



The Challenges Entry-Level Mathematics Teachers Face in Conducting Blended Teaching


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ABSTRACT

In recent years, there has been an increasing amount of literature on online teaching and learning. Teaching mathematics in the fourth industrial revolution offers entry-level mathematics teachers formidable challenges. Despite using various teaching aids in explaining the learning area, entry-level mathematics teachers, those with zero to three years of teaching experience, have experienced challenges in blended teaching during the COVID-19 pandemic. Such challenges could support the preconceived notion identified by others that the field of learning (mathematics) is difficult. This paper hinged on constructivist epistemology and investigated the challenges that entry-level mathematics teachers face in conducting blended teaching in the Sedibeng West District of Gauteng Province in the Republic of South Africa. Eight entry-level mathematics teachers were purposely sampled from four selected schools that participated in the article. This article adopted a case study design and responses were analysed thematically. The focus group interviews were used as tools to collect data in this study. The study revealed a variety of perceptions that entry-level mathematics teachers shared about the impact of blended teaching in mathematics learning. These included, but were not limited to, the use of teaching programs or software, the effects of load shedding and blended teaching challenges related to learners' performance and behaviour. The results of this study could provide program developers, subject advisors, school principals with other members of the management team, and mathematics teachers to support the entry-level mathematics teacher's confidence, sense of future and communication skills, as well as foster multigenerational connections in blended teaching.

KEYWORDS

Blended teaching, COVID-19, teachers, entry-level mathematics teachers, online teaching.

INTRODUCTION

Blended Teaching (BT) is the combination of modes of web-based experience (technology) (e.g., audio, live online schoolroom, self-paced education, streaming video, cooperative learning, and text) to accomplish an educational goal (Cronje, 2020). Thus, it is more than enhancing entry-level mathematics teachers (ELMT); it embodies the transformation of how they attempt teaching and learning (Mal & Adhya, 2020; Mpu et al, 2022). In addition, it is a complete rethinking and restructuring of the academic atmosphere and broad learning experience. Thus, there is a claim from Mal and Adhya (2020) that BT is a constructive approach that openly evaluates and incorporates the strong points of face-to-face and virtual facets to address meaningful educational objectives. This study adopts BT as an educational approach that combines online educational materials and opportunities for online interaction with traditional classrooms tailored to the environment. The study points out that schools need technological resources and qualified staff to make BT successful. It also acknowledged that technological tools have become accessible to most public schools in Gauteng Province (RSA) through the government's provision of tablets and smartboards to the learners in schools. Moreover, the tablets are pre-loaded with past examination papers and mathematics applications for students to use at home.

These kinds of technology present an opportunity to improve mathematics performance in Grade 12, the benchmark classroom for the Department of Basic Education (DBE). In light of this, Al-Huneidi and Schreurs (2020) emphasise that these tools enable teachers to use a variety of BTs to learn mathematics through social media and networks (Pule & Ngoveni, 2024) such as YouTube and WhatsApp. Moreover, Gwaltney (2017) asserts that the evolving pressures and possibilities of future teachers of the "millennial" generation have coerced the DBE to change dogmatic teaching strategies. Furthermore, Bates (2018) highlights similar sentiments that traditional face-to-face teaching methods quickly lose practicability in the 21st century. However, it is still the preferred and most widely used teaching approach elsewhere. It allows educators to teach and directly interact with learners (Anderson, 2016). However, Hlathi (2021) states that face-to-face teaching has run its course and had its successes, but now it faces its prospective demise due to the COVID-19 pandemic and technological advancement. Despite Hlathi's accessions, Bates (2018) emphasises that online learning has educational disadvantages.

Furthermore, Bates (2018) believes that online learning with mixed non-quality factors will make it difficult to discern the instructors' contextual roles in quality. Thus, the students' complete learning experience comprises nonteaching factors like convenience, learner characteristics and readiness. Convenience is an enormous non-quality factor for students as it allows flexibility and comfort in the study at the convenience of time. Thus, this learning approach necessitated embracing online learning, especially during the COVID-19 pandemic. This flipped-classroom pedagogical model addresses the challenges a teacher-centred approach poses. Thus, this article aims to respond to the research question and corresponding objective

of exploring some challenges that entry-level mathematics teachers experience when executing blended teaching.

