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**Research Article**

# Powerless To Learn: Load-Shedding And Its Impact On Teaching And Learning In South African Schools

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**ABSTRACT**

This study examines the impact of load-shedding and provides insights into the detrimental consequences it has had on the South African education sector. It employed a qualitative research approach based on a social nature by exploring netizen' (Twitter) views and opinions on the impact of load shedding on teaching and learning at the basic education level. The main finding of this study is poor governance as an underlying issue in the exacerbation of educational inequalities in South Africa. The views of netizens highlight various social ills that are widened by load-shedding, such as lack of quality education, poor academic performance in schools, digital divide, and inadequate inclusive education, among others. It has implications for energy policy development and governance. In addition, it calls for the government and Eskom to take cognisance of good governance principles. Furthermore, the paper calls for Eskom to benchmark with global energy entities in finding best practices for solving the energy crisis in the country.

**Keywords:** Load shedding; Power-cuts, Teaching and learning, Education; Schools; Twitter, South Africa

## INTRODUCTION

The provision of electricity is a crucial element in contemporary societies, and its equal accessibility is imperative for advancing economic prosperity, societal progress, and human welfare. This is in line with the Sustainable Development Goals (SDGs), which serve as instruments for transforming the world from a traditional to a modern society. Nevertheless, load shedding has had adverse implications in the education sector and has emerged as a constrain to the provision of quality education for all where teaching and learning activities are mostly based on the availability of power. The phenomenon of load shedding in South Africa is increasingly becoming a persistent and enduring reality because of the rapid growth in power demand. Since 2007, South Africa has faced recurring power outages, also referred to as load- shedding and load reduction in some areas. The country's ageing power infrastructure and the rising electricity demand are to blame for the power outages (Roy-Aikins, 2016; Bowman, 2020; Magott et al., 2022). The state-owned utility, Eskom, uses load shedding, a planned and controlled power loss, to avoid a complete blackout of the national power grid. Education is just one of the many areas of the South African economy where load-shedding has had a substantial impact. The South African education sector is confronted with many obstacles, such as insufficient infrastructure, funding, social disparities, and poor academic achievement among learners (Zulu, 2021). This has been exacerbated by load shedding, which has negatively impacted the education sector, disrupting teaching and learning activities, affecting academic achievement, and impairing curriculum delivery. Schools, colleges, and universities without or with limited energy infrastructure are often in a position of suspending instructional activities due to load shedding. It can be argued that load-shedding is a form of a pandemic in South Africa as it affects various aspects of human life, such as social, economic, political, health, medical and educational aspects. Furthermore, various studies support this notion on the impact of load-shedding on the aspects mentioned above (Laher et al., 2019; Mabugu & Inglesi-Lotz, 2022; Bantjes & Swartz, 2023; Dworzanowski-Venter, 2023;

Marchetti-Mercer, 2023; Marope & Phiri, 2023). Therefore, the study aimed to determine the impact of load-shedding on the educational landscape in South Africa, with particular emphasis on the perceptions of the general public on Twitter.

There is scant literature on the impact of load-shedding on the educational landscape while education is perceived as a vehicle for social transformation and the South African government's interventions to the problem. Therefore, the complexity of load-shedding in South Africa can be measured objectively by the number of energy-related infrastructural interventions. As far as South Africa is concerned, the central problem of load-shedding is precisely the poor infrastructural interventions that are pro-poor, which is both cause and effect of the state of poor governance, which continuously violates some human rights, including access to quality education. Undoubtedly, educators and learners have experienced the acute pain associated with conducting teaching and learning activities in the absence of electricity, hence exacerbating the deficiencies in public schools' education settings. The occurrences of blackouts have resulted in classrooms being devoid of light, necessitating pupils and teachers to look for different venues in search of natural light or, alternatively leading to the cancellation of classes. Therefore, this paper posits that the South African government has compromised the right to education by not exempting schools from load shedding to ensure that learners are not denied education due to the energy crisis. This study followed a qualitative approach, applying Critical Discourse Analysis to collect and analyse data. The keywords and search strings used included "*load-shedding AND education*"; "*load-shedding AND schools*". The tweets analyzed ranged between the period 2020-2023, and only those related to schools were analysed in line with the purpose of the study. The study's limitations include the likelihood of bias in comment selection, the difficulty of analysing comments from private accounts, and the risk of social media comments being manipulated by bots, trolls, and spam.

