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Influence of load shedding in South African higher education: a qualitative content analysis of Schools of Music

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ABSTRACT

Load shedding in South Africa has a profound impact on various sectors, including education, and specifically, South African music education faces significant disruptions. One of the most notable effects is the interruption of music instruction, with load shedding frequently causing classes to be interrupted. This leads to gaps in learning and a disjointed educational experience for students. The aim of this article was to investigate the influence of load shedding on South African higher education, particularly in Schools of Music. The study utilized a qualitative research method and relied heavily on secondary data. It employed a data cleaning strategy and a triangulation approach to ensure data validity and minimized bias. Additionally, Critical Pedagogy Theory was used to address the exacerbated socio-economic disparities resulting from load shedding. The findings of the study highlighted that before the onset of load shedding, South African music education already faced an urban-rural divide, with urban institutions having better resources and opportunities than rural schools. Load shedding exacerbates these disparities, as students from disadvantaged backgrounds face increased barriers to accessing musical instruments and supplementary resources. In conclusion, the study emphasized the urgent need for concerted efforts to mitigate the impact of load shedding on music education. It underscored the transformative potential of inclusive, uninterrupted music instruction for students in South African rural-based Schools of Music.

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Introduction

It is prudent to foreground this article by pointing out that load shedding in South Africa, which refers to planned power outages to prevent grid overload, severely affected and disrupted the regular flow of various sectors, including higher education (Mabunda et al., 2023; Yende & Madolo, 2023). This view was shared by Yende and Madolo (2023), who affirmed that load shedding interrupted the learning process, affecting students' progress and potentially leading to gaps in their musical education. Music schools heavily relied on electronic instruments, recording equipment, and amplification systems (Octaviani, 2021; Park, 2022). Load shedding exposed vulnerabilities in maintaining and operating these instruments, especially in rural-based universities, compromising their quality and longevity.

Yende and Madolo (2023) study underscored a critical issue in South African music education, particularly in rural-based universities offering music programs. Load shedding amplified challenges, especially in online classes, exacerbating disparities in access to music education. This made it difficult for students from less privileged backgrounds to navigate disruptions caused by power cuts, limiting their educational opportunities compared to peers with access to backup power sources. Solutions addressing these inequities were urgently needed (Mpungose, 2020).

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Scholars such as Octaviani (2021), Park (2022), and Yende and Madolo (2023) admitted that while instrumental instruction traditionally relied on in-person teaching, the use of music technology had become increasingly integral to music education. Music technology encompassed a wide range of tools and software used for composition, production, and performance, many of which required electricity to operate effectively (Park, 2022). For example, electronic keyboards, synthesizers, and digital audio workstations (DAWs) were commonly used in music education and relied on electricity. The presentation of online classes also became more prevalent in music education, particularly in response to the COVID-19 pandemic. Online classes often relied on video conferencing platforms, multimedia presentations, and digital resources, all of which required electricity and technological infrastructure (Yende & Madolo, 2023).

Therefore, it was evident that while not all aspects of instrumental instruction required electricity, the integration of music technology and online teaching methods in music education highlighted the importance of reliable electricity access for effective teaching and learning, which load shedding severely affected. Load shedding exposed vulnerabilities in maintaining and operating these instruments, potentially compromising their quality and longevity, especially in rural-based universities in the country.

The study by Yende and Madolo (2023) underscored that during the COVID-19 pandemic, all sectors, including South African higher institutions, shifted towards virtual operations. This transition led to the suspension of load shedding, allowing universities in urban, peri-urban, and rural areas to implement adaptations and solutions to mitigate its impact. These measures included investing in backup power sources like generators or solar power, implementing energy-saving measures, and adjusting schedules to minimize disruptions during peak load shedding times. However, it's worth noting that the seven South African universities classified as rural-based institutions faced challenges with blended teaching and learning during this period (Yende, 2021). These universities are the University of Venda (Limpopo Province), University of Limpopo (Limpopo province), University of Zululand (KwaZulu-Natal province), University of Western Cape (Western Cape Province), Fort Hare University (Eastern Cape Province), Walter Sisulu University (Eastern Cape Province), and Sefako Makgatho University (Gauteng Province).

Although various strategies have been proposed, minimal effort has been made to mitigate the challenges of load shedding in South African rural-based universities, particularly those offering music programs, due to limited resources and infrastructure (Mpungose, 2020; Yende & Madolo, 2023). The lack of critical solutions exacerbates challenges, especially in online classes, where power cuts disrupt learning. This worsens existing disparities in access to music education. Students from less privileged backgrounds may struggle to navigate these disruptions, limiting their educational opportunities compared to peers with backup power sources. This highlights the urgent need for solutions that address these issues.

