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# Building Resilience in Education for Academic Continuity During Disruption

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**ABSTRACT**

The traditional method of learning prevailed in the educational system up until the outbreak of the COVID-19 pandemic, which brought a turning point by digitalising learning. Education shifted from traditionally student-centred to digital learning. The transition made learning difficult and students did not cope easily with the new trend. This study investigated learners' experience of the paradigm shift to digital learning under three stages: Anticipation, Coping, and Adaptation. Two hundred and ten (210) senior secondary school 2 students in the Eti-Osa Local Government Area of Lagos State were purposively selected. A 21-item online questionnaire with a 4-point Likert scale was used for data collection. The instrument was validated and the reliability was confirmed using Cronbach's alpha (0.78). The data were analysed using descriptive statistics. From the results, the participants were able to identify the various challenges encountered during the transition and discover how institutions can be resilient during disruption.

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## 1. INTRODUCTION

The emergence of COVID-19 affirmed the popular saying that the only constant in life is change. The notion was evident in institutions' preparedness, readiness, adaptation, and responsiveness to the change. COVID-19 threatened people's survival and the way and manner in which the government communicated to society only increased the fear response (Devi, 2020). The induced fear of becoming infected caused individuals to withdraw and avoid each other in their daily routines and caused huge disruption in all aspects of the education sector (Afolabi, 2020; Ogel-Balabam, 2022). In Nigeria, institutions of higher learning were badly affected by the pandemic; it posed a great challenge to learning as no one was prepared for the sudden disruption (Afolabi, 2020). The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020) stated that around 1.6 billion students in 165 countries were out of school as a result of the COVID-19 pandemic. From nursery to post-secondary education, the pandemic tested the resilience of education. For many, things became unusual, disoriented, and disturbing (Afolabi, 2020).

As the disruption persisted, the government and stakeholders in education sought a solution to the problem of teaching and learning during this period. A new learning culture emerged that tested e-learning on an unprecedented scale and provided quality education while slowing or halting the spread of the pandemic (Hamel & Valikangas, 2003). Consequently, institutions were forced to embrace the Fifth Industrial Revolution in which humans interact with machines (Prasetyo et al., 2021). However, while the environment changed, educational systems continued to function, develop and respond (Raghunathan et al., 2022).

The traditional teaching and learning commonly deployed in most schools lost their attraction and value with the shift to digital learning due to the restrictions imposed. However, students had to cope with restrictions to their learning and the accompanying uncertainties and contend with digital learning (Bartuseviciene et al., 2021). As learning moved online, millions of people without internet access were left behind; many were disadvantaged as a result of the digital divide and thus fell behind in their studies.

Education is the key driver of the United Nations Sustainable Development Goal Four (SDG4), which focuses on the attainment of inclusive and equitable quality education and the promotion of lifelong learning opportunities for all. It is therefore imperative that all learners acquire the knowledge and skills needed to promote sustainable development. SDG4 underpins all of the other goals as it is critical to their achievement. Through education, many SDGs can be achieved and inequalities can be reduced to empower individuals to live a more sustainable and healthy life (Nazar et al., 2018). The 17 SDGs established by the general assembly of the



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UN seek to ensure a good standard of living for everyone on the planet. They include a wide range of objectives covering global issues where action is essential for the survival of humanity (United Nations, 2015). Education is an important tool for realising the objectives of the SDGs and involves content, outcomes, pedagogies, a lifelong learning environment, and ubiquitous learning. The SDG objectives cannot be achieved when education is disrupted, especially in developing countries such as Nigeria, where education resources were already unevenly distributed before the disruption created by the COVID-19 pandemic.

