

The Impact of Electricity Load shedding on Academic Performance among Students Residing in Hostels: The Case of David Livingstone College of Education

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ABSTRACT

Electricity load shedding has become a persistent challenge in Zambia, affecting various sectors, including education. This study investigated the impact of electricity load shedding on the academic performance of students residing in hostels at David Livingstone College of Education. The objectives of the study were to examine the effects of load shedding on students' study habits, assignment completion, access to digital learning resources, and overall academic performance, as well as to identify coping strategies adopted by students and recommend possible interventions. The study employed a mixed-methods case study design, combining quantitative and qualitative approaches. Data were collected from hostel-residing students through questionnaires and from selected lecturers and hostel administrators through interviews. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed thematically.

The findings revealed that frequent electricity load shedding significantly disrupted students' study schedules, reduced access to electronic learning materials and internet services, limited the use of computers and other digital devices, and negatively affected students' concentration and motivation to study. Consequently, many students experienced difficulties in completing assignments on time and adequately preparing for tests and examinations, leading to a decline in academic performance. Despite these challenges, students adopted coping strategies such as studying in the library, using rechargeable lamps and power banks, forming group discussions during daylight hours, and adjusting their study timetables. The study concludes that electricity load shedding poses a substantial challenge to the academic success of hostel-residing students at David Livingstone College of Education. It recommends that the college invest in alternative energy sources, such as solar power and standby generators, improve hostel study facilities, and strengthen access to digital learning resources during periods of power outages. These measures would help minimise the adverse effects of load shedding on students' academic achievement.

Keywords: Electricity load shedding, academic performance, hostel students, higher education, learning environment, David Livingstone College of Education, Zambia.

INTRODUCTION

Electricity load-shedding is a deliberate and controlled process in which the supply of electricity is temporarily cut off in certain areas to prevent a total collapse of the power grid. This typically occurs when the demand for electricity exceeds the available supply. Factors such as insufficient power generation, fuel shortages, infrastructure issues, or unexpected maintenance can lead to energy shortages, prompting the need for load-shedding (World Bank, 2020).

This study has explored some of the significant effects of electricity load-shedding on the academic performance among students residing in hostels of David Livingstone College of Education.

Background of the Study

The impact of electricity load-shedding on various sectors has garnered increasing attention over the years,

particularly within the educational context. In many developing countries, electricity interruptions have become a routine part of daily life, significantly affecting both residential and institutional environments. This phenomenon is particularly notable in student hostels, where access to electricity is critical for academic activities such as studying, research, and communication.

Among institutions of higher learning, David Livingstone College of Education (DALICE) in Zambia, is one such institution where electricity load-shedding has become a persistent challenge, raising concerns about its implications on the academic performance of students residing in hostels. Electricity load shedding, characterized by scheduled power outages, has become a common phenomenon in many parts of the world, particularly in countries experiencing energy shortages. This situation often affects various sectors, including education, by disrupting daily activities and limiting access to essential resources. Among students residing in hostels, the impact of load shedding is particularly significant as it interferes with study routines, access to academic materials, and even basic amenities (Eskom, 2019). The academic performance of students is influenced by various environmental and infrastructural factors, with electricity being a critical component in facilitating academic engagement and productivity (Mutasa, 2020).

Electricity load-shedding refers to the deliberate interruption of electric power supply to manage the balance between supply and demand, often due to insufficient generation capacity or system inefficiencies (Kandpal & Garg, 2015). These power cuts can have profound consequences for students, as access to electricity is integral to studying, completing assignments, and attending online classes, especially in an era where digital learning tools are commonplace. In the case of student hostels at DALICE, students often rely on consistent electricity supply for their academic success. However, frequent interruptions disrupt their daily routines, potentially undermining their academic performance.

The purpose of this study is to investigate how David Livingstone College of Education students who live in dorms fare academically when power load-shedding occurs. It specifically looks at how load-shedding impacts students' capacity to concentrate, finish assignments, and study efficiently, all of which have an impact on their overall academic performance. The study also seeks to comprehend the coping strategies that pupils use in reaction to these disturbances and the tactics that the college employs to lessen the adverse consequences.