LITERATURE REVIEW

Compared to other centuries, the 21st century has obstacles that call for developing special abilities; therefore, several wealthy and developing nations have increased their investments in educational changes. The South African government, headed by the Minister of Basic Education, stressed the importance of saving the school year due to school closures during COVID-19. In saving the school year, teachers were urged to employ integrated educational strategies (Chirinda et al., 2021). Similarly, Taha et al. (2020) and Basilaia and Kvavadze (2020) assert that online education during the COVID-19 epidemic might be a substitute remedy. "Were teachers ready to switch abruptly from face-to-face to online teaching?" was the critical question. The lack of enough resources, information and support forced instructors to adjust to the new normal for the first time, according to Chirinda et al. (2021).

Furthermore, teachers modified their instruction due to this exceptional circumstance, which also changed how they educated. According to Irfan et al. (2020), practising online learning provides advantages and disadvantages. The potential for plagiarism and internet signal strength, especially devices that enable it, is a disadvantage (Arkorful & Abaidoo, 2015; Irfan et al., 2020). Moreover, the 21st century presents difficulties for ELMT who teach content, particularly when incorporating technology into education (Yustina et al., 2020). In CoSN 2020, the educational system's shift to a virtual learning environment is more than a technological problem. Thus, this is more of an issue with education and instruction (Yustina et al., 2020).

Additionally, Yustina et al. (2020) claim that entry-level instructors who struggle to adjust to mathematical, scientific, and technological progress demand creativity and flexibility. To maximise creative abilities, learning innovation is in line with this purpose. Thus, this aligns with the learning design objective to maximise creative abilities. In the opinion of Karsenti and Fievez (2013), there is a need for more learner and teacher training. Their uncertainty about its application tempers the ELMT who employ the technology. The most significant concern among the 302 instructors who took part in a campaign in Quebec, Canada, to ensure the deployment of electronic equipment was that they would need to learn how to use them (Karsenti & Fievez, 2013).

However, adopting blended learning, adhering to the instructor's notes, and doing additional reading are associated favourably with learner accomplishment and learning motivation (Al-Ani, 2013). They can have a positive attitude about their studies thanks to blended learning approaches. According to Malinina (2013), students are more motivated and inspired to learn when web-related technology enables them to personalise their studies (for instance, students may learn at their own pace, anytime and wherever they wish). Furthermore, Malinina claims that more real-world activities provide students with extra incentive to study in addition to those that already do.

At every level of the educational system, the integrated initiatives should combine teaching and learning and employ technology. Furthermore, teachers' and administrators' training on the effective use of technology aids students' learning (Diep et al., 2017). On the other hand, as several case studies show, a school's creative teacher can lead to big changes. More individuals must centralise and support the endeavour for schools to scale. However, supporting early-stage innovators who tend to work in silos will be necessary to achieve this. The sense of isolation that many educators experience in their efforts to integrate blended learning is a major barrier to its successful implementation. In general, educators favour the "chalk and talk" method over the use of the available tools and technology.

The DBE's lower-cost gadgets could connect local or national projects (Kane & Alavi, 2007). To increase technology use and digital learning, several budgetary constraints impact schools across the country. According to Deschacht and Goeman (2015), schools might support one another considering these shared problems, primarily through interschool and inter-sector (public and private) collaboration. For instance, Hatfield Christian School, a private institution in Gauteng, created an online curriculum eight years ago. It has since collaborated with more than 50 public schools in needy areas of South Africa to help them implement their digital curricula (Headmaster, 2018). Hatfield collaborates with each school for three years to provide a smooth transfer and monitor students' development (Headmaster, 2018). This partnership in the integration of digital learning is free for public schools. As schools start to include digital, CAPS-aligned learning into their models, partnerships like this can potentially give them economies of scale.