## INFRASTRUCTURAL AND RESOURCES INADEQUACY IN SCHOOLS

Decades post-apartheid Bantu Education system that deprived Africans of the same educational opportunities as their white counterparts, the South African education system still struggles with disparities. Schools in underprivileged areas such as rural, urban peripherals, and townships have not yet fully realised the benefits of freedoms and this affects other rights such as the right to dignity, quality education, safety, and a healthy school environment (South African Human Rights Commission, 2014). The violation of these basic rights is attested through the continued existence of mud schools, unqualified and underqualified teachers, pit latrines, no access to electricity, water, poor infrastructural road network and the 21st supporting infrastructure of learning and teaching in underprivileged schools (Department of Basic Education, 2015; Mlachila & Moeletsi, 2019; Moodley, 2020; Majodina, 2022). Teachers in underprivileged schools are faced with high classroom enrolment, insufficient equipment, teaching and learning technologies, and textbooks (Amer & Amelia, 2021; Maphalala & Khumalo, 2023). The inaccessibility of electricity through load-shedding or grid connection in underprivileged schools exacerbates the already existing disparities in technology-driven teaching and learning. For example, learners in rural areas are unable to use and have limited access to 21st teaching and learning technologies such as computers, laboratories fully equipped with laptops and computers with full connectivity to the Internet (Dube, 2020; Mavhandu- Mudzusi et al., 2021). Furthermore, underprivileged communities and schools lose their network during load shedding and often suffer load reduction compared to schools in affluent areas with backup infrastructure (Makhoba & Reddy, 2022; Pillay & Madzimure, 2023). As a result, learners from underprivileged schools cannot be on par with their peers from affluent schools as teaching and learning activities are halted during load-shedding or reduction. Hence, such is perceived as the maintenance of the apartheid two-school system in the advent of democracy (Jansen, 2019). It may be further argued that load-shedding and inadequacy in resource allocation in underprivileged schools perpetuate the deep-rooted societal inequalities and tramples on the South African Schools Act (No. 84 of 1996), which advocates for the allocation of sufficient access to sanitation facilities. As stated, during load-shedding underprivileged schools cannot conduct electricity-reliant experiments, teaching, assessments, and water disruption occurs, and this is against the provisions of Schools Act no. 84 of 1996 (Majola & Mudau, 2022).

Infrastructural and resource inadequacy remains a barrier to the effective incorporation of 21st technologies in underprivileged schools. Teachers support ICT-driven teaching and learning however, load-shedding, inadequate technological skill set, facilities and poor networks are barriers towards its incorporation in the educational environment (Warioba et al., 2022; Maja, 2023). Furthermore, the study conducted by Tigere & Netshitangani (2022) on ICT found that rural and township schools are adversely affected by load shedding, inadequate computers and poor internet connection, thus rendering the 21st teaching and learning an upheaval for underprivileged schools. This was vividly demonstrated during the COVID-19 pandemic where urban schools continued with curricular activities through ICT as opposed to rural and urban peripheral schools whose teaching and learning happened at a small-scale because of the unavailability of ICT infrastructure (Ramrathan, 2021). A study conducted in Indian rural schools found that only 20% of rural schools could conduct e-learning during the Covid-19 pandemic (Daimary, 2020). This has necessitated an argument by teachers that poor performance is interwoven to load-shedding, poor connectivity, inadequate infrastructure and resources such as backup generators or Photovoltaics (PV) solar panels to cushion the impact of load-shedding in underprivileged schools (Khan et al., 2022; Silva et al., 2023). The current inequalities reflect apartheid spatial planning, which reserved electricity supply for urban areas (Essex & de

Groot, 2019). However, the democratic dispensation government has made strides to redress the electricity imbalances through the electrification of 86% of the total population (International Energy Agency, 2016a). Nevertheless, researchers postulate that the 14% remainder of non-electrified communities are underprivileged communities. Which adversely hampers the government's clarion call to declare education as an apex priority (Sedai, Nepal & Jamasb, 2021). Evidently, in South Africa rural and urban peripheral schools continue to lack the necessary resources and infrastructure to sustain them during load-shedding and other unfavourable conditions.

