Optimizing E-Facilities Utilization for Improved Administrative Efficiency in Public Schools within the Abuja Municipal Area Council (AMAC)

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Abstract

Integrating electronic facilities (e-facilities) in educational administration has enhanced efficiency and effectiveness within schools by automating tasks, facilitating communication, and enabling data-driven decision-making. Despite these benefits, the adoption of e-facilities in public secondary schools within the Abuja Municipal Area Council (AMAC) remains limited, largely due to infrastructural deficiencies, insufficient funding, and inadequate technical training. This study aims to evaluate the current utilization of e-facilities in AMAC's public secondary schools, measure their impact on administrative efficiency, and identify challenges associated with their implementation. A survey research design was employed, targeting principals and vice principals from a sample of 15 out of 21 public secondary schools in AMAC. Data were collected via a structured questionnaire and analyzed using descriptive statistics and t-tests. The findings indicate that enhanced e-facility utilization correlates positively with improved administrative efficiency, though significant challenges persist. This research underscores the need for targeted training programs, infrastructural improvements, and policy development to optimize e-facility usage and enhance administrative functions in AMAC's public schools.

Keywords: E-Facilities, Administrative Efficiency, Educational Technology

Introduction

The integration of electronic facilities (e-facilities) such as computers, internet connectivity, and various digital technologies has significantly transformed the educational landscape worldwide. In the context of educational administration, these technologies have the potential to streamline processes, enhance communication, and improve overall efficiency within schools (Johnson & Brown, 2018). Effective utilization of e-facilities is increasingly recognized as a critical factor in optimizing administrative functions and achieving educational objectives in contemporary educational settings (Smith, 2019).

School administrators are tasked with numerous responsibilities that ensure the smooth and effective running of educational institutions. These duties include but are not limited to, supervision, planning, evaluation, and training (Oduwole & Akpabio, 2017). Adopting and optimizing e-facilities can significantly enhance these administrative functions by automating routine tasks, facilitating real-time communication, and enabling data-driven decision-making (Williams & Thompson, 2020).

Studies have shown that the implementation of e-facilities in educational administration leads to improved efficiency and productivity. For instance, Smith and Johnson (2019) found that the use of computerized student information systems in secondary schools resulted in a substantial reduction in administrative workload and improved accuracy in data management. Similarly, Lee and Chen (2020) reported that the integration of electronic communication tools such as emails

and instant messaging platforms enhanced coordination among staff and expedited information dissemination within educational institutions.

Furthermore, e-facilities facilitate effective resource management and planning through advanced data analytics and reporting tools. Davis and Brown (2021) demonstrated that school administrators who utilized electronic scheduling and resource allocation systems were able to make more informed decisions, leading to better utilization of resources and improved educational outcomes. The ability to analyze and interpret data efficiently enables administrators to identify trends, monitor performance, and implement strategic initiatives that align with institutional goals (Garcia et al., 2022).

Despite the evident benefits, the successful implementation and utilization of e-facilities in educational administration are influenced by several factors, including availability of infrastructure, technical expertise, and institutional support (Akinyemi, 2018). In many developing regions, challenges such as inadequate funding, lack of access to modern technologies, and insufficient training hinder the effective adoption of e-facilities in schools (Ojo & Olaniyan, 2019). In the Nigerian context, particularly within the Abuja Municipal Area Council (AMAC), the adoption and utilization of e-facilities in public schools remain suboptimal. While some schools have begun integrating digital technologies into their administrative processes, many continue to rely on traditional, manual methods that are often time-consuming and prone to errors (Eze & Chinedu, 2020). Factors contributing to this situation include limited infrastructural development, insufficient budget allocations for technological upgrades, and a lack of trained personnel to manage and maintain e-facilities (Bello, 2021).

The inefficiencies associated with inadequate utilization of e-facilities in AMAC public schools have significant implications for educational administration. Manual processes often lead to delays in decision-making, poor record-keeping, and ineffective communication among stakeholders, ultimately impacting the quality of education delivered (Okafor & Adeola, 2019). Enhancing the utilization of e-facilities is therefore critical to overcoming these challenges and improving administrative efficiency in these institutions.

Optimizing e-facilities utilization entails not only ensuring the availability of necessary technological tools but also developing the capacity of school administrators and staff to effectively use these resources (Williams & Kelechi, 2020). This involves comprehensive training programs, ongoing technical support, and the establishment of policies and frameworks that promote and sustain the integration of technology in school administration (Adamu & Musa, 2018). Additionally, addressing infrastructural deficits and ensuring reliable access to internet services are essential components of this optimization process (Nwosu & Ekeh, 2021).