Scholars pointed out that when music students have limited access to instruments and practice spaces, they may not be able to use the necessary tools and environments they require to hone their musical skills (Pozo et al., 2022; Yende & Madolo, 2023). This restriction severely hinders music students' progress because practice is essential in mastering any musical instrument or technique. For instance, if a young pianist is preparing for an important performance (Yende & Madolo, 2023), they need regular, uninterrupted time on a piano to refine their pieces, work on dynamics, and build muscle memory. However, if they cannot access a piano consistently due to power outages or other limitations, they will not be able to practice effectively. Similarly, for musicians preparing for auditions or examinations, regular and focused practice is crucial (Yende & Madolo, 2023). Music students need to fine-tune their technique, polish their repertoire, and build confidence in their performance. Without reliable access to instruments and practice spaces, they are at a significant disadvantage. In essence, it is akin to a sports athlete not having access to the necessary equipment and facilities for training (Yende, 2021). This lack of access impedes their ability to refine their skills and reach their full potential, ultimately affecting their performance in crucial events like auditions or examinations.

It was prudent to point out that even though there is extensive literature on the challenges faced by South Africa concerning load shedding (Mabunda et al., 2023; Mbomvu et al., 2021; Yende & Madolo, 2023), not much empirical research has been done to investigate and consider the influence of load shedding South African music schools in higher education. This gap in the research area has also been highlighted in past studies, which affirm that further research is still needed to determine the challenges facing music schools in South African higher education (Yende & Madolo, 2023). Therefore, to keep up-

to-date with the ever-changing world, South African music schools must develop contingency plans to mitigate the effects of load shedding. This can include scheduling adjustments, backup power solutions, or alternative teaching methods to ensure continuity in education.

Scope of research

This article provided an in-depth analysis of the impact of load shedding on South African higher education, with a specific focus on Schools of Music. The research concentrated on scholarly articles, reports, and analyses discussing the influence of load shedding on higher education, particularly within music education. It aimed to explore how load shedding disrupted the learning process within Schools of Music, affecting student progress and potentially leading to gaps in their musical education. The article also aimed to shed light on the broader implications of load shedding on the educational landscape in South Africa, highlighting the challenges it posed to higher education institutions. The term 'Schools of Music' referred to South African higher education institutions offering a range of music-related programs, including National Diploma, Bachelor's, Master's, and Doctoral degrees in music education, performance, and related fields. These institutions included conservatories, colleges, and universities with specialized music programs. While the term 'Schools of Music' could have a broad meaning, in this research, it specifically referred to these institutions within the South African context.

Research questions

Research questions were specific inquiries that guided a research study. They helped define the scope and purpose of the research, providing a clear focus for data collection and analysis. In the context of load shedding, Schools of Music faced unique challenges due to their reliance on electricity for instrument amplification, recording equipment, and technology-based instruction (Yende & Madolo, 2023). Load shedding disrupted classes, rehearsals, and performances, impacting students' ability to fully engage with their musical studies. In this article, the following five research questions were developed:

a. How were the music education circumstances in South Africa before load shedding?
b. How does load shedding impact the continuity of music instruction and educational activities in South African Schools of Music?
c. What are the specific challenges faced by students and educators in Schools of Music due to the interruption caused by load shedding?
d. In what ways does load shedding affect the integration of technology and electronic resources in music education within these institutions?
e. How does load shedding exacerbate socio-economic disparities among students in South African Schools of Music, particularly in terms of access to instruments and resources?

These research questions serve as a foundation for my study, guiding the data collection and analysis to provide meaningful insights into the influence of load shedding on South African higher education, specifically in Schools of Music.

Theoretical framework

This article was framed within Critical Pedagogy Theory. Critical Pedagogy Theory (hereafter, CPT), championed by Paulo Freire, offered a crucial lens through which to analyze the impact of load shedding on South African rural-based Schools of Music (Freire, 2007). At its core, this perspective advocated for education as a means of empowerment and a tool for dismantling systemic inequalities (Mahmoudi et al., 2014; Freire, 2007). In the context of load shedding, this framework was particularly pertinent as it highlighted how power disruptions could exacerbate existing socio-economic disparities, ultimately impeding the transformative potential of music education in rural areas.

Load shedding, as a manifestation of broader socio-economic challenges, disproportionately affected marginalized communities, including those in rural areas. In these contexts, where access to resources

and opportunities was already limited, power disruptions further compounded existing inequalities (Mahmoudi et al., 2014; Freire, 2007). For instance, students from economically disadvantaged backgrounds might have lacked access to alternative power sources or faced difficulties in obtaining instruments and materials for practice during blackout periods. This not only hampered their musical development but also perpetuated cycles of disadvantage. Moreover, educators in rural-based Schools of Music faced additional challenges in delivering quality instruction amidst power interruptions. They had to navigate the delicate balance of ensuring continued learning while acknowledging the practical constraints imposed by load shedding. This might have required innovative teaching methods, creative scheduling, and resourcefulness in adapting to the circumstances. However, the burden of these adaptations often fell on educators, potentially leading to increased workload and stress.