## Educational Disruptions and Load-Shedding

Various studies have reported load-shedding as a disruption in teaching and learning (Zaman et al., 2012; Bwalya et al., 2022; Adamba, 2018; 2022; Khan et al., 2022). This is corroborated by Shyu (2014), with the assertion that access to electricity can minimise the time spent by children on household chores such as fetching water, firewood and cooking and provides opportunities for embedding information and communication technologies for enhancing learning endeavours. In addition, Bwalya et al. (2022) argue that access to electricity in schools further enhances the achievement of SDG 4 (Quality Education). Electricity contributes to positive well-being by creating spaces and opportunities for improved results. Lodhi and Malik (2013) argue that learners cannot complete their assignments on time due to load shedding, whereas teachers have difficulty delivering lessons effectively. In addition, Alam and Kaneko (2019) state that load-shedding impacts learners as they cannot study in the dark. A study conducted among students from the University of Sindh Jamshoro reported that 93% of the participants agreed that load-shedding affected their study time, 87.2% stated the inability to concentrate during lectures, and 39% indicated a disturbance in exam preparation (Malik et al., 2022). This demonstrates the adverse effects of load-shedding on student activities at home and in their learning institutions. In determining ICT usage and skills among students in Pakistan, the findings revealed that load-shedding was the primary concern for 72.4% of students who used ICT at home. Furthermore, 70.4% of students identified this as an issue on campus (Siddiquah & Salim, 2017). In a study conducted in Pakistan at the District Bujner, Khyber Pakhtunkhwa (KP) province, the findings reported that long hours of Load-shedding significantly impacted students' academic performance (Khan et al., 2022).

This also poses challenges to schools with special needs. The concept of "quality education" is such schools can be questionable as both teachers depend on assistive technologies, which require electricity. This notion is supported by Muvirimi (2019), whose study findings reported that most of the respondents (in-service inclusive education teachers) highlighted load- shedding as a hindrance to fully utilising assistive technologies. This is corroborated by the findings of the study conducted by Zaman et al. (2021), where load-shedding was identified as one of the challenges experienced by teachers in using ICT in inclusive classes. This demonstrates how load-shedding exacerbates disparities in schools.

## Governance and Load Shedding

Access to electricity is a basic social need and other socioeconomic aspects are interlinked with it (World Bank, 2017; Sarkodie & Adams, 2020). However, in the South African context, the crux of the energy crisis is rooted in the poor governance of electricity providing company, Eskom. As a result, the country is constantly experiencing power supply failure. In agreement, argues that Eskom is improperly governed and boards are improperly constituted against the good corporate governance provisions (Karim, 2016; Van der Walt, 2018). In corroboration, Masuku (2019) argues that poor governance engulfing South Africa has necessitated in poor service delivery of critical services. In addition, since the dawn of democracy, Eskom has had fifteen Chief Executive Officers (Eskom, 2023). This is a clear indication of governance failure at Eskom. It is arguable that leadership instability at Eskom is the bedrock of the load-shedding. The various governments of South Africa, Holland, India and others introduced the utilisation of load-shedding as a mechanism to protect against the country's grid collapse (Kucuk, 2018; Xiang et al., 2018; Dewa et al., 2020). However, load-shedding as a mitigating factor has dismally failed to reduce disruption in various sectors including education. Evidently, rural and township areas experience prolonged hours of electricity through load reduction (Maggott et al., 2022). The use of load reduction is a demonstration of inequality in electricity provision, and it is developmentally segregative, as it mainly affects poor and rural people.

Despite the introduction of load-shedding as an intervention, the latter discussion explicitly illustrates that load-shedding and reduction are failed interventions as disruption in education, economic productivity and sharp appreciation of unemployment (Naidoo, 2023). Such failures have prompted the United Democratic Movement (UDM) and others to take Eskom & other state departments to court over the impact of load-shedding on prejudicially of constitutional rights to health, education and security. Subsequently, the open court ruled against government load-shedding practice, that public schools and other government social services institutions must be exempted from load-shedding (UDM others versus Eskom and others 2023 (05779/2023). However, since the court rule, the status quo has not changed as load-shedding is more persistent. Arguably, the non-implementation of the court ruling is a travesty of the rule of law and a clear indication of non-adherence to good governance principles. This paper argues that Eskom's poor leadership foresight has plunged the state-owned company into more debt and exposed the country's fiscal into

vulnerability due to unsustainable landing. Echoing similar sentiments, Bachmiar et al., (2019) postulate that Eskom credit is a risk to the country's fiscus.