Recognizing these needs, this study seeks to investigate the current state of e-facilities utilization in public schools within AMAC and optimize the utilization of e-facilities to enhance administrative efficiency in public secondary schools within the Abuja Municipal Area Council (AMAC). Specifically, the study sought to:

1. Assess the current state of e-facility utilization for administrative purposes in public secondary schools within AMAC.
2. Measure the impact of enhanced e-facilities on administrative efficiency in these schools.
3. Identify the key challenges faced by public secondary schools in AMAC when implementing enhanced e-facilities.

This study is guided by the following research questions:

1. What is the current level of e-facility utilization in public secondary schools within AMAC?
2. How does the implementation of enhanced e-facilities affect the administrative efficiency of public secondary schools in AMAC, and can this impact be quantified?
3. What are the primary challenges that public secondary schools in AMAC encounter when implementing enhanced e-facilities in their administrative processes?

Hypothesis

HO_1: There is no significant difference in administrative efficiency between public secondary schools within AMAC with high levels of e-facility utilization and those with low levels of e-facility utilization.

Literature review

Electronic facilities (e-facilities) refer to a broad array of digital tools, systems, and technologies designed to enhance operations and services across various sectors, including education, healthcare, business, and government. The concept of e-facilities encompasses a wide range of resources, including online platforms, digital applications, communication tools, and information systems that streamline processes, improve efficiency, and enhance user experiences (Lee et al., 2017). In the context of education, e-facilities have become integral to the administration, teaching, and learning processes, revolutionizing traditional methods and paving the way for more efficient and effective educational environments.

The integration of e-facilities in school administration has brought about significant improvements in efficiency, communication, and data management. E-facilities, such as electronic attendance systems, digital grading platforms, and online portals, have automated many routine administrative tasks, reducing the time and effort required from school staff (Clark, 2018). These tools enable real-time access to student information, streamline communication between stakeholders, and enhance the overall management of educational institutions (Johnson & Smith, 2020). As noted by Chen et al. (2019), the implementation of online learning platforms and digital resources also facilitates personalized learning, allowing students to engage with educational content at their own pace and convenience.

Despite the numerous benefits, the implementation of e-facilities in schools is not without challenges. The digital divide remains a significant concern, as students from disadvantaged backgrounds may lack access to necessary technologies, limiting their ability to participate fully in online learning activities (Kim & Lee, 2021). Moreover, issues related to cybersecurity and data privacy are critical, as schools must protect sensitive student information from potential breaches (Liu et al., 2022). To address these challenges, it is essential to provide adequate training for teachers and administrators, ensure robust security measures, and involve all stakeholders in the decision-making process (Wang & Zhang, 2020).

In secondary schools, the utilization of e-facilities has increasingly become a focal point for enhancing administrative efficiency. Research indicates that e-facilities contribute to streamlining administrative processes, reducing paperwork, and improving time management (Johnson et al., 2019). Tools such as electronic grading systems, student information management

systems, and digital attendance tracking have been particularly effective in saving time and effort for both administrators and teachers.

Effective communication and collaboration, which are vital for successful school administration, are significantly enhanced by e-facilities. The integration of online portals and mobile applications facilitates seamless communication among teachers, students, parents, and administrators, leading to better coordination and increased parental involvement (Wang & Chen, 2021). Additionally, the use of e-facilities for data management allows administrators to make data-driven decisions, enabling targeted interventions and monitoring of student progress (Liu et al., 2020).

E-Facilities and the Administration of Public Schools in Abuja Municipal Area Council (AMAC)

The adoption of e-facilities in public schools within the Abuja Municipal Area Council (AMAC) has the potential to transform administrative processes and improve efficiency. Studies conducted in AMAC have shown that e-facilities such as student information systems and online portals have enhanced data management, communication, and decision-making in secondary schools (Okeke & Okeke, 2020). The integration of digital attendance systems, online record management, and communication platforms has reduced paperwork and improved time management, leading to more streamlined administrative tasks (Adeyemi & Olaleye, 2019).

However, the implementation of e-facilities in AMAC's secondary schools is not without its challenges. Inadequate infrastructure, limited technical skills, and insufficient training for staff are significant barriers to the effective utilization of these tools (Adeyemi & Olaleye, 2019). To overcome these challenges, it is essential to provide technical training and support for teachers and administrators, ensure reliable internet connectivity, and create a conducive environment for the adoption of e-facilities (Ugwu & Adeleke, 2021).