CPT prompted us to critically examine these dynamics. It urged us to question why certain communities were more heavily impacted by load shedding and what structural factors contributed to these disparities. By doing so, we could uncover systemic issues that needed to be addressed to create a more equitable educational landscape. Furthermore, CPT encouraged proactive interventions. This might have involved advocating for policy changes to improve access to resources, supporting initiatives that provided alternative power sources, or fostering community collaborations to share resources and knowledge. It also called for a reimagining of educational practices that empowered students and educators to navigate challenges posed by load shedding in ways that fostered resilience and creativity. In essence, CPT served as a powerful framework for understanding how load shedding intersected with socio-economic disparities in South African rural-based Schools of Music. It challenged the government to not only recognize the impact of power disruptions but also to take action in dismantling the structural barriers that hindered the transformative potential of music education for marginalized communities.

Research methodology

In this study, a qualitative research methodology was employed within a systematic, descriptive review design to investigate and analyse the impact of load shedding in South African higher education, with a specific focus on Schools of Music. This approach entailed comprehensively collecting and synthesizing information from various written and digital sources, including books, articles, reports, databases, and publicly available materials (Guerin et al., 2018). Human subjects or participant interviews were not incorporated into the study methodology. Instead, the analysis focused on non-numerical data derived from literary sources (Guerin et al., 2018). Throughout the research process, a careful examination of these sources was conducted to elucidate the multifaceted impact of load shedding on South African higher education, particularly within the context of music schools. The study aimed to provide a comprehensive overview of the challenges and implications faced by these institutions due to load shedding, highlighting the need for effective strategies to mitigate its effects.

As mentioned earlier, the data collection process primarily relied on archival sources and other secondary materials, including books, book chapters, and published peer-reviewed journal articles. Various platforms, such as Google Scholar, JSTOR, ResearchGate, and university repositories, were utilised to ensure a comprehensive review of available resources. The justification for using this methodology is its ability to provide a comprehensive review of existing literature, allowing for a thorough understanding of the research topic.

A systematic search was conducted using the 'advanced search function' on the aforementioned databases. Various combinations of search terms were used, including 'educational disruption', 'load shedding disrupts', 'students in rural-based institutions', 'socio-economic disparities', and 'South African higher education before load shedding'. The search specifications included a date range from 2000 to the current date and the English language.

Initially, the search was limited to the field of music education. However, the lack of literature specifically focusing on the impact of load shedding on schools of music prompted an expansion of the search into other related fields. A total of 140 non-duplicate articles were identified through the search process. Upon reviewing the titles and abstracts, 90 articles were excluded as they did not pertain to load shedding or were not relevant to the study. Of the remaining 50 articles, 25 were deemed relevant and included in the study (Figure 1).