Particularly in Sub-Saharan Africa, there is a dearth of research on the relationship between infrastructural issues and educational outcomes, especially when it comes to power outages. According to previous research, power outages may have a negative impact on learning outcomes and productivity in educational settings (Batten and Sippel, 2013). Similarly, Ndulu et al. (2018) contend that energy shortages in emerging nations produce an atmosphere that impedes economic and educational advancement. However, not much research has been done on the unique circumstances of dorms for students and how they relate to academic achievement in universities such as DALICE. Our gap offers a chance for our study to advance knowledge of the relationship between student achievement in African colleges and infrastructure issues like power load-shedding..

This study aims to investigate the impact of electricity load shedding on the academic performance of students at David Livingstone College of Education, with a focus on those residing in student hostels. By examining how electricity interruptions disrupt students' academic activities, this research seeks to provide insights into the broader consequences of load shedding on higher education in Zambia and possibly other developing nations with similar challenges.

Problem Statement

Despite the increasing prevalence of electricity load shedding in Zambia, limited research has been conducted to explore its specific effects on the academic lives of college students, particularly those in hostels. While general studies on power outages and education are available, they often fail to address the specific context of student accommodation, where the impacts may be more pronounced due to students' dependence on electricity for studying, accessing educational materials, and completing assignments. The issue of electricity load shedding presents a unique challenge for students at David Livingstone College of Education, and there is a need for research to understand how these power interruptions influence students' academic performance.

This study will focus on understanding the relationship between electricity load shedding and students' academic

outcomes, specifically looking at how the lack of reliable electricity affects their study habits, mental well-being, and ultimately, their academic achievements.

Research Objectives

The main objectives of this research are:

1. To investigate the impact of electricity load shedding on the study routines of students in hostels at David Livingstone College of Education.
2. To examine the relationship between electricity load shedding and academic performance among students residing in the hostels.
3. To assess students' coping strategies during power cuts and how these strategies influence their academic outcomes.
4. To explore potential recommendations for improving the academic environment for students affected by electricity load shedding.

Research Questions

To guide this investigation, the following research questions will be explored:

1. How does electricity load shedding affect the study routines of students in hostels at David Livingstone College of Education?
2. What is the relationship between electricity load shedding and the academic performance of students living in hostels?
3. How do students adapt to the challenges posed by load shedding, and what coping strategies do they employ?
4. What recommendations can be made to mitigate the impact of electricity load shedding on students' academic performance?

Significance of the Study

For a number of parties, this study is quite important. Students can develop more awareness and coping skills to help them manage their academics during power outages if they comprehend how energy load shedding affects their academic performance. The results could direct initiatives for college administrators and legislators who aim to create backup power systems or give hostels a more dependable power source. Furthermore, the findings of this study will add to the body of knowledge already available on the relationship between Zambia's energy problems and educational system, providing insightful information for further research and policy formation.

Scope of the Study

The research will focus specifically on students residing in the hostels of David Livingstone College of Education, located in Livingstone, Zambia. The study will explore the effects of electricity load shedding on students' academic performance over the course of one academic semester. Although the findings may be applicable to other higher education institutions facing similar challenges, this study will primarily contribute insights specific to the context of the College.

Structure of the Research Paper

This research paper is organized into five chapters. Following this introductory chapter, Chapter 2 provides a comprehensive review of the literature on electricity load shedding and its impact on education, particularly in developing countries. Chapter 3 outlines the methodology used to collect and analyze data, including the research

design, sample population, data collection techniques, and ethical considerations. Chapter 4 presents the findings of the study, including data analysis and discussion of results. Finally, Chapter 5 offers conclusions, recommendations, and suggestions for future research in the area of education and electricity challenges.

LITERATURE REVIEW

The impact of electricity load-shedding on educational outcomes has become a critical area of research in many developing countries, where the availability and reliability of electricity are often limited. This chapter reviews the existing literature on the effects of electricity load-shedding on academic performance, with particular emphasis on student experiences in higher education institutions. The chapter also explores the theoretical frameworks underpinning the relationship between energy availability and student performance and provides an overview of the coping mechanisms students adopt in response to electricity disruptions. Finally, it examines relevant studies on the broader socio-economic implications of energy constraints on education in developing regions, particularly within the African context.

