampen, E. (2022). Teaching mathematics meaningfully with technology: Design principles for professional development. *African Journal of Research in Mathematics, Science and Technology Education*, *26*(2), 142-152.

Kop, R., Fournier, H., & Mak, J. S. F. (2011). A pedagogy of abundance or a pedagogy to support human beings? Participant support on massive open online courses. *International Review of Research in Open and Distributed Learning*, *12*(7), 74-93.

Kubiatko, M. (2017). Are ICT being used correctly? Small reflection about correct using of ICT in education. *Problems of Education in the 21st century*, *75*(1), 4-5.

Maphosa, V. (2021). Teachers' perspectives on remote-based teaching and learning in the COVID-19 era: Rethinking technology availability and suitability in Zimbabwe. *Journal of Interactive Multimedia and Education*, *2*(1). https://doi.org/10.30935/ejimed/9684

Marjanovic, O., & Orlowska, E. (2002). Making flexible learning more flexible. *Proceedings International Workshop on Advanced Learning Technologies. IWALT 2000. Advanced Learning Technology: Design and Development Issues, Palmerston North, New Zealand,* 59-62. https://doi.org/10.1109/IWALT.2000.890566

McIntosh, C., & Varonglu, Z. (2005). *Perspectives on distance education: Lifelong learning & distance higher education*. Commonwealth of Learning/UNESCO Publishing.

Mhlanga, D., & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning on 4IR in South Africa?. *Education Sciences*, *10*(7), 180. https://doi.org/10.3390/educsci10070180

Ngwacho, A. G. (2020). COVID-19 pandemic impact on Kenyan education sector: Learner challenges and mitigations. *Journal of Research Innovation and Implications in Education*, *4*(2), 128-139.

Nurvitasari, S. (2021). Development of OrSAEv model learning: Preliminary study of students' prepareness facing volcanic eruption disaster. *Studies in Learning and Teaching*, *2*(1), 41-51.

OECD. (2020). *Supporting the continuation of teaching and learning during the COVID-19 Pandemic Annotated resources for online learning*. https://www.oecd.org/education/Supporting-the-continuation-of-teaching-and-learning-during-the-COVID-19-pandemic.pdf

Office of the President. (2017). *National development plan 5: Working together towards prosperity 2017-2018 to 2021 to 2022*. National Planning Commission.

Okebukola, P. A., Suwadu, B., Oladejo, A., Nyandwi, R., Ademola, I., Okorie, H., & Awaah, F. (2020). Delivering high school Chemistry during COVID-19 lockdown: Voices from Africa. *Journal of Chemical Education*, *97*(9), 3285-3289.

Pokhrel, S., & 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.

Roschelle, J. (1995). Learning in interactive environments: Prior knowledge and new experience. In J. H. Falk & L. D. Dierking (Eds.), *Public institutions for personal learning: Establishing a research agenda* (pp. 37-51). American Association of Museums.

Schuck, S., Aubusson, K, Burden, K., & Brindley, S. (2018). *Uncertainty in teacher education futures: Scenarios, politics and STEM*. Springer.

Scott, C. L. (2006). *The futures of learning 3: What kind of pedagogies for the 21st century?*. Education Research and Foresight Working Papers, UNESDOC Digital Library. https://unesdoc.unesco.org/ark:/48223/pf0000243126

Scully, D., Lehane P., & Scully, C. (2021). 'It is no longer scary': Digital learning before and during the Covid-19 pandemic in Irish secondary schools. *Technology, Pedagogy and Education*, *30*(1), 159-181. https://doi.org/10.1080/1475939X.2020.1854844

Simamora, R. M. (2020). The challenges of online learning during the COVID-19 pandemic: An essay analysis of performing arts education students. *Studies in Learning and Teaching*, *1*(2), 86-103.

Stein, D. S., & Wanstreet, C. E. (2006). Beyond yes or no: Factors in adults' decisions to enroll in higher education. *The Journal of Continuing Higher Education*, *54*(2), 2-12.