Establishing the proper key performance indicators is a critical first step in any technology-based or blended learning programme (Graham, 2016). Schools should establish intermediate success metrics that routinely evaluate a programme's efficacy given the dominant viewpoints of instructors to determine whether technology is providing the expected advantages. For instance, the leadership at the private school network Future Nation in Gauteng created a feedback channel for teachers to assess how technology works for them and their students (Driscoll, 2017). The school community is developing a network of practise that continuously assesses the effectiveness of the blended learning programme and modifies the design as necessary (Johnson & Sdunzik, 2023). Remember that these signs may alter depending on the precise issues a school or instructor is trying to solve using technology. Reports of increased student involvement or time spent on a task at one school addressing behavioural issues may be considered interim metrics. These measures may include educator or parent satisfaction at another schoolworking to change adults' perceptions.

THEORETICAL FRAMEWORK

The desire for learning theories that may speak to and inform education is in this context due to the present risks to teaching and learning in a world that is becoming increasingly online. Teachers may promote and apply the notion of "epistemology" in how we see teaching and

learning since it offers an influential resource for understanding learning and teaching theories. Understanding the epistemology behind a specific theory helps instructors grasp crucial ideas. This paper contends that epistemology asks, "How do we know?" and "What is learning?" Social constructivism has dominated the educational profession for many years. The social variants of constructivism imply that the student participates more actively in a joint endeavour. The social variants of constructivism imply that the student is much more actively engaged in a joint venture with classmates and ELMTs in producing or building meaning. Constructivism does, however, reference learning theory and epistemology of learning (perspectives on the nature of knowledge). They are not equivalent ideas. In this article, we have used constructivist epistemology to explain the philosophical claims that knowledge created from is through ELMT interactions with students, one another, facilitators, and the environment and that knowledge is not a fixed or universal concept. According to Muhajira (2020), constructivism may be derived from the tenet (belief) that knowledge is a form of instruction that continuously develops and changes during the process.

Against this backdrop, Anderson (2016) and Mpungose (2020) assert that (i) facilitation, (ii) cooperation, (iii) interaction, (iv) communication and (v) knowledge production all improves learning for students. Therefore, BT appears to be an appropriate technique to improve teaching-learning in disadvantaged mathematics nations like South Africa. These settings create engaging and content-relevant skills by leveraging ICTs and BT resources to support specific instructional objectives and knowledge acquisition (Young, 2003). The growth of comprehensive connectedness through ICTs has accelerated the shift toward constructivism in mathematics education (Wims & Lawler, 2007). This connectivity enables learners to communicate with one another globally and, most importantly, to access global knowledge resources. Thus, research suggests that integrated learning is the most efficient way to facilitate instruction and learning, given the admittance to larger foundations of knowledge.

METHODS

This case study chronicled the challenges and experiences of ELMT on BT in the Sedibeng West District of the Gauteng Province (RSA). By employing qualitative modes of enquiry, we attempt to illuminate the ELMT's perceptions of using blended teaching in mathematics learning. Moreover, obtaining answers to a set of questions must be tackled and completed by gathering and analysing relevant data (Yin, 2018).

Qualitative research involves the collection and analysis of non-numerical data (such as text, video, or audio) to understand concepts, opinions, or practices (Bhandari, 2020). This study was exploratory and interpretative. In addition, qualitative research paradigms, also known are interpretive and naturalistic (Denzin & Lincoln, 2018), post-positive or post-modern perspectives (Li et al., 2018), based on describing a phenomenon in a holistic, contextually, and profound comprehensive manner (Bless et al., 2020) and is the general label applied to a collection of methods used to obtain information about lived experiences (Chase, 2018).