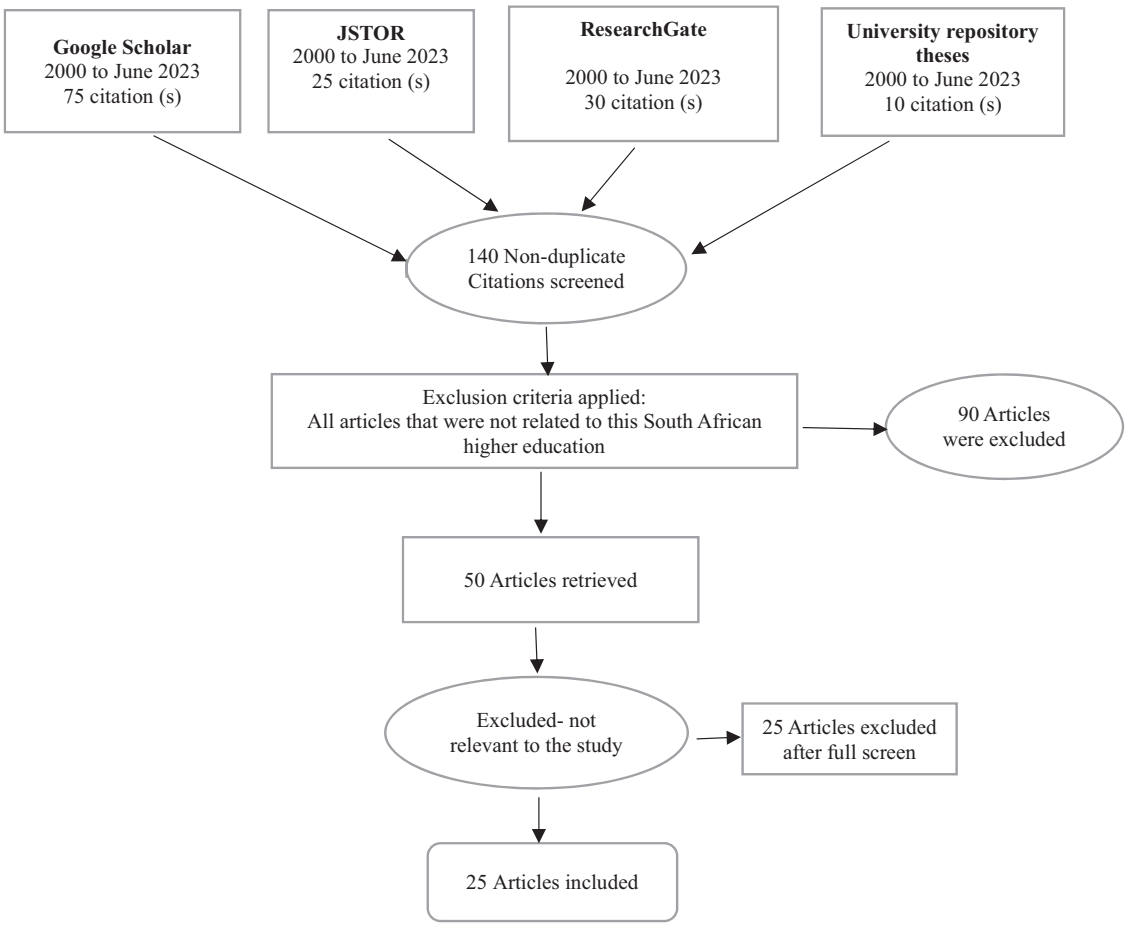

Figure 1. The literature collection process.
Source: Author.

Triangulation approach

In addition to scholarly articles, books, and university repositories, the study utilised websites and online repositories to triangulate information and substantiate certain facts (Adami & Kiger, 2005). This triangulation approach was employed to enhance the credibility and reliability of the findings by cross-referencing information from multiple sources and perspectives, thus strengthening the validity of the research findings.

Ethical implications

The authors took proactive measures to mitigate biases in source selection, data interpretation, and reporting (Vaismoradi et al., 2013). This involved critically evaluating sources for potential biases or conflicts of interest, acknowledging any limitations or gaps in the research, and maintaining transparency in the presentation of findings. Additionally, efforts were made to adhere to ethical guidelines and standards of academic integrity throughout the research process, ensuring the integrity and credibility of the study.

Contextualising the findings of this article on load shedding

Perhaps it is prudent to introduce this section by identifying some of South Africa's Higher Education Institutions (HEIs) that house Schools of Music. These include the University of Cape Town's College of Music, the University of KwaZulu-Natal's Department of Music, the University of South Africa's Music

Examinations Directorate, the University of Northwest's Potchefstroom Campus, the University of Pretoria's Musaion, and the University of Free State's Odeion School of Music, among others. These institutions are significantly impacted by load shedding. The profound disruption caused by load shedding on South African higher education, with a specific emphasis on Schools of Music, is a critical concern.

Load shedding's recurrence jeopardises the continuity of instruction, rehearsals, and performances, hindering holistic music education. Additionally, its adverse impact on technological integration impedes modern pedagogy. The study uncovers an alarming exacerbation of socio-economic disparities, limiting access to resources for economically disadvantaged students. Despite these challenges, Schools of Music exhibit commendable resilience, employing innovative scheduling and alternative energy sources. However, resource limitations constrain their effectiveness. These findings underscore the urgent need for targeted interventions and policy measures. Prioritising sustainable energy solutions and addressing infrastructure gaps is imperative to ensure the enduring quality of music education in South Africa. This study calls for a collective commitment from stakeholders to safeguard the vitality of higher education, particularly within the unique context of Schools of Music facing the recurrent challenge of load shedding.

The following themes were developed according to the research questions set earlier to achieve the goal of this article. These are namely; (a) Music Education in South Africa before load shedding; (b) Impact on Continuity of Music Instruction; (c) Specific Challenges Faced by Students and Educators; (d) Impact on Integration of Technology and Electronic Resources; and (e) Exacerbation of Socio-economic Disparities. All these themes were answered using existing literature.

Music education in South Africa before load shedding

Before load shedding, the circumstances for music education in South Africa varied significantly depending on the institution and location. Access to musical instruments, practice spaces, and recording equipment varied widely. Urban and well-established institutions typically had better resources compared to rural or less resourced institutions (Venter & Panebianco, 2022; Yende & Madolo, 2023). For example, Venter and Panebianco (2022) found that high school learners in urban areas perceived greater value in music education due to better facilities and equipment.