Moreover, poor governance in Eskom has been negatively rated by rating agencies (Fitch Ratings, 2020). As a result, these inabilities have forced Eskom to promote the tilized iz of PV solar systems, which are inherently unaffordable to poor people and underprivileged schools (Boamah, 2020; Kidmo et al., 2021). This has continued energy poverty in rural in urban peripheral, township and rural schools as people are still without electricity due to the latter cited reason. As a matter of fact, quantile 1 to 2 funds allocation does not enable the underprivileged schools to fund backup generators or PV solar panels infrastructure as they tilize the allocated funds for furnisher and textbooks (White & Van Dyk, 2019). Therefore, the government advocated load-shedding mitigating factors are anti-poor, and Eskom's ineffective leadership has failed in their fiduciary duty to supply electricity. Hence, Sebudubudu, (2010) asserts that good governance ought to be pro-poor in its policy and program implementation. It is against this background, that South African energy governance has failed to safeguard the rights of underprivileged people and schools in the face of load-shedding. Furthermore, the current tilized izati of state-owned companies is against the underlying system of governance emanating from the new public management which advocates for tilized ization of power.

In addition, this paper argues that good governance mediates the access to electricity distribution to ensure equity and inclusivity in resource distribution. However, in the context of South Africa poor governance has exacerbated electricity poverty and the digital divide as poor people are unable to mitigate electricity unavailability through PV solar systems (Ürge- Vorsatz & Herrero, 2012; Wlokas et al., 2012). Moreover, Eskom and the government are not transparent on energy affairs and governance. For instance, the adopted energy tilized ization (unbundling) fails to explicitly explain how it will address energy poverty and there has been no public participation (Lawrence, 2020). In essence, Eskom fails to communicate and devise strategies aimed at mitigating load-shedding impact on economic and social services such as schools and clinics. In corroboration, poor communities lack basic access to the free solar home system which produces 50wp, which is insufficient for cooking and refrigeration (Lawrence, 2020). Hence, this paper argues that such failures exacerbate a situation where energy availability is based on economic affordability, which subsequently furthers educational inequalities. Therefore, energy in South Africa lacks agile governance, which is about a quick response to the challenge and meeting clients' needs. This is often tilized in the software development (Janssen & Van der Voort, 2020). Contrary, to provide agile governance towards load-shedding mitigation of the vulnerable, the healthcare sector the Western Cape government has provided 50 rural clinics with solar panels to continue operations of load-shedding (Quintana et al., 2022). This is a demonstration of how Eskom and other government units ought to be working together to ease the vulnerability of rural schools to deal with educational access inequalities.

## FINDINGS

This section reports and discusses the comments collected from Twitter in line with the aim of the study. In line with the aim of the study, the themes below emerged, highlighting the effects of load-shedding in South African schools. Most comments highlight the pleas and concerns of Eskom and the ruling party, the African National Congress (ANC), stemming from poor governance.

### Poor governance

Load-shedding is a conspicuous manifestation of inadequate governance and its adverse effects in schools. Schools must confront recurrent power interruptions, depriving learners and teachers of essential resources and facilities. The absence of electrical power can cause disturbances in educational settings, undermine learning opportunities, and hinder the provision of high-quality education. This highlights the pressing need for good and competent governance and viable energy supplies to guarantee an accommodating educational setting for every learner. The tweet below by Mmusi Maimane sparked a conversation on Twitter, where people also commented to show their dissatisfaction with how the electricity crisis is being handled in the country. This further highlights the socio-economic disparities still exist, where "the rich get richer, and the poor get poorer."

*"Schools and hospitals need electricity. People are dying in hospitals because of loadshedding. Ministers will say there is no money for solar panels for schools and threaten grid collapse but when they experience any discomfort, they are willing to spend millions of our money to make sure that they are not affected. We need ministers who care about our children's education more than they care kitchen upgrades. We need a government that prioritises the people" @MmusiMaimane*

In addition, the lack of prioritisation of black communities and schools regarding service delivery also highlighted the concerns on Twitter.