During the pandemic, many students were unable to fully benefit from education as they were impacted by existing lines of socio-economic inequality (Esteban Jr., & Cruz, 2021). Malandrino and Sager (2021) reported on a survey conducted by the International Association of Universities, which showed that, except for four virtual universities whose teaching and learning were unaffected by the pandemic, every other higher learning institution across four continents, namely, Africa, Europe, Pacific, America, was affected by the pandemic. Teachers expended additional effort to help students combat mental stress while the students themselves became less enthusiastic and faced distractions caused by network supply disruptions, an unfavourable environment, and a lack of adequate infrastructure (Bates, 2013). While education plays a key role in combating the impact of disruption, stakeholders and educators should nevertheless rethink and reengineer their approaches to learning and teaching to develop more resilient education systems in the context of an increasingly volatile, uncertain, complex, and ambiguous world.

Uncertainties caused by natural and manmade disasters such as earthquakes, war, volcanoes, tsunamis, pandemics, and floods are likely to increase as a result of urbanisation, global warming, tectonic movements, overpopulation, and natural activities on the earth's crust, to mention a few. These can disrupt learning in the long term, similar to the disruption experienced during the COVID-19 pandemic in the short term, which can further lead to job loss, early pregnancy, loss of interest in schooling, and an increase in the number of out-of-school children (Dohaney et al., 2020). It is therefore pertinent for the government, educators, and stakeholders to build a resilient and agile system to face these adversities as the world is becoming increasingly turbulent more rapidly than schools are developing their resilience. Meanwhile, learning institutions that already had a proven record of digital learning before the pandemic had access to resources and were able to better cope with the change, while those with no such access struggled to cope. Little research has been conducted on the experience of learners during the paradigm shift to digital learning, and how the resilience of school systems can foster academic continuity in the face of disaster. However, Naidu (2021) highlighted the need to reorganise educational systems to avoid catastrophe, although their study did not consider students' experiences. Beale (2020) observed resilience from the perspective of students and identified self-efficacy, coordination, and perseverance as factors that could foster educational resilience.

Dohaney et al. (2020) defined resilience as the capacity to adapt or cope well when faced with adversity or stress. Bates (2013) perceived resilience as schools' instructional or academic continuity to deliver teaching and learning in the face of adversity and also went further, defining continuity as schools' ability to maintain and restore teaching and learning when faced with circumstances that threaten or disrupt their survival. Vogus and Sutcliffe (2007) defined resilience as adapting to a new situation in a challenging period and emerging more resourceful. Resilient school systems should be capable of ensuring continuous service through modification and adjustment in the event of unprecedented disruption (Bartuseviciene et al., 2021). All of this implies that the resilience of a system is measured by people, technology, and the environment and that resilience is the ability of a system to maintain stability and continue to function at an acceptable level in the face of threats and perturbations.

The conceptual framework of this study was built around the three stages of resilience adapted from Duchek's (2020) model, namely the Anticipation, Coping, and Adaptation stages (see Fig. 1). The model conceptualises resilience as responding to adverse conditions before, during, and after the disaster. The first stage, Anticipation, deals with observation, identification, and proactively preparing for the occurrence of a disaster. In the second stage, Coping, learning from successes and failures takes place. Feedback is sought to improve coping strategies and provide a learning opportunity. The final stage is Adaptation, which is for reflection. According to the model, no stage exists in isolation; each one depends on the others for learning to take place while building resilience.