Furthermore, students in rural-based institutions have been facing similar challenges in music education, such as lack of access to proper infrastructure and instruments (Harrop-Allin, 2017; Yende & Madolo, 2023). Harrop-Allin (2017) highlighted the difficulties faced by rural students in accessing music education beyond the classroom, indicating a broader issue with resource availability in rural areas.

The disparities in resource availability between urban and rural institutions were particularly pronounced. Urban schools typically had more extensive music programs, better-maintained instruments, and access to advanced recording equipment. These institutions often provide students with a richer musical education experience, including more opportunities for performances, collaborations, and industry connections (Swart, 2020; itutions (Venter & Panebianco, 2022).

In contrast, rural-based institutions struggled with inadequate infrastructure and limited resources, which hindered students' ability to fully engage with their musical studies (Swart, 2020; Yende & Madolo, 2023). For example, some rural schools lacked proper practice spaces or had outdated and poorly maintained instruments, making it challenging for students to develop their musical skills effectively (Yende & Madolo, 2023).

Despite these challenges, efforts were being made to improve access to music education in rural areas. Initiatives such as outreach programs, mobile music labs, and partnerships with urban institutions aimed to bridge the gap and provide rural students with more opportunities to pursue their musical interests. Overall, before the onset of load shedding, the circumstances for music education in South Africa were characterised by a stark urban-rural divide, with urban institutions generally offering better resources and opportunities compared to rural schools. Addressing these disparities was crucial for ensuring that all students had equal access to quality music education.

Impact on continuity of music instruction

Load shedding, a recurrent challenge in South Africa's energy sector, has far-reaching implications for music education in Schools of Music. One of the most pronounced impacts is the disruption it inflicts on the continuity of music instruction. This disruption manifests in several critical ways (Yende & Madolo, 2023). Firstly, load shedding disrupts scheduled music classes with remarkable frequency. In educational settings, where adherence to timetables is crucial for effective learning, the unpredictability of power outages poses a significant challenge (Mhlanga & Moloi, 2020). Educators meticulously plan lessons to ensure a progressive and cohesive curriculum. However, when classes are abruptly interrupted due to load shedding, this structured progression is compromised. The continuity of instruction is jeopardised, leading to gaps in learning and a disjointed educational experience for students.

Several scholars highlight that load shedding hampers the ability of students to engage in essential practice and rehearsal sessions (Esuola, 2022; Yende & Madolo, 2023). Music education relies heavily on consistent, hands-on practice to develop technical proficiency and artistic expression. When students are unable to access instruments or utilize electronic resources during power outages, their ability to practice and refine their musical skills is severely impeded (Yende & Madolo, 2023). This dearth of practice time not only inhibits individual growth but also detrimentally impacts ensemble performance. Group rehearsals, which are vital for developing teamwork and musical cohesion, are frequently disrupted. The ensemble's ability to synchronise and harmonise is compromised, hindering the overall quality of musical productions.

The consequences of disrupted lesson schedules and hindered practice sessions are manifold. Students experience frustration and a sense of stagnation in their musical development (Esuola, 2022; Yende & Madolo, 2023). They may struggle to progress at a pace commensurate with their potential, leading to a potential loss of motivation and engagement. Educators, find it challenging to maintain a consistent learning trajectory for their students. They must constantly adapt their instructional strategies to accommodate the unpredictability of load shedding, leading to additional stress and workload (Maree, 2022; van Wyk et al., 2021). Moreover, the cumulative impact of disrupted instruction and practice extends beyond the immediate academic setting. It can impede students' long-term growth and proficiency in music, affecting their future prospects in the field. For aspiring musicians, consistent practice and instruction are the bedrock of skill development, and any interruptions can have enduring consequences (Maree, 2022).

Evidently, load shedding's impact on the continuity of music instruction is profound and multifaceted. Disrupted lesson schedules and hindered practice sessions significantly impede the learning process and hinder the development of musical proficiency (Esuola, 2022; van Wyk et al., 2021; Yende & Madolo, 2023). The consequences are felt not only in the immediate academic setting but also have long-term implications for the musical growth and potential of students. Addressing this challenge is imperative to ensure the quality and effectiveness of music education in South African Schools of Music. Targeted interventions and policy measures are needed to mitigate the disruptive effects of load shedding on music instruction.

Specific challenges faced by students and educators

The impact of load shedding on South African Schools of Music is not limited to disrupted schedules alone; it extends to the very heart of the educational experience, affecting both students and educators. Specific challenges emerge as a result of these interruptions, posing significant hurdles for effective music education (Bwalya Umar et al., 2022; Yende & Madolo, 2023). Foremost among these challenges is the disruption to students' learning trajectories. One of the primary challenges faced by students and educators in South African Schools of Music is the disruption to learning caused by load shedding (Bwalya Umar et al., 2022; Yende & Madolo, 2023). Consistency is crucial in education, especially in music, where concepts often require continuous practice and refinement. However, load shedding introduces a stop-start nature to instruction, making it difficult for students to maintain a steady learning pace. This inconsistency hinders their ability to build upon previously acquired knowledge and skills, leading to frustration and a sense of stagnation among students.