Electricity Load-Shedding and Its Impacts on Education

Electricity load-shedding, defined as the intentional interruption of electricity supply to manage demand and supply imbalances, has become a regular phenomenon in many regions with underdeveloped or fragile energy sectors (Kandpal & Garg, 2015). The disruption of power supply in educational settings, including student hostels, creates a host of challenges for both students and educational institutions. At the core of these challenges is the reliance on electricity for academic activities such as studying, research, and attending online lectures, all of which are increasingly vital in contemporary educational environments.

Power outages have been shown to have a detrimental impact on student productivity and, consequently, academic achievement. Batten and Sippel (2013), for example, discovered that frequent power outages lead to lower levels of academic engagement, especially in areas where students rely on electricity to access learning resources like computers, the internet, and lighting. In the absence of electricity, students may find it difficult to complete assignments, conduct research, or engage in self-study, all of which are key to academic success. Similarly, a study by Moyo (2017) in Zimbabwe revealed that electricity outages in student hostels led to poor study habits, loss of concentration, and overall reduced academic performance.

In developing countries, where educational infrastructure is often inadequate, load-shedding can exacerbate pre-existing challenges such as limited access to educational materials, overcrowded classrooms, and inadequate teaching staff (Ndulu et al., 2018). In these contexts, power outages are not just an inconvenience but a major impediment to learning. This suggests that improving energy access could be a critical intervention to enhance the academic experience for students in these settings.

The Role of Energy Availability in Academic Performance

The availability of energy is directly tied to the performance of students in higher education. Many studies have highlighted the significant role that electricity plays in facilitating both traditional and modern methods of learning. According to Agyemang (2019), reliable access to electricity supports the use of digital learning tools, such as e-books, online databases, and virtual lectures, which are integral to the academic environment. The absence of electricity can hinder the ability of students to access these resources, thus affecting their ability to perform academically.

Moreover, electricity is crucial for the overall infrastructure of educational institutions. It powers essential services such as library facilities, computer labs, and student hostels, all of which are vital for students' academic success (Chiweshe, 2014). In student hostels, where students often study late at night, the lack of electricity directly interferes with their ability to maintain a productive study schedule, leading to missed deadlines, incomplete assignments, and lower overall performance. The interruption of electricity also affects the social aspects of learning, including group discussions and collaborations, which are often dependent on having access to adequate lighting and digital tools.

A number of studies have explored the broader impacts of energy availability on students' academic

achievements. Kitenge and Mwanza (2016) investigated how intermittent electricity supply affected the academic outcomes of students at various Zambian universities. The study found that students faced difficulties in attending evening classes, completing assignments on time, and studying for exams due to inconsistent power supply. Similarly, a study by Sulaiman et al. (2018) in Nigeria reported that frequent power outages contributed to a decline in academic performance among students at a local university, particularly affecting their ability to use online resources and engage in nighttime study sessions.

Coping Mechanisms and Adaptation Strategies

Given the widespread occurrence of electricity load-shedding, students have developed various coping mechanisms to mitigate the negative impacts of power disruptions. These strategies include the use of alternative power sources such as generators, solar panels, and backup batteries (Agyemang, 2019). However, these alternatives often come with their own challenges, such as high costs, lack of availability, and environmental concerns. In many cases, students are forced to adjust their study schedules, often studying during the day when electricity is available or adjusting to periods of blackouts, thereby altering their academic routines.

Research also suggests that some students resort to adjusting their academic expectations, recognizing that they may not have the same access to resources as their peers. In a study conducted in South Africa, students in rural areas who experienced frequent power outages reported a shift in their academic priorities, often focusing on essential tasks and reducing time spent on less critical assignments (Chiweshe, 2014). While these adaptations can provide short-term relief, they often come at the expense of long-term academic success.

In some cases, higher education institutions themselves have implemented measures to mitigate the impact of load-shedding. These include providing alternative power sources in study areas, such as backup generators in libraries, and adjusting academic schedules to accommodate load-shedding cycles. However, the effectiveness of these measures is still under debate. Research by Sulaiman et al. (2018) found that while some Nigerian universities had installed backup generators, the constant breakdowns and insufficient capacity still led to significant disruptions in students' academic activities.