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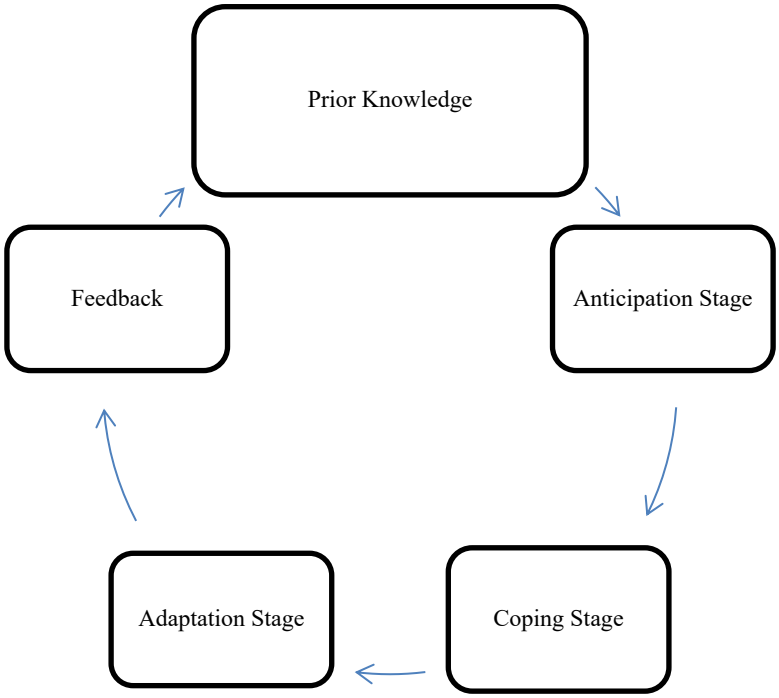


Fig. 1. Organisational resilience model adapted from the Duchek (2020) model

This study investigated and assessed learners' experiences of moving from traditional student-centred learning to digital learning during the COVID-19 pandemic and how their experiences of the sudden shift to digital can be used to sustain academic continuity in the face of disruption and build resilience. To this end, the learners were asked to provide feedback on ways to improve learning for the future during the Adaptation stage. The researcher used two key research questions to guide the study at a 0.05 level of significance: 1. What were the experiences of learners during the shift from traditional student-centred learning to digital learning during the pandemic? 2. How can learners' experiences from the sudden transition be applied to ensure academic continuity in the face of future disruption and build resilience?

## 2. MATERIALS AND METHODS

This section outlines the research design, participants, research instrument used, and data analysis. The study used a mixed convergent parallel research design (quantitative and qualitative) response to collect data from the participants (Afolabi, 2020). The two sets of data were collected simultaneously and combined and are expected to contribute good knowledge of the case by providing a good understanding of the subject matter. The researcher sought and was granted approval to conduct the research through the Lagos State Ministry of Education human ethics committee (Ref. 2086). All of the participants agreed to participate in the study and questions about the respondents' health and sensitive issues were excluded.

## 3. DATA COLLECTION

The purposive sampling technique was used to select schools to participate in the study. The population of the study consisted of all learners in public secondary schools in the Eti-Osa Local Government Area, Lagos State, Nigeria. This local government area is prone to both natural and artificial disasters due to the location from which it derives its name (surrounded by ocean). A total of 210 learners participated in the study and purposive sampling was used to select schools from the target population. The criteria for inclusion were as follows:

1. A school with a graduate physics teacher with at least five (5) years of teaching experience.
2. The school shifted from face-to-face to online learning during and after the pandemic (although many schools adopted a hybrid system after the pandemic).


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3. Schools that are prone to disruption from flooding and banditry, and which close more than three times a year due to disasters.

Three schools met the criteria; a total of 210 learners in senior secondary school 2 (SS2) were then randomly selected from these three schools to participate in the study. As SS2 learners, the participants were on the verge of completing their studies and had experienced disruption more than five times during their studies. They also experienced the shift from traditional student-centred methods to digital learning during the COVID-19 lockdown.

A hard-copy questionnaire was designed for the study comprising two sections, A and B. Section A consisted of 21 items based on the Anticipation, Coping, and Adaptation stages with a Likert rating scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) and was used for the quantitative data collection. While Section B was the non-numerical part and contained three unrestricted questions to further explore the learners' experiences during the learning transition. The questionnaire was subjected to content validity and reliability tests. For content validity, all suggestions were put into consideration while the reliability was calculated to be 0.78 using Cronbach's alpha and KR-20, thus indicating that the items in the questionnaire were reliable.