Moreover, load shedding places a significant burden on educators (Maree, 2022; Mhlanga & Moloi, 2020; van Wyk et al., 2021). Effective teaching relies on establishing a rhythm and flow in the learning process, which is disrupted by frequent power outages. Educators must constantly adapt to the unpredictability of load shedding, which can be mentally and emotionally taxing. The need to regain students' attention and focus after interruptions leads to a loss of valuable instructional time and compromises the depth and breadth of content covered in a session. Additionally, load shedding affects educators' ability to plan and execute long-term educational strategies (Mhlanga & Moloi, 2020). Lesson plans that rely on continuous progression may need to be constantly adjusted, increasing workload and stress. This inconsistency in planning can hinder the overall quality of education provided in South African Schools of Music.

Simultaneously, load shedding imposes a significant burden on educators. Effective teaching relies on establishing a rhythm and flow in the learning process. However, frequent interruptions disrupt this flow, making it challenging for educators to maintain engagement and learning momentum (Maree, 2022; Mhlanga & Moloi, 2020; van Wyk et al., 2021). The need to constantly adapt to the unpredictability of power outages can be mentally and emotionally taxing for teachers. Additionally, the extra effort required to regain the attention and focus of students after an interruption can lead to a loss of valuable instructional time. This can hinder the depth and breadth of content covered in a given session, potentially compromising the overall quality of education provided. Furthermore, the reduced teaching effectiveness extends beyond the classroom. Educators may find it challenging to plan and execute long-term educational strategies when faced with the uncertainty of load shedding (Mhlanga & Moloi, 2020). Lesson plans that rely on continuous progression and development may need to be constantly adjusted, leading to increased workload and stress for teachers.

In summary, Yende and Madolo (2023) emphasized that the challenges posed by load shedding are acutely felt by both students and educators in South African Schools of Music. Learning disruptions hinder students' ability to maintain a consistent learning trajectory, potentially impeding their progress and comprehension. Concurrently, educators face the formidable task of maintaining engagement and teaching effectiveness in the face of frequent interruptions. Recognizing and addressing these challenges is crucial for ensuring the quality and effectiveness of music education in this context. Targeted support and innovative strategies are needed to mitigate the adverse effects of load shedding on both students and educators.

Impact on integration of technology and electronic resources

The integration of technology in education has revolutionized the way students learn and engage with course materials. However, in the context of South African Schools of Music grappling with load shedding, this progress is met with significant hurdles. Load shedding poses a substantial impediment to the effective use of electronic resources in music education (Qakoshe, 2022; Yende & Madolo, 2023).

Generally, scholar point out that load shedding limits the use of electronic resources, presenting a formidable challenge for educators striving to incorporate digital tools in teaching and learning (Maree, 2022; Mhlanga & Moloi, 2020; Qakoshe, 2022). In an era where technology has become an integral part of education, from interactive software for music theory to digital recording equipment for practical exercises, the intermittent nature of power supply disrupts this integration (Yende & Madolo, 2023). The reliance on electronic devices and platforms for instructional purposes means that any power outage disrupts the seamless flow of lessons. Educators may find themselves reverting to traditional methods, which may not be as effective in conveying complex musical concepts or providing students with dynamic learning experiences. Moreover, load shedding can impede students' access to essential digital materials. Many educational resources, from e-books and online tutorials to interactive music theory applications, are primarily accessible through digital platforms (Mhlanga & Moloi, 2020; Qakoshe, 2022). During load shedding periods, students may face challenges in accessing these materials, creating a significant barrier to their engagement with the learning process. This limitation not only hinders their ability to explore and reinforce concepts independently but also impedes their progress in music education.

Yende (2021) mentioned that the challenges related to technological integration and access to digital materials have far-reaching implications. They not only affect the immediate learning experiences of

students but also impact their overall preparedness for a digitally-driven world. In an increasingly technology-dependent society, proficiency in utilising digital tools is a critical skill set that students must develop. Load shedding threatens to undermine this development, potentially leaving students at a disadvantage in their future academic and professional pursuits (Mhlanga & Moloi, 2020; Qakoshe, 2022).