The Nexus between E-Facilities and School Administration

The relationship between e-facilities and school administration is critical in understanding how digital tools can optimize operations and improve efficiency. Research indicates that e-facilities play a crucial role in improving administrative efficiency by automating tasks such as student enrollment, attendance tracking, and record-keeping (Smith & Johnson, 2018). These tools not only reduce manual paperwork but also increase accuracy and save time, allowing school staff to focus on more strategic tasks.

Effective communication, facilitated by e-facilities, is another vital aspect of school administration. Tools such as email, messaging platforms, and online collaboration spaces enable seamless communication among all stakeholders, leading to better coordination and decision-making (Liu & Chen, 2019). Furthermore, parental involvement, which has been shown to positively impact student outcomes, is greatly enhanced by e-facilities that provide real-time access to student information and facilitate communication between parents and teachers (Fernandez et al., 2020). E-facilities also support data-driven decision-making in school administration. The ability to collect, store, and analyze data efficiently allows administrators to make informed decisions that improve student outcomes and optimize resource allocation (Gado et al., 2021). Additionally, e-facilities provide opportunities for continuous professional development for teachers and administrators, enabling them to stay updated with the latest educational practices and technologies (Liu & Chen, 2019).

In conclusion, the integration of e-facilities in the administration of public schools within AMAC is essential for optimizing administrative efficiency. By addressing the challenges and maximizing the benefits of these digital tools, schools can significantly improve their operations, communication, and decision-making processes, ultimately enhancing the educational experience for students and staff alike.

Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, initially introduced by Wernerfelt (1984) and expanded upon by Barney (1991), is rooted in the strategic management of resources within organizations. In the context of electronic facilities in educational settings, RBV emphasizes the strategic value of these technological resources, considering them as valuable, rare, and challenging to imitate. Consequently, electronic facilities are viewed as strategic assets that can enhance administrative efficiency in educational institutions.

When applied to educational administration, RBV suggests that schools and educational institutions can gain a competitive advantage by effectively harnessing their electronic facilities (Barney, 1991). These facilities encompass a wide range of tools, including electronic databases, management information systems, and communication platforms. By utilizing these resources strategically, institutions can streamline administrative processes, reduce costs, and ultimately enhance overall efficiency.RBV's relevance is further accentuated by Grant's (1996) argument that organizations achieving superior performance are those that strategically leverage their unique resources. In the case of educational administration, electronic facilities are indeed unique resources that, when managed with a strategic perspective, can significantly contribute to improved administrative efficiency. Grant's perspective underscores the importance of viewing electronic facilities not merely as tools but as valuable assets that can confer a competitive edge to educational institutions.

Ultimately, the Technological Acceptance Model (TAM) and the Resource-Based View (RBV) theory provide robust theoretical frameworks for understanding the impact of electronic facilities on administrative efficiency in educational settings. TAM elucidates the role of user perceptions in technology adoption and sustained use, emphasizing the importance of perceived ease of use and perceived usefulness. On the other hand, RBV highlights the strategic value of electronic facilities, considering them as unique and valuable resources that can drive competitive advantage and improved administrative efficiency in educational institutions. The combined insights from these theories offer a comprehensive understanding of the intricate relationship between electronic facilities and educational administration.

Methodology

This study adopted a survey research design to collate the views of respondents and facilitate informed decision-making. Quantitative data were collected through a structured survey instrument administered to a diverse sample of participants. The study's population consisted of all principals and vice principals in the secondary schools within the Abuja Municipal Area Council (AMAC), Federal Capital Territory, Abuja. According to the Ministry of Education, there are 21 public secondary schools in AMAC. A simple random sampling technique was used to select 15 secondary schools in AMAC. All the principals and vice principals in both junior and senior secondary sections of these schools were included in the study, resulting in a sample size of 60 administrators.

The structured questionnaire used for data collection was divided into two sections: Section A and Section B. Section A gathered demographic data of the respondents, while Section B comprised 25 items designed to measure various aspects of e-facility utilization and its impact on administrative efficiency. The responses were weighted on a four-point Likert scale, ranging from Strongly Agree (4 points) to Strongly Disagree (1 point). To ensure the validity and reliability of the research instruments, a content Validity test was conducted and the reliability of the questionnaire was assessed using the split-half reliability test. Thirty (30) questionnaires were administered cross-sectional to the population, excluding the sample. The returned questionnaires were numbered and divided into two groups based on odd and even numbers, and the correlation between the two groups yielded a reliability coefficient of 0.78, indicating a reliable instrument.
The researcher personally visited the sampled schools to administer the research instruments, ensuring a high response rate. The instruments were distributed directly to the principals and vice principals through face-to-face interactions, which facilitated a 100% return rate. The data collected were analyzed using descriptive statistical instruments such as frequency, percentages and standard deviation while a **t-test**, specifically a **one-sample t-test** was used to test the hypotheses.