The researchers drew a purposeful sample and took what was probably true of the population. Moreover, the inference of the population is only as good as the method used to draw the sample (Patten & Newhart, 2018). In this paper, a small group to determine the characteristics of a large group or a population was selected (Mooi et al., 2018). Moreover, the paper adopted purposive sampling that enabled the authors to extract a lot of information from the collected data. Elements of the research sample involved in the paper were the actual inclusion in the population (Chambliss & Schutt, 2012). Thus, the transcribed data collected from semi-structured and focus group interview transcripts gave considerable details. Moreover, thematic analysis from eight participants validated the content of challenges experienced by ELMTs in blended teaching. The confirmation of the substance of difficulties faced by ELMTs in BT was through theme analysis from eight participants (ranging in age from 24 to 28 years old and with zero to three years of teaching experience). The authors used an open-ended, semi-structured face-to-face interviewing guide. Face-to-face interviews allowed the authors to control the path of questions (Creswell, 2014 & 2017).

However, the use of in-person interviews encouraged the participants' thoughts on the incorporation and partnership of BT in teaching mathematics. According to Dejonckheere and Vaughn (2019), semi-structured, in-depth interviews are often utilised in qualitative research and are the most popular type of data source. Similarly, Maree (2016) argued that semi-structured interviews are frequently used in research to support information gleaned from other sources. Maree (2016) also emphasised that open-ended interviews involve more inquiry and explanation. Therefore, researchers should pay close attention to the responses of the participants so that they may identify potential lines of inquiry that call for further study. Each videotaped interview lasted between 15 and 60 minutes with the participant's consent. Author 1 conducted the interviews for the research. Semi-structured interviews appeared adequate to accomplish the study's goals since the study aimed to learn rookie instructors' opinions about BT. Participants may respond with open-ended questions during a semi-structured interview, which allows for more in-depth information. Only a comprehensive analysis that allowed study participants to express their opinions and promoted two-way dialogue could provide insight into the effectiveness of BT in the classroom. The use of research instruments responded to the study's research questions. Focus group talks were most frequently employed as a qualitative method to comprehensively understand social concerns (Nyumba et al., 2018).

In contrast, Maree (2016) asserts that the focus group technique is grounded in the idea that working together will result in a broader range of participant responses. Thus, the participants' experiences are brought to life in detail that could otherwise be forgotten, and shyness that might otherwise prevent them from sharing information is released (Maree, 2016). Thus, the use of a focus group in the study has produced informative data that have revealed individual attitudes and views that other research techniques cannot reproduce, thereby providing an answer to research question three.

The thematic analysis went through the (i) instant sorting out and audio recording of statistics (significant facts, date/time details, reflections), (ii) commencement of data analysis soon after collection and (iii) reduction of data to meaningful information. This process was supported by analytical tools. The researchers further uncovered patterns emanating from the research analysis software and interpreted data from written notes and observational documents, which made it an essential tool for a reliable paper (Dejonckheere & Vaughn, 2019).

Moreover, to confirm data trustworthiness, the study showed data analysis in an accurate, constant, and comprehensive manner through recording, systematising, and divulging the analysis methods. In ensuring its credibility and validity, the study used specific procedures in the line of questioning and data-gathering sessions. Ethical clearance was sought from the institution of author 1.

Additionally, the study presented the data analysis in a precise, consistent, and thorough manner by documenting, systematising, and disclosing the analytic methodologies. The study employed specific techniques in the line of inquiry and used prior research throughout the data collection sessions to ensure its validity and reliability.

RESULTS AND DISCUSSION

The discussion of techniques and designs for research for this paper is in the previous section. This section discusses the results. The findings reflect ELMT perspectives and opinions as they relate to the choices made in this study. The researcher gave data from six focus groups and EMLTs who participated in semi-structured interviews and their opinions. The purpose of this part is to address the research question and its accompanying objective. What are the thoughts of the EMLT on how BT affects the learning of mathematics? We will look at some difficulties that ELMTs go through while using BT. The next section discusses the perspectives of ELMT on their challenges and experiences in conducting blended teaching:

How are learners cooperating and disciplined during the execution of Blended Teaching? Explain.