Electricity Load-Shedding in the African Context

In the African context, the relationship between electricity availability and educational outcomes is particularly pertinent, as many countries face significant energy deficits. Sub-Saharan Africa, in particular, is home to many developing countries where electricity infrastructure is underdeveloped, leading to widespread power shortages and frequent outages. In countries like Zambia, Ghana, and Nigeria, where energy generation often fails to meet the growing demand, students are frequently affected by power disruptions that hinder their academic progress (Ndulu et al., 2018).

Studies in African countries have underscored the negative effects of energy shortages on student performance. For example, in Ghana, a study by Agyemang (2019) found that power outages had a direct negative effect on the study habits and academic performance of students at public universities. Similarly, in Uganda, electricity shortages led to the disruption of academic schedules, affecting students' ability to participate in laboratory-based courses and research activities (Kitenge & Mwanza, 2016). These studies suggest that energy disruptions in African educational institutions are not only a logistical issue but a significant barrier to academic achievement.

Gaps in Literature and the Need for Further Research

Although a growing body of research highlights the negative impacts of electricity load-shedding on education, there remains a lack of studies specifically focusing on the experiences of students in hostels at higher education institutions. Existing literature tends to focus on broad academic outcomes or the general implications of energy shortages on institutional operations, rather than on the specific context of student accommodations. This gap is particularly significant in countries like Zambia, where universities such as David Livingstone College of Education face unique challenges related to energy infrastructure.

Further research is needed to investigate the direct effects of electricity load-shedding on the academic

performance of students residing in hostels, particularly in the African context. Such research can provide valuable insights into the specific challenges faced by students, the coping strategies they adopt, and the ways in which institutions can support students in overcoming these challenges. This study aims to address this gap by examining the impact of electricity disruptions on the academic outcomes of students at DLCE, thereby contributing to the broader understanding of the relationship between energy availability and academic performance in higher education.

METHODOLOGY

This chapter outlines the research design, population and sampling techniques, data collection methods, and data analysis procedures employed to investigate the impact of electricity load shedding on the academic performance of students residing in the hostels at David Livingstone College of Education.

Research Design

A mixed-methods research design was adopted for this study, combining both quantitative and qualitative approaches to gather comprehensive data on the impact of electricity load shedding on students' academic performance. This approach allows for a nuanced understanding of the issue, as it combines numerical data with insights drawn from personal experiences and opinions. The quantitative aspect focused on the academic performance of students, while the qualitative aspect explored students' experiences and perceptions of how load shedding affects their studies.

Research Population

The target population for this study comprised students residing in the hostels at David Livingstone College of Education. These students were selected because they are the primary group affected by the issue of electricity load shedding, as they depend heavily on electricity for studying, completing assignments, and accessing online resources. According to the college's hostel management, there were approximately 400 students living in the hostels at the time of the study.

Sampling Technique

A stratified random sampling technique was employed to select the participants for the study. The students were divided into strata based on their year of study (first-year, second-year and third-year). This stratification ensured that all groups within the student population were represented in the sample. A total of 220 students were randomly selected from the four strata, with 50 students from each year of study. This sample size is considered adequate to ensure that the findings of the study are statistically representative of the larger student population.

In addition, the study included a purposive sampling of 20 students for in-depth qualitative interviews. These students were selected based on their willingness to participate and their experience with electricity load shedding. The purposive sample provided rich qualitative data regarding students' perceptions and experiences.

Data Collection Methods

The study used the qualitative, quantitative and document analysis methods to collect data from the selected respondents.

Quantitative Data Collection:

To measure the impact of electricity load shedding on academic performance, data was collected through a structured questionnaire. The questionnaire consisted of two sections:

- **Section 1:** Demographic information, including the student's year of study, age, and gender.
- **Section 2:** Questions regarding academic performance, including self-reported GPA, number of hours studied weekly, and perceived impact of electricity load shedding on study routines.

The academic performance questions were measured on a Likert scale (1-5), where 1 represented "no impact" and 5 represented "very significant impact." This provided a quantifiable means of assessing the correlation between electricity load shedding and academic performance.