*"Really, Black townships and rural areas had permanent load-shedding and water shedding. Roads were not tarred, schools were crowded at 80 learners per class.*
*No phones. Sport infrastructure poor. Old Age grants received every 2 months. Child mortality rate amongst highest in world".* @BlueOce38840490.
*"Guess what? The parents of these children and their neighbours will vote ANC come next year".* @thegraphmaker.

*"Conditions must be improved in the country in order for 30% to be turned to 50%. I mean this year's matrics had to prepare and write final exams with load shedding. There is this thing called load reduction which magically only affects black communities where electricity"* @Lesedi_official

Basic human needs such as water are also affected. Load-shedding also affects the health ofteachers and learners, as clean running water and toilets are also affected.

*"The most useless municipality in the world Matjhabeng municipality didn't buy chlorine , now all over Matjhabeng we don't have water because of their stupidity . It's load-shedding and no running water , learners are not going to school. ANCFS is clueless shame". @SirDavid_Dashe.*

*"#load-shedding While most of the public schools in Limpopo don't have generators and solar power systems, Ngobeni says load-shedding is an infringement of learners' right to education and disrespect to the future of rural school learners. IMS". @CapricornFMNews.*

*"Our government does not take school seriously. Gr 12 learners are writing their finalyear exams and there is load shedding. How they will study???". @nelly17162993*

### Effect on Study Time

*"Load-shedding is tampering with school work. Grade 12 learners cannot do their homeworks and researches given to them, and @DBE_SA is expecting results".*@1dis_man

*"Nozaza says #load-shedding is negatively affecting learners, that learners are not ableto study and this may increase the number of children who drop out of school. #SONA2023 #sabcnews #DefendOurDemocracy".* @Lira_Matlala.

### Effect on Examinations and Performance

"2day I hd a computer exam n bcoz of l.shedding it had to be moved up D'Gen was on bt we hd no internet. 2 hours n 30 minutes = no exam. Ths hppend in d'morning, meaning d'afternn sessions hd to be moved = some students leaving ths late afternn". @NalediGoottsch.[1]

*"So then it is directly affecting matric exams during the day if students can't prepare properly at night".* @mosali_99.[2]

*"It is AFFECTING students who are writing exams!! Don't diminish the impact Eskom has on these matric students. And it affects them DIRECTLY, AND NOT OTHERWISE".*@myjiyane.[3]
*"How do you go write an exam you couldn't fully prepare for because of load shedding? Come on".* @miss_Rad.[4]
*@Eskom_SA Morning. Kindly suspend load-shedding on Tuesday, 25/10. Matriculants are writing CAT Practical and most public schools do not have generators. Please do not disadvantage our learners.* @Celly020102.
*"Im really sad today. Who implements load-shedding at 6am. Kids are writing exams. Some are arriving late and others missing their exams. Most of the cars had kids in school uniform. The traffic on Zambezi, Lavender Road and Johan Heyns is bad. ".* @ChichiTNel *"Matric pass rate misleading: Reasoma Secondary (9%), one of the best schools in Protea, Soweto in the past. Why is Angie not telling this story? Load-shedding caused havoc when learners try to study. SHEM AND TSEK ANC! YOU FAIL THEYOUTH OF SA...dooming them to POVERTY ".* @AndreaMammes.
*"In short, Eskom said "why do school learners need electricity to write their exams? It's not like they would be printing, and stuff," when asked to exempt exam centres from load shedding ".* @Tshepi_Mshengu

However, one tweet had the following to say:

*"I used candles to study for my matric exams while living in the rural areas & l managed to pass. Load-shedding should not be used as an excuse. My Hypothesis: Grade 12 can pass their exams with or without electricity or load shedding". @manumaboko. 5*

### Effects on Mental Health

*"To have load-shedding while the matrics, school learners and university students is causing such unnecessary stress and anxiety* 😭 *we have online exams and we don't need this extra stress* 😭 *".* @curly_mel01.

### Digital Divide

Access to electricity is still perceived as a dividing factor, whereas the Fourth Industrial Revolution (4IR) is still seen as a foreign ideology, not yet relevant in arginalizat schooling. The implementation of paperless classrooms is also a challenge, as this depends on electricity availability. Equal digital transformation can be fully arginal in all schools (public and private) if measures are implemented to ensure that no one is left behind.