Teacher 1: *BT tools make pupils noisy when they do not understand a particular concept as they resort to asking their fellow friends... Learners tend to be disciplined for a limited period, remember because, during the process, they cannot ask questions to the smartboard ... so if they have a question, they tend to ask their friends, which disturbs the class and causa loss of discipline during that period...*

Teacher 2: *The issue of on-time submission was a hindrance during the lockdown as ELMTs gave learners work on WhatsApp, and learners would take time to submit... The voice projection of the presenter (low tone voice of blended teaching presenter) affects the learners' attention... as they will not pay attention if the presenter is not audible enough.*

Teacher 4: *Yes, I can say yes because learners like technology, involvement, and seeing things...Some of them are visual... If I do something that fascinates them, they will behave...The traditional way of teaching makes learners make noise.*

Teacher 7: *Some of us have a challenge in using programs like GeoGebra... On the smartboard, some of the pupils usually find it fun when watching a video; others take it as something that should be seen that is very helpful for them so that learners can learn something they do not understand.*

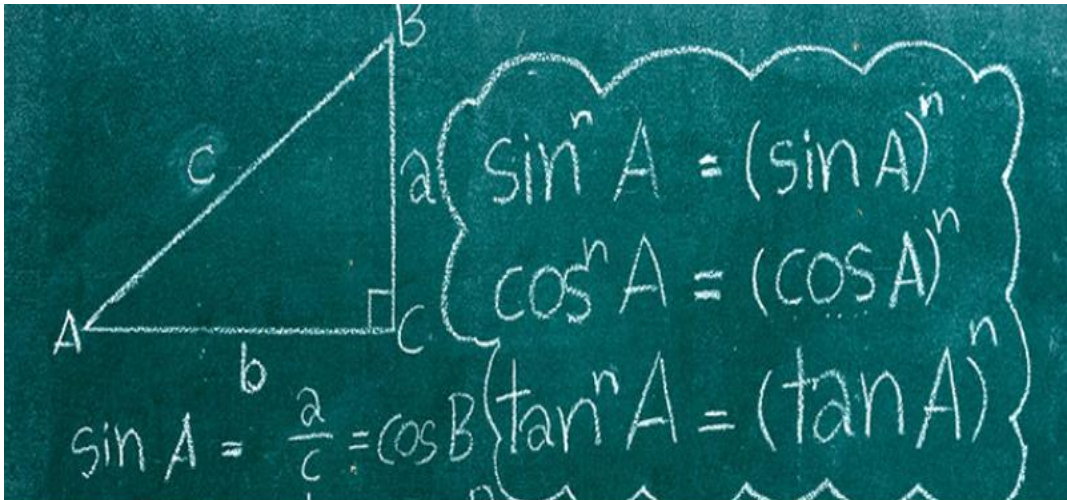
Stimulating activities enhances classroom discussion and learner engagement or creates smoother transitions between activities. Moreover, this could mean that the BT approach arouses learners' attention to control indiscipline in the classroom. Furthermore, Van Niekerk and Webb (2016) aver that controlling learners' conduct, on the other hand, should be prioritised. Again, one of the advantages afforded by BT is the easy management of behavioural issues in this setting. Discipline is significant because the information from ELMTs might be cascaded to learners smoothly without wasting teaching time. During the BT session, ill-disciplined learners could disrupt others who know what they want and thus affect their mathematics learning.

According to the above extracts, learners' concentration span becomes minimal due to BT challenges that result in disciplinary issues. Thus, teacher 1 indicates that discipline to learners is for a limited period. During the process, they cannot ask questions to the smartboard, so if they have a question, they tend to ask their friends, which disturbs the class from implementing the BT approach. Indiscipline jeopardises the teaching process and could lead to adverse mathematics performance as they might miss explanations and key concepts. On-time submission is a burning issue since learners take advantage of not being reprimanded when they do not submit on time. It could be because the learners need contact with their teacher or whoever is presenting in the broadcasted lesson. Additionally, it takes a while for an ELMT, like teacher 7, to comprehend unaccustomed BT tools used in teaching and learning Euclidean geometry like GeoGebra. Contrarily, the BT tools may save time to prepare, and present compared to the chalk and dust seen below.