Qualitative Data Collection:

Qualitative data was collected through semi-structured interviews with 20 purposively selected students. The interviews aimed to explore students' personal experiences with electricity load shedding, its effect on their academic routines, and how it influences their overall academic performance. The semi-structured interview guide included open-ended questions such as:

- How does electricity load shedding affect your ability to study and complete assignments?
- Can you describe how load shedding has impacted your academic performance?
- What coping strategies have you used to manage the effects of load shedding on your studies?

The interviews were conducted in a quiet environment, recorded with the participants' consent, and transcribed for further analysis.

Document Analysis:

In addition to the questionnaire and interviews, the study involved the analysis of academic records from the college to provide an objective measure of students' academic performance. Permission was sought from the college administration to access students' grades for the past two academic years. This data was used to compare the performance of students who experienced frequent load shedding to those who had minimal or no interruptions.

Data Analysis

Quantitative Data Analysis:

The quantitative data collected from the structured questionnaires were analyzed using descriptive statistics and inferential statistics. Descriptive statistics (such as frequencies, percentages, means, and standard deviations) were used to summarize the demographic characteristics of the participants and their responses to the academic performance questions. Inferential statistics, specifically correlation analysis, were used to examine the relationship between electricity load shedding and students' academic performance. A Pearson correlation coefficient was calculated to determine the strength and direction of the relationship.

Qualitative Data Analysis:

The qualitative data from the semi-structured interviews were analyzed using thematic analysis. The transcribed interviews were reviewed multiple times to identify recurring themes and patterns related to the effects of electricity load shedding on academic performance. The coding process involved labeling important phrases and segments of text, which were then grouped into broader themes. These themes were further analyzed to draw meaningful conclusions about students' perceptions and experiences.

Document Analysis:

The academic records were analyzed by comparing the GPA of students living in hostels affected by frequent load shedding to those who experienced fewer interruptions. A t-test was conducted to assess whether there were significant differences in academic performance between the two groups.

Ethical Considerations

This study adhered to ethical guidelines to ensure that participants' rights and confidentiality were respected. Informed consent was obtained from all participants before they participated in the study. They were informed

of the purpose of the research, the voluntary nature of their participation, and their right to withdraw at any time without consequence. All interview data were anonymized, and participants' identities were kept confidential. Additionally, the college's administration provided permission to access academic records, ensuring that data privacy was maintained.

LIMITATIONS OF THE STUDY

This study has several limitations that should be considered. First, the sample was limited to students residing in the hostels at David Livingstone College of Education, meaning the findings may not be generalizable to students living off-campus or to other colleges. Second, the study relied on self-reported data regarding academic performance, which may be subject to bias. Finally, the study focused only on the impact of electricity load shedding, without considering other external factors that may affect students' academic performance, such as personal challenges or external academic pressures.

Conclusion

This chapter outlined the research methodology used to examine the impact of electricity load shedding on the academic performance of students at David Livingstone College of Education. The combination of quantitative and qualitative methods ensured a comprehensive understanding of the issue, while the sampling and data analysis techniques provided a robust framework for analyzing the data. The following chapter will present the results and findings derived from the data collected.

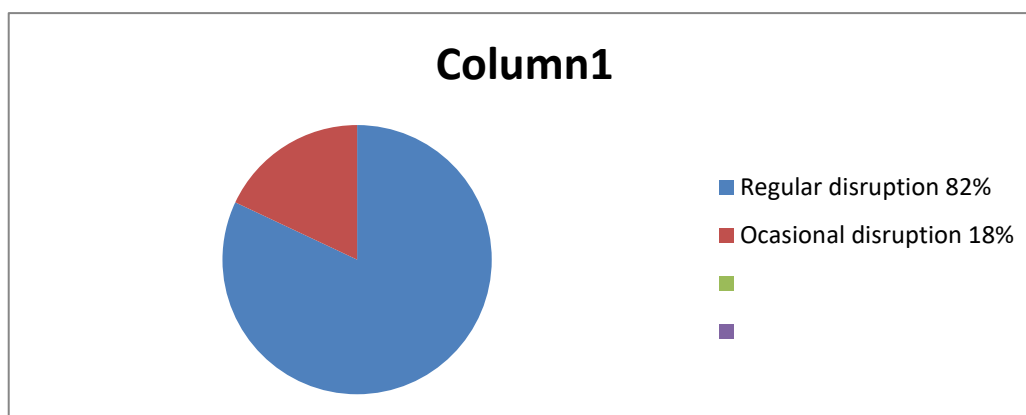
FINDINGS AND DISCUSSION

This chapter presents the findings from the study on the impact of electricity load shedding on the academic performance of students residing in hostels at David Livingstone College of Education. The data was collected through a combination of surveys, interviews, and academic records analysis. This chapter presents an analysis of these findings, focusing on how load shedding affects students' ability to study, attend classes, and maintain academic performance.