Susilowati, W. W., & Suyatno. (2021). Teacher competence in implementing higher-order thinking skills oriented learning in elementary schools. *Premiere Educandum: Jurnal Pendidikan Dasar dan Pembelajaran, 11*(1). http://doi.org/10.25273/pe.v11i1.7762

Tenenbaum, G., Naidu, S., Jegede, O., & Austin, J. (2001). Constructivist pedagogy in conventional on-campus and distance learning practice: An exploratory investigation. *Learning and instruction*, *11*(2), 87-111.

UNESCO. (2016). *Education 2030: Incheon declaration and framework for action for the implementation of sustainable development goal 4*. https://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf

UNESCO International Institute for Higher Education in Latin America and the Caribbean. (2020). *COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations*. https://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf

UNICEF. (2020). *Guidance: Assessing and monitoring learning during the COVID-19 crises*. https://www.unicef.org/eap/media/7131/file/Guidance_Note%3A_Assessing_and_monitoring_learning_during_the_COVID-19_crisis.pdf

United Nations. (2020). *Policy brief: Education during Covid-19 and beyond*. https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

Verawardina, U., Asnur, L., Lubis, A. L., Hendriyani, Y., Ramadhani, D., Dewi, I. P., ... & Sriwahyuni, T. (2020). Reviewing online learning facing the Covid-19 outbreak. *Talent Development & Excellence*, *12*.

Villet, C. B. (2020). *Teachers' readiness for remote teaching during the COVID-19 emergency in selected SADC countries. Researchers challenge*. https://teachertaskforce.org/knowledge-hub/teachers-readiness-remote-teaching-during-covid-19-emergency-selected-sadc-countries

Webb, C. L., Kohler, K. L., & Piper, R. E. (2021). Teachers' preparedness and professional learning about using educational technologies during the COVID-19 pandemic. *Journal of Online Learning Research*, *7*(2), 113-132.

Wodon, Q. (2020). COVID-19 crisis, impacts on catholic schools, and potential responses | Part II: Developing countries with focus on Sub-Saharan Africa. *Journal of Catholic Education*, *23*(1). https://doi.org/10.15365/joce.2301032020

Yang, X. (2020). Teachers' perceptions of large-scale online teaching as an epidemic prevention and control strategy in China. *ECNU Review of Education*. https://doi.org/10.1177/2096531120922244

Zhang, H., Shang, X., Yang, W., Xu, H., Luan, H., & Chua, T. S. (2016). Online collaborative learning for open-vocabulary visual classifiers. *Proceedings of the IEEE conference on computer vision and pattern recognition*, 2809-2817.

Zhang, K., Peng, S. W., & Hung, J. L. (2009). Online collaborative learning in a project-based learning environment in Taiwan: A case study on undergraduate students' perspectives. *Educational Media International, 46*(2), 123-135.

Zhang, S., Liu Q., Chen W., Wang Q., & Huang Z., (2016). Interactive networks and social knowledge construction behavioral patterns in primary school teachers' online collaborative learning activities. *Computers & Education, 104,* 1-17. https://doi.org/10.1016/j.compedu.2016.10.011

Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 outbreak. *Journal of Risk and financial management, 13*(3), 55.

Author (s):

*Elizabeth Ndeukumwa Ngololo (Corresponding Author)
Department of Multi-disciplinary Research Services,
University of Namibia,
340 Mandume Ndemufayo Avenue, Windhoek, Namibia
Email: engololo@unam.na

Haaveshe Nekongo-Nielsen
Office of Academic Affairs,
University of Namibia,
340 Mandume Ndemufayo Avenue, Windhoek, Namibia
Email: hnnekongo-nielsen@unam.na

John Odhiambo
Center for Mathematics, Science and Technology Education in Africa (CEMASTEA)
Kenya
Email: j.odhiamboh2001@gmail.com