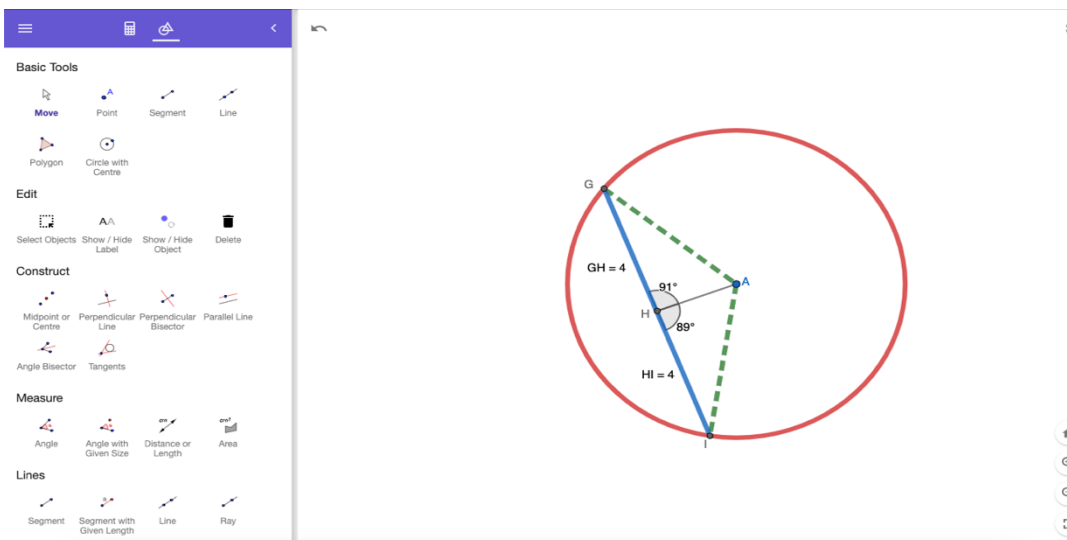
When teaching some topics in mathematics like in figure 1, such as trigonometric graphs, functions and Euclidean geometry, utilising BT technologies like the smartboard, accuracy is essential. It is simpler to demonstrate the theorems in Euclidean geometry to students using free software like GeoGebra as in figure 2. It helps them visualise the theory and helps them understand the material better than traditional methods of instruction.

Figure 1.

An example of a chalkboard presentation

**Figure 2.**

An example of a GeoGebra presentation



Teachers 4 and 6: *Provide us with a broadcasting lesson from the district, so they support us... but I think can be better if we do our video recordings with some coaching from peers... blended teaching requires me to do my research and consult peers to help find other tools. I had to go the extra mile, and then the district training needed more.*

This teacher feels that they need to have autonomy and control over their challenges on BT by video recording their work, which will be easy to share with peers and disseminate to their learners to avoid some red tape rather than broadcasted lessons. The videos can also provide ELMTs with an opportunity to self-evaluate and tinker with their teaching practice as they work on the feedback they have received. The opportunity for in-depth peer review can be a useful structure to guide conversations on WHAT WENT WRONG OR WELL in the process. In this case, the question of what the ELMT would do differently 'next time' was answered by him-/herself

before any other possibilities were provided. This develops expertise because it begins where the learner is situated and provides scaffolds for taking the next step of choice. This is how an ELMT develops the expertise to become what we have called a blended teaching instructional strategist (BTIS). A BTIS is a holistic and solutions-oriented teacher focusing on learner potential through developing each other's strengths and talents to teach learners of any age to strive for success.

Teachers 3 and 6: *The district organises no formal online or blended teaching teacher training... and CAT teachers help other educators with that... Yes, we can assist each other by twinning or peer reviewing each other.*

Do you receive support from your facilitators/subject advisors? Is it enough?