*"Can we make schools a priority too? 4 hours of load-shedding today and the Computerclass cannot function. This alone impacts 5 lessons (150 learners). Cost to provide inverter solution = R226 000". @Stephen4bhs*

*"4IR when there's #Load-shedding? I hope they will one install solar panels in schools with computers and science labs so that our learners can continue with the discovery, learning and innovation.* @MaanoMadima

*"#load-sheddingLimpopo is however one of the provinces that could not distribute tablets to all schools and Ngobeni says learners who don't have ICT equipment that can store power to study during power outage can't even study. IMS"* @CapricornFMNews

### Inhibits Inclusivity

There are already disparities and arginalization in the South African education system, where the public schools are under-resourced, affecting effective teaching and learning implementation. The comments below clearly highlight the damage caused by load shedding

*Rolling blackouts aka Load-shedding from 11 AM today here at the school where I am employed. Day 2 of the last school term, and the ANC enforces electricity cuts where learners are supposed to receive an education, paid for in the private sector, because the public sector failed". @ChrisBadenhors7*
*@CyrilRamaphosa@Eskom_SA@GwedeMantashe1@MYANC And so public schools are back. Load-sheddingStage 6 is back. This government doesn't care about education. How learners going manage DISGUSTING. @JohnPre09918537*

Interestingly, one of the tweets highlighted the effect of inclusive education. This makes one question the extent of inclusivity in the era of load shedding. The comment below is corroborated by the literature, which has also highlighted load-shedding as a hindrance in achieving the aims of inclusivity in schools, thereby affecting learners with special needs (Muvirimi, 2019; Zaman et al., 2021)

*"SANASE provincial chairperson Dipolelo Tema says learners with visual impairment require electronic assistive devices on a daily basis. Tema is calling for backup generators to be provided in special schools to maintain teaching and learning.#Load-sheddingNM".* @CapricornFMNews

## DISCUSSION

The study's findings based on analysis of Twitter comments reveal the effects of load-sheddingon South African schools. These include poor governance, disruptions to study time and exams, the impact on mental health, the digital divide, and the effect on equitable inclusion and diversity in schools.
The prevailing comments consistently emphasise that inadequate governance is the main factor contributing to load-shedding in South African schools. This is corroborated by the literature which has stressed this and its impact on the right to education and the violation of basic human rights (Matsheta & Sekofa, 2023). The load-shedding issue is not solely a matter of inconvenience, but a manifestation of insufficient management of crucial resources, particularly in marginalised communities. The absence of a reliable electricity supply hinders the learning environment, resulting in a deprivation of essential resources and facilities for both learners and teachers. This directly impacts the quality of education and poses obstacles to achieving academic success. Based on the comments, it is apparent that the ruling party (ANC) and Eskom are being criticised for their perceived lack of effectiveness in addressing the crisis, while also not being transparent, thus eliminating the aspect of public participation to an issue of societal impact (Lawrence, 2020) These comments also serve as an indication of the sentiments expressed by various authors on the public outrage

over the governance of the African National Congress (ANC) in relation to the performance of Eskom in delivering consistent electricity supply (Bowman, 2020; Magott et al., 2022).
In addition, the comments shed light on the ongoing socioeconomic disparities in South Africa. While individuals with higher socio-economic status have the means to access alternative solutions like generators

or solar panels to mitigate the impact of load shedding, disadvantaged communities and those facing economic hardships find themselves grappling with insufficient resources. Everything comes to a standstill as teaching and learning activities are suspended. This affects the attainment of SDG4 (quality education) and SDG 10 (reduced inequalities) (Bwalya et al., 2022). The disparity in access to fundamental amenities further amplifies preexisting inequalities, as evidenced by the contrast between well-equipped private and underprivileged public schools. The attainment of SDG 3 (good health and well-being), may be subject to scrutiny, as demonstrated by Bwalya et al. (2021). The utilisation of pit latrines in certain rural schools can be attributed to inadequate access to electricity, impeding water provision for flushing toilets.