Additionally, the hindrance of technological integration may hamper the Schools of Music in keeping pace with global advancements in music education (Matsheta & Sefoka, 2023; Nkambule, 2023). In a rapidly evolving field, the ability to leverage cutting-edge technology is essential for offering a competitive and comprehensive educational experience. Load shedding, by impeding this integration, may inadvertently hinder the institutions' ability to provide the highest quality education to their students (Mhlanga & Moloi, 2020; Yende, 2021). Load shedding's impact on the integration of technology and electronic resources in South African Schools of Music is significant and multifaceted. The limitation on electronic resources and impeded access to digital materials present formidable challenges for both educators and students. Recognising these challenges is imperative for developing strategies to mitigate the adverse effects and ensure that music education remains dynamic, relevant, and aligned with global advancements in technology. Targeted interventions and innovative approaches are needed to navigate these challenges and uphold the quality of music education in this unique context.

Exacerbation of socio-economic disparities

Load shedding in South African Schools of Music exacerbates existing socio-economic disparities, disproportionately affecting students from disadvantaged backgrounds (Octaviani, 2021; Park, 2022; Yende & Madolo, 2023). Furthermore, Yende and Madolo (2023) maintained that one of the most pronounced consequences is the limited access to musical instruments. Students hailing from economically challenged households already face barriers in acquiring and maintaining instruments. Load shedding intensifies this challenge, as it restricts the already limited time available for practice. With power interruptions disrupting their ability to use instruments, these students experience a significant setback in their musical development (Octaviani, 2021; Park, 2022). Furthermore, economic disparities amplify the resource accessibility gap in South African Schools of Music. Supplementary resources, such as sheet music and instructional materials, are essential for comprehensive music education. However, students from disadvantaged backgrounds may struggle to afford or access these materials even under normal circumstances (Yende & Madolo, 2023). Load shedding exacerbates this inequality, as power interruptions limit their ability to utilize electronic resources and online platforms, which often provide more affordable alternatives.

The exacerbation of socioeconomic disparities in music education has far-reaching implications. It not only limits the potential for talent development among students from disadvantaged backgrounds but also perpetuates a cycle of inequity within the field of music (Yende & Madolo, 2023). Access to quality education and resources should not be contingent on economic circumstances. According to Yende and Madolo (2023), recognising and addressing these disparities is essential for creating an inclusive and equitable learning environment within South African Schools of Music. Targeted interventions, such as scholarship programs and resource-sharing initiatives, are imperative to bridge this divide and ensure that all students, regardless of economic background, have equal opportunities to thrive in their musical pursuits.

Discussions

The impact of load shedding on music education in South Africa is profound, as it disrupts scheduled classes and compromises the structured progression of lessons (Bwalya Umar et al., 2022; Yende & Madolo, 2023). This disruption leads to gaps in learning and a disjointed educational experience for students, hindering the development of technical proficiency and ensemble performance, which are crucial aspects of music education (Venter & Panebianco, 2022; Yende & Madolo, 2023).

Load shedding introduces learning disruptions and challenges for both students and educators. Students struggle to maintain a steady learning pace, hindering their progress and comprehension. Educators face difficulties in maintaining engagement and teaching effectiveness, leading to increased workload and stress. Additionally, load shedding exacerbates existing socio-economic disparities, as students from disadvantaged backgrounds face increased barriers in accessing musical instruments and supplementary resources like sheet

music and instructional materials, further hindering their musical development and perpetuating cycles of disadvantage. Moreover, load shedding limits the use of electronic resources, hindering the incorporation of digital tools in teaching and learning. This affects the ability of students to engage with digital learning materials and impedes their preparedness for a digitally-driven world.

In response to these challenges, schools employ adaptive strategies such as innovative scheduling, alternative power sources, and community collaboration to mitigate the effects of load shedding. However, these strategies may be constrained by limited resources, particularly for schools with budgetary constraints, and their effectiveness may vary based on factors like location, infrastructure, and available resources.

Critical Pedagogy Theory underscores the urgent need to confront the exacerbated socio-economic disparities due to load shedding (Freire, 2007). It promotes preventative measures like regulatory changes, cooperative resource-sharing projects, and scholarship activities to create a more diverse and fair learning environment in South African music schools (Venter & Panebianco, 2022; Yende & Madolo, 2023). This approach aims to empower all students, regardless of their economic situation, and unlock the full transformative potential of music education by removing structural barriers and prioritising accessibility.

The discussion surrounding load shedding's impact on music education in South Africa highlights the need for proactive measures to address the challenges faced by students and educators. By recognising the unique challenges posed by load shedding and implementing targeted interventions, South African music schools can ensure that all students have equal opportunities to thrive in their musical pursuits.