## 4. ANALYSIS OF DATA COLLECTED

Descriptive statistics were used to analyse the numerical data collected, while the non-numerical data were examined using content analysis. The two sets of data collected were jointly used to interpret the findings of the study. The items in the questionnaire were categorised by themes (Duchek model, 2020, Fig. 1). The final questionnaire was administered to the respondents. Over 250 questionnaires were distributed, and 210 were returned.

## 5. RESEARCH FINDINGS AND DISCUSSION

Table 1: Demographic information of the participants

| Items | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Female | 80 | 62 |
| | Male | 130 | 38 |
| Device used for learning | Smartphone | 155 | 73 |
| | Laptop | 45 | 21 |
| | Tablet | 10 | 4.8 |
| Technology proficiency | Basic | 109 | 51.9 |
| | Intermediate | 61 | 29 |
| | Advanced | 40 | 19 |
| Digital media commonly used | WhatsApp | 129 | 61 |
| | Email | 15 | 7 |
| | Facebook | 23 | 11 |
| | Mobile phone | 43 | 21 |
| Video conferencing tool used | Zoom | 123 | 59 |
| | Google Meet | 24 | 11 |
| | Others | 63 | 30 |

Table 1 shows that 62% (80) of the respondents were female while 38% (130) were male. The smartphone topped the list of devices most used by the learners (73%), followed by laptops (21%) and tablets (4.8%). Concerning technology proficiency, the advanced level accounted for the lowest proportion of participants (19%), while basic and intermediate knowledge accounted for 51.9% and 29%, respectively. For learning between teachers and learners throughout the pandemic, the majority used WhatsApp (61%), 21% used their mobile phone, 11% used Facebook, and 7% used email. Additionally, 59% used Zoom to learn, 11% used Google Meet, and 30% used other video conferencing tools.


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**Research Question 1**: What were the experiences of learners during the transition from face-to-face to online learning during the pandemic?

Table 2: Learners' experiences during the transition from face-to-face to online (Part 1)

| S/N | Items | Strongly Agree | | Agree | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Anticipation Stage** | Freq. | % | Freq. | % | Freq. | % | Freq. | % | |
| 1. | I experience school closure often due to school location | 190 | 90.4 | 10 | 4.8 | 8 | 0.48 | 2 | 0.95 | 3.8 |
| 2. | My study was interrupted because of the pandemic | 178 | 84.8 | 23 | 10.9 | 5 | 2.4 | 0 | 0 | 21.1 |
| 3. | My school is always responsive to everyday disruption | 45 | 21.4 | 7 | 3.3 | 76 | 36.2 | 82 | 39.1 | 1.6 |
| 4. | I feel prepared to learn online | 97 | 46.2 | 58 | 27.6 | 46 | 21.9 | 9 | 4.3 | 13.3 |
| 5. | I was well equipped with an electronic gadget to start online learning before the pandemic | 14 | 6.7 | 20 | 9.5 | 78 | 37.1 | 98 | 46.7 | 3.4 |
| 6. | My school always returns to normal quickly after a disruption | 132 | 62.8 | 46 | 21.9 | 21 | 10 | 11 | 5.2 | 16.6 |
| 7. | My teachers always prepare us emotionally before a crisis | 110 | 52.4 | 64 | 30.5 | 27 | 12.6 | 9 | 4.3 | 14.7 |
| 8. | There was flexibility to change the delivery mode | 58 | 27.6 | 84 | 40 | 46 | 21.9 | 22 | 10.5 | 9.6 |
| 9. | There were various communication channels from teachers to learners during the pandemic | 34 | 16.2 | 46 | 21.9 | 89 | 42.4 | 41 | 19.5 | 6.4 |