Load-shedding significantly impacts how much time learners can study, particularly for those in Grade 12 preparing for crucial examinations. The disruptions impede students' ability to finish assignments, research, and adequately prepare for examinations. The current disruption raises concerns regarding the fairness and validity of examination results, as learners may face challenges in performing to their utmost capabilities due to the inconsistent power supply. Numerous comments reflect dissatisfaction regarding the direct repercussions of load-shedding on matriculation examinations. Learners are often required to confront examinations without sufficient preparation, resulting in heightened stress and anxiety levels. The current situation poses a significant concern for students residing in rural areas and townships, as they may already encounter educational disadvantages. This is supported by Maggott et al. (2022), arguing that load reduction in rural areas is more prevalent and longer than the latter. The lack of adequate exam preparation opportunities caused by load-shedding may decrease pass rates and perpetuate educational disparities. These findings coincide with the literature in studies reporting decreased learner performance and access to quality education (Adamba, 2018; Zaman et al., 2021; Bwalya et al., 2022; Khan et al., 2022; Malik et al., 2022)

The heightened levels of stress and worry induced by load-shedding underline the impact it has on the mental well-being of learners and educators. The results of this study are supported by previous research examining the impact of load shedding on mental health, as documented in the literature (Bantjes & Swartz, 2023; Dworzanowski-Venter, 2023; Marchetti-Mercer, 2023). The combination of academic obligations and concerns regarding electricity availability contributes to unwarranted stress and emotional strain. This holds particular significance within online examinations and digital education, where the consistent availability of electricity is of utmost importance. Mental health challenges can potentially adversely affect academic performance and overall well-being. It further amplifies the existing digital divide. The 4IR holds the potential for digital transformation and innovation; however, its advantages are hindered by the unreliable electricity supply. The availability of electricity continues to be regarded as a significant barrier, impeding the successful adoption of paperless classrooms and other technological advancements. It is imperative to prioritise establishing equal access to technology in all schools, irrespective of their geographical location or socio-economic status, to attain inclusive and equitable education. Daimary (2020) and Ramrathan (2021) have illustrated this discrepancy as a barrier to fully experiencing the advantages of digital transformation in schools. The issue of inclusivity in education is further compounded by the impact of load shedding, particularly for students with special needs, who encounter additional obstacles. The absence of backup generators in special schools poses a significant obstacle to the educational advancement of learners with visual impairments and other disabilities, impeding the teaching and learning process.

## CONCLUSION AND RECOMMENDATIONS

There is no doubt that decades after democracy, there are still disparities within the South African educational system. Load-shedding has become a sad reality, disrupting teaching and learning, particularly for underprivileged schools lacking adequate power resources. The literacy gap is widened daily as those with energy access continue to increase, while the rest continue to be left behind. The notion of digital transformation within the educational landscape is still far-fetched as the digital divide continues to widen due to load-shedding. The comments gathered from Twitter express a shared desire for effective governance and prompt measures to tackle the load-shedding issue in South African schools. There is a distinct need to establish accountability and prioritisation in ensuring that education is recognised as an essential right. Investing in sustainable energy solutions, such as solar panels and generators, is imperative to guarantee uninterrupted educational opportunities for all learners. The findings are expected to provide insight into the silent cries of the public in terms of teaching and learning. This study would also significantly contribute to advocating for the funding and implementation of resources to minimise load-shedding. Furthermore, the study can motivate the implementation of educational policies and guidelines in prioritising alternative energy

supplies in schools. Lastly, this study may also stimulate further empirical research in the field of energy specifically focusing on load shedding and its impact on basic education setting.

## Notes:

1. https://twitter.com/MmusiMaimane/status/1660269883374878723
2. https://twitter.com/AndreaMammes/status/1616378562944155649
3. https://twitter.com/thegraphmaker/status/1616833355403739136

4. https://twitter.com/BlueOce38840490/status/1609082992764362752
5. https://twitter.com/Lesedi_official/status/1479972071794954242
6. https://twitter.com/SirDavid_Dashe/status/1382197037735809024
7. https://twitter.com/CapricornFMNews/status/1571780839440109573
8. https://twitter.com/nelly17162993/status/1453745764165988353
9. https://twitter.com/ChichiTNel/status/1461574905695191040
10. https://twitter.com/NalediGoottsch/status/1458097756501942287
11. https://twitter.com/mosali_99/status/1458094251154317325
12. https://twitter.com/myjiyane/status/1458113640624705546
13. https://twitter.com/miss_Rad/status/1458094022094901265
14. https://twitter.com/Celly020102/status/1583704612854714369
15. https://twitter.com/Tshepi_Mshengu/status/1584780273480503298
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## Data Availability

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

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