The following extracts add to the support of teacher development.

Teacher 4: *The training by facilitators still needs to be augmented. BT requires me to do my research and consult peers to help find other tools. I had to go the extra mile, and then the district training needed more.*

Teacher 6: *The district organises no formal ELMTs teachers training. ...volunteered that I am helping teachers register online... They can view the lessons broadcasted like this, so it is just one teacher, one or two teachers... and CAT teachers helping other educators with that... Yes, they do assist because they are this document, facilitators/ Subject advisors give us the extra class activities... and I saw that they already got the soft copies the novice teacher got from the facilitator.*

Teacher 4: *Facilitators once came to our school to show us how to use smartboards... Where the teacher finds the graphs and how to use the unique tools on the smartboard and where to find them when teaching mathematics... They also provide us with a broadcasting lesson from the district, so they support us...*

The ELMTs are concerned that the district of education is not having any formal teacher training to develop them in conducting BT. However, the other teacher advocates that twinning or peer review by colleagues who are familiar with demographics and learner population will support their discourse on the success of conducting blended teaching (Makgakga, 2023). The given support is necessary from colleagues within their classrooms to meet the learning needs of their learners in conducting differentiated instruction (Johnson & Sdunzik, 2023) through BT, and in the process can even assist with the planning of units and lessons. The advocacy can assist ELMTs to grow and develop professionally (Pule, 2020) as the feedback on their progress is within. The feedback from colleagues would give vital information for the ELMT to grow and adapt to meet the changing needs of their learners in conducting BT.

Teachers 1, 2, 3 and 6: *It is very challenging sometimes... load shedding is a severe challenge... load shedding can hinder teaching and learning to be specifically blended teaching and learning on mathematics... we end up losing control of learners... it is a challenge in that I will find out that in most cases when I have already prepared to teach the lesson, and the power is off... we plan our lessons around that time.... now I must consider an alternative...*

South Africa experiences load shedding depending on the stage implemented. It ranges from 12 times over four days for two hours at a time to 12 times over eight days for four hours at a time and decreases to three times over four days for two hours at a time and three times over eight days for four hours at a time (Styan, 2019). A teacher's practice, with several standards, articulated within each section, such as whether a teacher creates an effective learning culture characterised by high expectations for learners (Pule & Ngoveni, 2024); whether they have solid classroom procedures and time management strategies in place; and whether they can effectively manage learner behaviour, need realistic expectations for skills improvement in conducting BT (Mpu et al, 2022). According to this teacher, "Suddenly the power is off already, my plans will not be able to proceed," which hampers their daily teaching and learning activities. These extracts concur with the encouragements from senior government officials about approaches to be in place to save the academic year, as asserted by Chirinda et al. (2021). ELMTs were encouraged to teach their learners in an online platform in the comfort of their homes to keep track of the Annual Teaching Plan (ATP). Electricity contributes to good network signals, so communication with web-based tools is a challenge. Communication using web-based technologies is more accessible when there is electricity since good network signals depend on energy. However, in saving the academic year during COVID-19, ELMTs encountered hindrances to do this exercise effectively and efficiently. Load shedding was one of the challenges contributing to the effective implementation of blended teaching. The power failure disrupted the smooth running of teaching plans, according to teachers 2 and 3, and schools must put in place BT tools such as smartboards to accommodate the traditional way of teaching when the load shedding is in effect. Moreover, according to teacher 1, load shedding disrupts their teaching plan as sometimes specific topics require them to use blended teaching tools. In addition, the presenters do not respond immediately to the questions that learners could have as he indicates that "sometimes when learners watch a live video, the presenter does not respond immediately to the questions during the presentation." This comment agrees with teacher 6, who asserts that "I must now consider an alternative; I can use the textbook". During load shedding, they should consider alternatives to stay on track with syllabi coverage (Annual Teaching Plan) like asynchronous discussion activities, using Google Docs to share comments and ask questions to remove some of the pressure of speaking up in a classroom and other activities can be used to scaffold participation supporting learners.