**ANTICIPATION STAGE**

Table 2 illustrates the experiences of the respondents during the preparation for the move from student-centred to digital learning. Based on the results obtained from the questionnaire, 90.4% of learners, thus a majority, stated that they often experienced school closure due to the location of their schools. A total of 178 (84.4%) said that their studies were interrupted during the pandemic, while 5% reported no disruption in their studies. A total of 39.1% of learners strongly disagreed that their schools were always responsive to everyday disruption, while 46.2% strongly agreed that they felt prepared to learn through the online mode, and 4.3% strongly disagreed that they were not prepared for the change. However, although a majority of learners were eager to learn online, 46.7% strongly disagreed that they were well equipped with the requisite electronic device to begin digital learning before the pandemic. Meanwhile, 62.8% strongly agreed that their schools always returned to normal quickly after a disruption. A majority of the learners rated their teachers very well in terms of preparing them emotionally before the crisis. Learners were also able to identify the communication channels that would help them to learn and prepare them for competency.

Learner 1: *"Due to the location of my school, which is surrounded by the ocean, we normally experience flooding during the rainy season and during that period our school will be closed for a period. This has made me lose interest in studies during the period."* (Excerpt from learner narratives)

These findings align with those of Bartuseviciene et al. (2021), who examined student and faculty perceptions of the migration to digital learning during the COVID-19 pandemic. They found that resilience depended on the availability of resources, continuous professional development, continuous communication with teachers and students, support network, adaptation, and building the knowledge base. In the same vein, Daniel (2020) stated that students appeared to lack technology skills in operating digital learning tools and some even experienced a shortage of devices with which to access classroom learning materials online. From another perspective, actively engaging with digital resources was a challenge for learners, along with making informed decisions to meet their learning goals at their own pace (Lin & Hsieh, 2001).

Table 3: Learners' experiences during the transition from face-to-face to online (Part 2)


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| S/N | Items | Strongly Agree | | Agree | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|
| 10. | **Coping stage** | | | | | | | | | |
| | Due to unexpected migration, I was distracted and found it difficult to cope with my studies | 98 | 46.7 | 54 | 25.7 | 49 | 23.3 | 9 | 4.3 | 13.3 |
| 11. | The use of social media like WhatsApp, Facebook, etc. was convenient to link up with teachers and colleagues | 62 | 29.5 | 74 | 35.2 | 44 | 20.9 | 30 | 14.2 | 9.8 |
| 12. | I did not face any difficulty in submitting assignments | 34 | 16.2 | 25 | 11.9 | 102 | 48.6 | 49 | 23.3 | 5.8 |
| 13. | Online learning enriched my learning and I was not disadvantaged | 99 | 47.1 | 54 | 25.7 | 47 | 22.4 | 10 | 95.2 | 13.4 |
| 14. | I found the online materials to be helpful and comprehension was easy | 56 | 26.7 | 51 | 24.3 | 46 | 21.9 | 57 | 27.1 | 8.6 |
| 15. | I faced a challenge with the internet during the lockdown | 76 | 36.2 | 67 | 31.9 | 34 | 16.2 | 33 | 15.7 | 11.1 |
| 16. | I can afford the cost of data for learning | 45 | 25.7 | 32 | 15.2 | 68 | 32.4 | 145 | 69.0 | 7.4 |

**COPING STAGE**

Table 3 shows that large proportions of the respondents strongly agreed (46.7%) and agreed (25.7%) that they had been distracted and had difficulty coping due to the sudden migration. However, despite the distraction, a large number agreed that social media had made it easier for them to connect with their teachers and colleagues. While a significant proportion of the students (48.6% and 23.3%) faced challenges submitting their assignments online, a majority (47.1% and 25.7%) reported that online learning enriched their learning and they were not disadvantaged. Despite this, many of the learners (36.2%) faced challenges with data and 69.0% strongly disagreed that they could afford the cost of data for learning. This finding contrasts with Bartuseviciene et al. (2021) who stated that despite the disruption caused by COVID-19, the pandemic had not been as damaging for learners as one may have feared. Nevertheless, many learners among them struggled to contend with the challenges posed by COVID-19.