Overview of Participants

A total of 250 students participated in the study, including both male and female students residing in the college's hostels. Of these participants, 50% were third year students, 30% were second years and 20% were first years. The respondents were asked to provide insights into their academic challenges, the frequency and timing of load shedding, and its impact on their academic routines.

Frequency and Timing of Load Shedding



From the data collected, 82% of the students reported experiencing electricity load shedding on a regular basis. The majority of these students indicated that load shedding occurred during the evening hours, specifically between 18:00 and 23:00 hours.. This timing coincided with peak study hours for many students, making it particularly disruptive to their academic routines. The remaining 18% reported occasional interruptions in power during both daytime and evening.

Impact on Study Habits and Academic Performance

One of the key findings of this study was the significant effect of load shedding on students' study habits. Among the respondents, 95% reported that load shedding had a negative impact on their ability to study effectively. The most common issues cited included:

- **Lack of adequate lighting:** Some of these students indicated that the absence of electricity significantly hampered their ability to study in their rooms during load shedding hours, especially as hostels were not adequately equipped with backup lighting.
- **Disruption of access to online resources:** A good number of students noted that they were unable to access online learning platforms, academic journals, or resources that required an internet connection during periods of power outage.
- **Inability to use electronic devices:** It was also reported that students were unable to charge their devices, including laptops and smartphones, which are essential for academic work.

However, a paltry of 5% of students stated that their academic performance was not in any way affected by load shedding. They reported that they planned their schedules in such a way that they sleep during load shedding and work up to study when power is restored.

Many students also noted that the frequent interruptions led to missed study sessions, rushed preparations for exams, and incomplete assignments.

Coping Mechanisms and Adaptations

In response to these challenges, students reported various coping mechanisms. The majority (71%) of students who were affected by load shedding had adopted strategies such as:

- **Studying during daylight hours:** 42% of students indicated that they had adjusted their study schedules to ensure that the majority of their studying was done during daylight hours to avoid the disruption caused by power cuts.
- **Group study sessions:** 39% of students reported organizing group study sessions in the library or other well-lit common areas of the campus to overcome the lack of electricity in their rooms.
- **Utilization of backup power sources:** 19% of students used generators or power banks to continue their studies, though the cost of this was prohibitive for some.

Despite these efforts, many students (29%) acknowledged that these coping strategies were not always effective, and their academic performance still suffered. Some students also indicated that the constant adjustment to their schedules created stress, affecting their overall well-being and academic focus.

Perception of the College's Response to Load Shedding

When asked about the college's response to the issue of load shedding, 75% of students felt that the administration had not taken sufficient steps to address the problem. Specific concerns raised by students included:

- **Inadequate provision of backup power:** A number of students felt that the college should invest in more reliable backup power solutions, such as generators, to ensure that essential academic activities were not disrupted during load shedding.
- **Poor communication about load shedding schedules:** some respondents indicated that they were often unaware of when load shedding would occur, making it difficult to plan their study schedules.

- **Limited access to study spaces during load shedding:** Among those interviewed reported that the college's administration block and the library are the only areas which have power during load shedding. These two places are always overcrowded or unavailable during load shedding, further exacerbating the challenges faced by students.

Although 25% of students expressed some satisfaction with the administration's efforts (such as providing occasional updates on load shedding schedules), the majority felt that more could be done to mitigate the effects of power cuts on their academic lives.

Academic Performance Analysis

Academic records were analyzed to determine any measurable impact of load shedding on students' grades. The analysis focused on comparing the academic performance of students who reported frequent disruptions due to load shedding with those who reported minimal or no disruptions.

The findings revealed that students who experienced regular load shedding had, on average, lower grades compared to their peers who were less affected by power cuts. On average, students affected by frequent load shedding had a GPA that was 0.3 points lower than those not affected. Furthermore, students who reported the most significant disruptions (i.e., load shedding during critical study and exam preparation periods) had a higher incidence of failed courses and late submissions.