The support provided by facilitators could benefit ELMTs to be at the standard of experienced colleagues (with more than three years of teaching experience) and beyond (Diep et al., 2017). Teacher 4 attests that "BT requires me to do their research and consult peers to find help with other tools." The ELMTs could learn from colleagues and stimulate deep knowledge with which BT concurs with Muhajirah (2020). Furthermore, there is a need for ELMTs to be equipped with BT approaches to become more effective in mathematics teaching. According to ELMTs, facilitators provide training; however, there is still more to improve. However, the epistemological view of constructivism is fluidly guiding the issues raised. It

indicates that ELMTs expect support from their facilitators/subject advisors. This support should be provided until the ELMTs become confident in the learning area. The answer to the load shedding issue that impacts poor signal and connectivity is that ELMTs could use their departmental laptops while offline in preparing for the lessons conducted when there is no load shedding.

The findings from this current research suggest that even when ELMTs experience challenges, they should be equipped to teach mathematics without electricity. Electricity is considered the one that makes a good signal for implementing blended teaching to its maximum point. Prior studies by Chirinda et al. (2021) assert that teachers had to experience the new normal for the first time as the resources, knowledge or support were insufficient. Furthermore, this unprecedented situation resulted in teachers adapting their teaching, thus changing their teaching methods. Thus, this could confirm that the load shedding that results in poor network signal could negatively impact blended teaching in mathematics learning.

The current research found that there will be network signal problems when there is load shedding, which could lead to poor connection. Previous studies found that the drawback emanates from blended teaching, which has a potential for plagiarism behaviour. Moreover, the internet signal strength, including devices that support its connection (Yustina et al., 2020), are other drawbacks. This research found that learner discipline is among the challenges experienced by ELMTs during the blended teaching execution. Surprisingly, learner discipline seems to be triggered by internet connectivity as some learners are used to the internet, which might make them misbehave when connected, thus searching for content that is not educational. Moreover, pupils in disadvantaged areas like townships needed help accessing digital resources, such as blended teaching tools required for online learning at home.

The study found that the support provided by facilitators, referred to as subject advisors, needed to be increased. As ELMTs must seek assistance from CAT instructors because the Department of Education District Office (DEDO) does not formally give such assistance, the facilitator's support appears to be lacking in this situation. Facilitators presented a basic demonstration of how to utilise smartboards. However, the DEDO provided support via online broadcasting tutorials. The literature agrees that ELMTs and school leaders should be trained to leverage technology effectively to help students learn (Diep et al., 2017). Moreover, this could help to ensure that ELMTs get a thorough orientation on using the BT tools when teaching mathematics.

CONCLUSION

This study found that some ELMTs have challenges using mathematics software that enhances the easy teaching of geometry and trigonometry. Other ELMTs claim that load shedding leads to poor or no connection to devices during teaching and learning sessions. Furthermore, ELMTs advocate that there are pockets of learner indiscipline during the blended teaching execution. In contrast, learner discipline seems to be triggered positively by internet connectivity as they

are used to the internet. Moreover, pupils in disadvantaged areas like townships needed help accessing digital resources required for online learning at home. The study also found that the support provided by facilitators, referred to as subject advisors, needed to increase. The literature agrees that ELMTs and school leaders should be trained to leverage technology effectively to help students learn. Moreover, this could help to ensure that novice teachers get a thorough orientation on using the BT tools when teaching mathematics.

RECOMMENDATIONS

ELMTs should be trained by the teacher development division in the DBE so that they can bridge the gap from teacher training institutions of higher learning. Workshops organised by the department should be more frequent for ELMTs for their development from the gaps in blended teaching. Through the facilitators/subject advisors' support and the DBE, this could build teaching management, building understanding so that ELMTs can be confident with the execution of BT in their direct instruction with learners when learning mathematics. ELMTs should attend their classes on time, which might lead to learners utilising the internet connectivity effectively as they are under supervision.

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