L5: *"I did not like online learning cause of lack of money for data and I couldn't interact with my friends effectively like face-to-face."* (Excerpt from learner narratives)

Table 4: Learners' experiences during the transition from face-to-face to online

| S/N | Items | Strongly Agree | | Agree | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|
| 17. | **Adaptation Stage** | | | | | | | | | |
| | My school has built-in time-saving learning resources after the pandemic | 98 | 46.7 | 31 | 14.8 | 21 | 10 | 60 | 28.6 | 12.6 |
| 18. | My teachers focused more on learning outcomes rather than course logistics | 67 | 31.9 | 55 | 26.2 | 34 | 16.2 | 54 | 25.7 | 9.8 |
| 19. | My school provides one-on-one academic development support to learners after the pandemic | 89 | 42.4 | 74 | 35.2 | 31 | 14.8 | 16 | 7.6 | 12.7 |
| 20. | My school has provided new digital learning resources | 34 | 16.2 | 12 | 5.7 | 101 | 48.1 | 63 | 30 | 5.5 |
| 21. | My school is organising professional development on online teaching for my teachers after the pandemic | 76 | 36.2 | 61 | 29.0 | 42 | 20 | 31 | 14.8 | 10.9 |

**ADAPTATION STAGE**

A total of 46.7% and 14.8% of the learners attested that their school had provided them with time-saving learning resources after the pandemic lockdown. However, a majority (31.9% and 26.2%) agreed that their teachers had focused more on learning outcomes than course logistics. Furthermore, a majority of learners (42.4% and 35.2%) strongly agreed and agreed that their schools had provided one-on-one academic


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development support for them after the pandemic. Relatively few learners disagreed that their schools did not provide professional development for their teachers after the pandemic, while 36.2% and 29.0% agreed that their school had started a professional development training course for their teachers. Bond (2020) asserted that the factors required for a proper learning environment included teacher ICT-focused skills, support for teachers, student motivation, and self-regulation, which the findings of this study support.
L15: *"Teachers and learners should be well equipped with gadgets and learning skills for effective teaching and learning."* (Excerpt from learner narratives)

**Research Question 2:** How can learners' experiences from the sudden transition be applied to ensure academic continuity in the face of future disruption and build resilience?

The experiences encountered were articulated from the student narratives. This aimed to identify solutions to the problems hindering their online engagement as a means to sustain academic continuity in the face of future disruption, which could also be used to build educational resilience.