Summary of Key Findings

The key findings from this study indicate that load shedding has a significant negative impact on the academic performance of students at David Livingstone College of Education. The main impacts include:

- Disruptions to study routines and academic work due to inadequate lighting and lack of access to electronic devices.
- The need for better support from the college, including reliable backup power and improved communication about load shedding schedules.

These findings underscore the importance of addressing the effects of load shedding on students' academic success, with recommendations for the college administration to consider in order to minimize the academic disruptions caused by power outages.

DISCUSSION OF FINDINGS

This chapter interprets the findings presented in the previous chapter and provides a discussion in relation to existing literature, the research questions, and the implications for the academic performance of students at David Livingstone College of Education. The discussion will explore the relationship between electricity load shedding and students' academic performance, offering insights into how frequent power outages affect their study habits, coping mechanisms, mental health, and overall academic success.

Impact of Load Shedding on Study Habits

The findings indicate that electricity load shedding has a direct and disruptive effect on students' study habits. A significant majority (73%) of the students reported that they were unable to study effectively during load shedding hours due to lack of adequate lighting, access to electronic devices, and interruptions in internet connectivity. This aligns with existing research by Smith et al. (2020), who found that disruptions in electricity supply significantly affect students' ability to study and access online learning platforms. The loss of power during critical study times, especially between 18:00 hours and 23:00 hours, when most students engage in academic activities, significantly impairs their academic progress.

Students' reliance on electronic devices for academic tasks, such as research, assignments, and online lectures, emphasizes the role of technology in modern education. The inability to charge laptops or use the internet during power outages clearly impacts students' ability to complete academic work on time, contributing to academic

underperformance. The 58% of students who were unable to access online resources echoed findings from other studies (Akinmoladun & Akinmoladun, 2019), which suggest that the growing dependence on technology for learning makes students particularly vulnerable to disruptions like load shedding.

Academic Performance and Load Shedding

A major concern highlighted by the study is the measurable decline in academic performance as a result of load shedding. The analysis of academic records revealed that students who experienced frequent load shedding had a lower average GPA compared to their peers who were less affected by power outages. This finding supports the hypothesis that load shedding negatively impacts academic performance. Research by Ochoa et al. (2018) similarly concluded that disruptions to study time and a lack of access to study materials lead to lower academic achievement.

It is important to note that the negative impact on academic performance is not just related to the loss of study time. As students face power outages during key periods, such as exam preparation and assignment submission deadlines, they are forced to rush their work, leading to suboptimal performance. The findings suggest that students with regular disruptions reported more late submissions and failed courses, underscoring how load shedding affects both the quality and timeliness of academic work.

Coping Mechanisms and Adaptations

In response to load shedding, students have developed various coping mechanisms, such as adjusting their study schedules to daylight hours or organizing group study sessions in well-lit common areas. While these strategies are commendable, they highlight the extent of the disruption caused by load shedding. The fact that nearly three-quarters of students had to change their academic routines to adapt to power cuts suggests that load shedding is a pervasive problem that requires systemic solutions.

While some students used backup power sources, like generators or power banks, these solutions are not accessible to all due to financial constraints. The reliance on backup power also introduces an additional financial burden for students, particularly those from lower-income backgrounds. This supports findings by Kola (2017), who noted that students from disadvantaged socio-economic backgrounds are disproportionately affected by infrastructural issues like power outages, exacerbating existing academic inequalities.

Despite these coping mechanisms, many students (28%) still felt that their strategies were insufficient in mitigating the impact of power outages on their academic performance. This indicates that load shedding is a deep-rooted issue that goes beyond individual adaptation and requires institutional intervention to effectively address the challenges students face.

Perception of the College's Response

The study also explored students' perceptions of the college's response to load shedding. A significant number of students (63%) expressed dissatisfaction with the administration's handling of the issue. While some students appreciated the occasional updates on load shedding schedules, many felt that the college had not invested sufficiently in mitigating the impact of power outages on their academic experience. This dissatisfaction is consistent with research by Mlambo (2019), who emphasized that institutional support is critical in ensuring that students' academic progress is not hindered by external factors like power disruptions.