Results of findings

Table 1: Level of availability of e-facility for administrative usage

S/N	Items	MEAN	SD
1	E-facilities are readily accessible for administrative tasks in our school.	3.07	1.021
2	The availability of electronic equipment such as computers, printers, and scanners for administrative purposes is sufficient.	3.20	0.965
3	The school's electronic infrastructure supports the efficient handling of administrative responsibilities	2.96	1.063
4	E-facilities are regularly maintained and updated to ensure their functionality for administrative usage.	2.85	1.086
5	Administrative staff members are adequately trained to effectively utilize electronic facilities in their work.	3.33	0.918
6	The school's investment in e-facilities has improved the efficiency of administrative processes.	3.05	1.053
7	E-facilities have enhanced communication and data management within the administrative department.	2.71	1.044
8	The availability of electronic facilities positively contributes to administrative efficiency in our school.	3.47	0.899

Table 1. Presents data regarding the level of availability of electronic facilities (e-facilities) for administrative usage in a school. This table encompasses various aspects related to the accessibility and effectiveness of electronic resources in supporting administrative tasks. The first item in the table, which assesses the accessibility of e-facilities for administrative tasks, has a mean score of 3.07 with a standard deviation of 1.021. This suggests that, on average, the respondents feel that e-facilities are reasonably accessible, but there is some variation in their opinions. The second item pertains to the availability of electronic equipment such as computers, printers, and scanners for administrative purposes. It has a mean score of 3.20 and a standard deviation of 0.965, indicating that the majority of respondents believe that there is sufficient availability of these electronic tools for administrative use. The third item inquires about the school's electronic infrastructure's efficiency in supporting administrative responsibilities. It has a mean score of 2.96 and a standard

deviation of 1.063, indicating that opinions on this aspect vary, with a tendency toward moderate agreement. The fourth item assesses the maintenance and updating of e-facilities to ensure functionality for administrative usage. It has a mean score of 2.85 and a standard deviation of 1.086, suggesting that respondents are less confident about the regular maintenance and updates of these facilities. The fifth item evaluates the adequacy of training for administrative staff in using electronic facilities, with a mean score of 3.33 and a standard deviation of 0.918. This indicates that, on average, respondents believe that administrative staff members are well-trained in utilizing electronic resources effectively.

The sixth item gauges the impact of the school's investment in e-facilities on the efficiency of administrative processes, with a mean score of 3.05 and a standard deviation of 1.053. This implies that the respondents generally agree that the school's investment has had a positive impact on administrative efficiency. The seventh item examines whether e-facilities have enhanced communication and data management within the administrative department. It has a mean score of 2.71 and a standard deviation of 1.044, suggesting that respondents are less certain about the extent to which these facilities have improved these aspects.

The final item assesses the overall contribution of electronic facilities to administrative efficiency, with a mean score of 3.47 and a standard deviation of 0.899. This high mean score implies that the majority of respondents believe that electronic facilities positively contribute to administrative efficiency in the school. In summary, the data in Table 2 indicates that respondents generally agree that electronic facilities are accessible, equipment availability is sufficient, and staff training is adequate for administrative tasks. However, there is more variation in opinions regarding the school's electronic infrastructure, maintenance, and its impact on communication and data management. Overall, the majority of respondents perceive electronic facilities as contributing positively to administrative efficiency in the school.

Table 2: Implementation of Enhanced E-Facilities Affect the Administrative Efficiency of Public Secondary Schools in AMAC, and can this Impact be Quantified?