Recommendations

Based on the critical analysis of the implications of load shedding in South African rural-based Schools of Music, several recommendations can be made to mitigate its impact:

1. ***Investing in alternative energy sources:*** Schools of Music should consider investing in alternative energy sources such as generators, solar panels, or battery backups. These measures can provide a reliable power supply during load shedding, ensuring uninterrupted music instruction.
2. ***Creating comprehensive contingency plans:*** Schools should create comprehensive contingency plans that outline specific steps to be taken during power outages. These plans should include alternative teaching methods, rescheduling options, and strategies for utilising non-electronic resources.
3. ***Facilitating access to practice facilities:*** Schools should facilitate access to practice facilities for students during load shedding periods. This could involve partnering with local community centres, churches, or other venues with stable power sources.
4. ***Implementing instrument lending programmes:*** To address economic disparities, schools can create instrument lending programs that allow students to borrow instruments for home practice. This initiative can help ensure all students have equal access to resources.
5. ***Encouraging collaborative learning experiences:*** Schools of Music should encourage collaborative learning experiences, such as group rehearsals and ensemble performances, which can continue even during power interruptions. These activities can foster teamwork and musical development.

Implementing recommendations such as investing in alternative energy sources, creating comprehensive contingency plans, facilitating access to practice facilities, implementing instrument lending programs, and encouraging collaborative learning experiences can help mitigate the impact of load shedding on music education in South African rural-based Schools of Music (Venter & Panebianco, 2022; Yende & Madolo, 2023). These measures ensure that students have access to quality instruction and resources regardless of power disruptions, contributing to a more resilient and inclusive music education system.

Limitations

It is acknowledged that the analysis is based on existing documents and publications, which may be subject to limitations inherent to the original sources. Additionally, the scope of the study is limited to the available data and may not capture every facet of the subject matter.

Implications for future research

Future research in the field of music education in South Africa should consider the following implications. Firstly, investigating the long-term effects of load shedding on students' musical development and career paths could provide valuable insights. This could include longitudinal studies tracking students from affected schools to understand how interruptions in education impact their musical abilities and professional opportunities. Secondly, conducting comparative studies between urban and rural schools could offer further insights into the disparities in music education resources and outcomes. By comparing the experiences of students and educators in different settings, researchers can identify effective strategies for mitigating the impact of load shedding on music education.

Moreover, exploring innovative teaching methods that can be employed during load shedding to maintain the quality of music education could be beneficial. This could include the use of non-electronic resources, creative scheduling, and community collaborations. Additionally, studying the policy implications of load shedding on music education could inform policymakers about the need for sustainable energy solutions in educational settings. This could lead to the development of policies that support schools in accessing reliable power sources.

Furthermore, investigating the socio-economic impact of load shedding on music education, particularly its effects on students from disadvantaged backgrounds, could be insightful. This could include studies on the accessibility of musical instruments and resources during power outages. Overall, future research should focus on understanding the full extent of the impact of load shedding on music education in South Africa and identifying effective strategies for mitigating these effects.

Conclusion

This article delved into a critical examination of the ramifications of load shedding within South African higher education, with a particular emphasis on Schools of Music situated in rural-based institutions. Through a comprehensive qualitative content analysis, this article unravelled the multifaceted challenges posed by the erratic power supply and its profound impact on the continuity of music instruction, students' learning experiences, and the integration of technology in music education.

Load shedding, as it was observed in this article, disrupts the meticulously crafted schedules of music classes, introducing unpredictability and impeding the structured progression of lessons. This has far-reaching consequences, as it hinders skill development, ensemble performance, and overall musical proficiency. Moreover, the challenges faced by both students and educators in maintaining a consistent learning trajectory are pronounced. Students grapple with learning disruptions, leading to potential setbacks in their musical journeys. Conversely, educators face the demanding task of adapting to interruptions, often resulting in increased workload and reduced teaching effectiveness. In addition, the integration of technology in music education, a cornerstone of modern pedagogy, is hampered by load shedding. The limitations imposed on electronic resources hinder the seamless incorporation of digital tools, impacting students' access to crucial learning materials. This, in turn, jeopardises their preparedness for a digitally-driven world and challenges the institutions' ability to keep pace with global advancements in music education.

Furthermore, load shedding exacerbates existing socio-economic disparities, disproportionately affecting students from disadvantaged backgrounds. Access to instruments and supplementary resources becomes even more restricted during power interruptions, hindering the development of musical proficiency and perpetuating cycles of disadvantage. In light of these findings, it is imperative to adopt a proactive stance. The principles of Critical Pedagogy Theory serve as a guiding light in this study. By emphasising the need to address underlying socio-economic disparities, this theory calls for policy changes, resource-sharing initiatives, and scholarship programs. Such interventions are crucial in fostering a more inclusive and equitable learning environment within South African Schools of Music.

In conclusion, this study underscores the urgent need for concerted efforts to mitigate the impact of load shedding on music education. By implementing the recommended strategies and advocating for policy changes, higher education can strive towards a more resilient and inclusive educational landscape for students in South African rural-based Schools of Music. Only through these collective actions can

South African higher education ensure that the transformative potential of music education remains accessible to all, regardless of the challenges posed by external factors like load shedding.

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