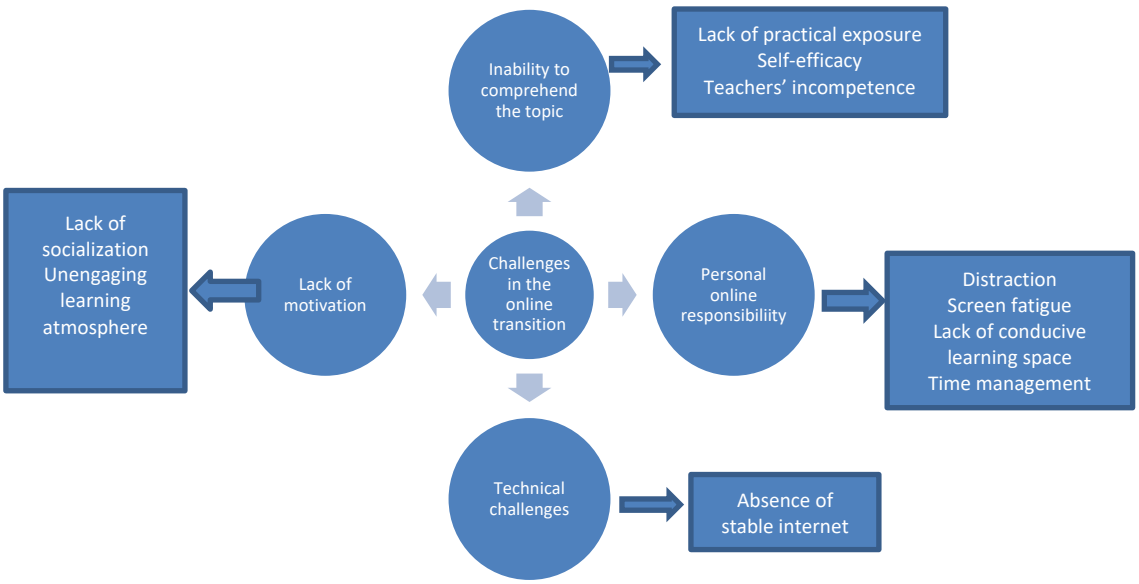


Fig. 2: Summary analysis of the challenges experienced by learners

Based on Fig. 2, the narratives revealed the causes of the challenges faced and were thus thematised as a lack of self-efficacy and teacher incompetence in handling online subjects, to mention a few. The students did not believe that the challenges encountered were entirely due to the migration to online but were also caused by a lack of preparedness by the education system that affected their sense of focus. The solutions perceived by the participants included the provision of feedback, amending learning material to be online-compatible, and more follow-ups. Heath and Shine (2021) stated that when students engage in online learning, they should be supported with content that enhances their conceptual understanding, which they can work on and assimilate at their own pace. The students also suggested that a range of activities should be factored into the curriculum as opposed to purely desk work; this would enable them to connect their lessons to real-life settings and ensure that all lessons are learner-centred to enable full participation.

The participants further noted that while there was no instant resolution to the problem of the internet, the system should reflect the lower bandwidth available for activities and instead provide more offline activities. All concerns raised were essential to the building of a system that is resilient to future disruption.

## 6. IMPLICATION OF FINDINGS


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Considering the findings drawn from the study, it was consistently shown that many schools were not prepared for the shift in learning, although some experienced regular closure due to natural disasters. The majority of learners reported that their learning was interrupted during the COVID-19 lockdown. Many institutions immediately switched to online teaching, forgetting that effective online teaching consists of more than mere repositories of lectures, lecture notes, and course contents. This finding conflicts with Bhaumik and Priyadarshini (2021), who noted that 70.2% of the learners in their research reported no interruption to their studies during the COVID-19 pandemic. This may reflect the proactive support from the educational organisation around the art of teaching and learning and the flexible nature of distance learning. Many of those who are keen to learn online lack the necessary electronic devices for learning. Nevertheless, schools swiftly returned to normal after every disruption. This finding is in line with Rizvi and Nabi (2021) who noted that online learning has many benefits; however, these are only realised when learners have access to technology and affordable data:
*"Online learning made me believe that in the face of disruption, learning can still take place. I enjoyed online learning."* (Excerpt from learner narratives)

Many learners were disadvantaged and could not cope with the new online mode. Faced with such challenges, they tended to resolve that online learning was dull and unengaging, thus implying that the learning process did not achieve its full potential. Students and schools found it difficult to adapt easily to the immediate environment after the lockdown. However, many schools adjusted gradually to the new mode after their students signalled its appropriateness. Schools should thus endeavour to provide gadgets and trained teachers in this regard.

## 7. RECOMMENDATIONS AND CONCLUSION

The goal of resilient education is not merely to emerge from a disruptive crisis but rather to become stronger and able to ensure continuity of education and resourcefulness in the face of future disasters. Schools should develop a new method of learning that will encourage the participation of students and provide them with equal opportunities to learn. The school curriculum should be redesigned so that classes are not merely school-led but instead incorporate students' experiences, evolving concepts, open conversations, debates, and mentoring. To achieve the SDGs, the school system should be able to adjust to changes at the same time as maintaining quality. Government and stakeholders' continuity of learning and digital learning tools should also be provided at the lowest cost to both teachers and learners.

## CONFLICT OF INTEREST

The authors declare that the study was conducted free from any commercial or financial relationships that could be construed as a potential conflict of interest.

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