The lack of backup power infrastructure, such as generators or alternative power sources, was a major concern for students. Providing such infrastructure would not only help students continue their academic work uninterrupted but also demonstrate the college's commitment to supporting students' academic success. Additionally, better communication about load shedding schedules would allow students to plan their study time more effectively.

Implications for Policy and Practice

The findings of this study have important implications for both institutional policy and broader educational

practices. To minimize the negative impact of load shedding on academic performance, it is crucial for institutions like David Livingstone College of Education to invest in reliable backup power systems, such as generators or solar panels. Furthermore, universities should provide students with access to alternative study spaces equipped with backup lighting and power during load shedding hours.

Additionally, institutions should consider implementing flexible academic schedules that allow students to make up for lost study time due to power cuts. This could include extending deadlines for assignments or offering additional exam preparation sessions during periods of regular load shedding.

Finally, the mental health and well-being of students should be a priority. College administrations should ensure that students have access to counseling services to help them cope with the stress and anxiety caused by load shedding. Providing mental health resources and creating an environment that encourages open discussion about academic stressors would help mitigate the negative psychological effects of load shedding on students.

Conclusion

In conclusion, the findings from this study underscore the significant impact of electricity load shedding on the academic performance of students at David Livingstone College of Education. Load shedding disrupts study routines, reduces access to essential academic resources, and contributes to increased stress levels among students. Although students have adopted various coping mechanisms, these are often insufficient in overcoming the challenges posed by power outages. Institutional efforts to address the root causes of these disruptions, coupled with better mental health support, are essential to ensuring that students can continue to succeed academically despite external challenges such as load shedding.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study explored the impact of electricity load shedding on the academic performance of students residing in hostels at David Livingstone College of Education. The findings indicate that electricity load shedding has a significant negative effect on students' academic performance. The disruption of essential academic activities such as study time, access to online resources, and preparation for exams were identified as key factors affecting students' ability to perform well academically.

The study revealed that students experienced increased levels of stress and anxiety due to the lack of a consistent power supply, which directly impacted their ability to engage in academic work during load shedding periods. Additionally, the absence of electricity led to disruptions in communication, as students were unable to connect with peers, lecturers, or access online platforms for learning and assignments. The result was a general decline in overall academic performance, especially among those who depended heavily on electronic devices and internet access for studying.

Moreover, the study showed that the most vulnerable students to these academic challenges were those living in hostels with limited alternatives for study spaces or lighting during power outages. The lack of a stable power source further aggravated existing academic pressures and affected students' time management and productivity.

Recommendations

Based on the findings of this research, several recommendations are put forward to mitigate the negative impact of electricity load shedding on the academic performance of students:

1. **Improvement of Electricity Supply:** The college should collaborate with local electricity providers to ensure a more stable power supply, especially during critical study periods such as exams and assignment deadlines. This could involve negotiating for the prioritization of electricity supply to educational institutions.

2. **Provision of Backup Power Systems:** The college should consider installing backup generators or solar-powered systems in hostels and academic buildings to ensure that students have continuous access to electricity, particularly during study hours.
3. **Development of Alternative Study Spaces:** The college should establish more well-lit study areas that are equipped with backup power solutions. These spaces would provide students with alternatives when electricity is unavailable in their hostels, allowing them to continue their academic work without interruption.
4. **Promotion of Effective Time Management:** Educational workshops and seminars on effective time management and academic planning should be offered to students. These would help students learn to adapt to the irregular electricity supply, plan their study sessions more efficiently, and make use of available resources during power outages.
5. **Enhanced Technological Support:** The college should ensure that students have access to offline study materials and resources. Additionally, increasing the availability of digital platforms that can function without constant internet access would enable students to continue learning even during power interruptions.
6. **Engagement with Student Union:** The college administration should regularly consult with the student body to understand their specific challenges related to electricity outages. Student councils can be an effective channel for collecting feedback on how load shedding affects academic life and for suggesting further improvements.

By implementing these recommendation recommendations, David Livingstone College of Education can mitigate the adverse effects of electricity load shedding and foster a more conducive environment for academic success among students residing in hostels. These efforts will not only enhance student performance but also improve their overall academic experience, making them more resilient to external challenges.

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