SN	Items	MEAN	SD
17	The implementation of enhanced e-facilities in our school has improved the speed and efficiency of administrative tasks.	3.43	0.855
18	Enhanced e-facilities have streamlined communication and information sharing among administrative staff in our school.	3.22	0.986
19	Administrative processes that have incorporated e-facilities are more accurate and error-free compared to traditional methods.	3.22	0.986
20	E-facilities have reduced the paperwork and manual data entry required for administrative tasks in our school.	3.32	1.009
21	It is challenging to measure and quantify the impact of enhanced e-facilities on administrative efficiency accurately.	3.37	0.872
22	There is a clear system in place to track and assess the changes in administrative efficiency resulting from e-facility implementation.	3.32	1.009
23	I believe that the improved administrative efficiency due to e-facilities can be quantified through measurable indicators (e.g., reduced processing time, cost savings).	3.29	0.932
24	The implementation of enhanced e-facilities has led to a noticeable improvement in overall administrative efficiency in our school.	3.45	0.856

Table 2. Presents data concerning the impact of implementing enhanced e-facilities on the administrative efficiency of secondary schools and whether this impact can be quantified. The table provides a comprehensive view of how respondents perceive the influence of e-facilities on administrative processes. The first item addresses the improvement in the speed and efficiency of administrative tasks due to the implementation of enhanced e-facilities, with a mean score of 3.43 and a standard deviation of 0.855. This high mean suggests that, on average, respondents believe that e-facilities have had a positive impact on the speed and efficiency of tasks. The second and third items focus on the impact of enhanced e-facilities on communication and the accuracy of administrative processes. Both items have a mean score of 3.22 and a standard deviation of 0.986, indicating that, on average, respondents believe that e-facilities have positively influenced communication and accuracy. The fourth item examines the reduction of paperwork and manual data entry due to e-facilities, with a mean score of 3.32 and a standard deviation of 1.009. This suggests that respondents generally perceive a reduction in these manual tasks, although there is some variation in opinions. The fifth item discusses the challenges in measuring and quantifying the impact of enhanced e-facilities on administrative efficiency, with a mean score of 3.37 and a low standard deviation of 0.872. This implies that respondents generally find it somewhat challenging to measure this impact, with minimal variation in their opinions.

The sixth item inquires about the existence of a clear system to track and assess changes in administrative efficiency resulting from e-facility implementation. It has a mean score of 3.32 and a standard deviation of 1.009, suggesting that respondents perceive that such a system is in place, albeit with some variation in their responses. The seventh item evaluates the belief in the quantifiability of improved administrative efficiency resulting from e-facilities, with a mean score of 3.29 and a standard deviation of 0.932. This indicates that respondents generally believe that this improvement can be quantified through measurable indicators. The final item assesses the overall improvement in administrative efficiency due to e-facilities, with a mean score of 3.45 and a standard deviation of 0.856. This high mean suggests that, on average, respondents perceive a noticeable improvement in overall administrative efficiency.

In summary, the data in Table 4 shows that respondents generally believe that the implementation of enhanced e-facilities has positively impacted the speed, efficiency, communication, and accuracy of administrative tasks. They also believe that a quantifiable impact is possible, even though it may pose some challenges. Overall, the majority of respondents see a noticeable improvement in administrative efficiency resulting from the use of e-facilities.

Table 3: Main challenges that secondary schools encounter when implementing enhanced e-facilities in their administrative processes

SN	Items	MEAN	SD
9	Implementing enhanced e-facilities in our school's administrative processes has been a smooth and trouble-free process.	3.50	0.888
10	Insufficient budget allocation has posed a significant challenge in adopting and maintaining enhanced e-facilities.	3.19	1.051
11	Limited access to high-speed internet and technical infrastructure has hindered the effective use of e-facilities for administrative tasks.	2.48	1.104
12	Staff members in our school have received adequate training and support to effectively utilize enhanced e-facilities.	3.24	0.953
13	Resistance to change among school staff has made it challenging to implement e-facilities smoothly.	3.18	1.036
14	The integration of e-facilities has increased the workload for administrative staff, making it difficult to adapt.	3.34	0.854
15	There is clear communication and collaboration between different departments in our school regarding the implementation of enhanced e-facilities.	2.71	1.094
16	The benefits of using enhanced e-facilities in administrative processes outweigh the challenges faced during implementation.	3.29	1.024

Table 3 provides insights into the main challenges encountered by secondary schools during the implementation of enhanced e-facilities in their administrative processes. It reveals a range of challenges that schools face when incorporating electronic resources into their administrative workflows. The first item, which assesses the overall smoothness of implementing enhanced e-facilities, has a mean score of 3.50 and a standard deviation of 0.888. This high mean suggests that, on average, respondents perceive the implementation process as relatively smooth, with little variation in their opinions. The second item addresses budget allocation and its impact on adopting and maintaining enhanced e-facilities. It has a mean score of 3.19 and a standard deviation of 1.051, indicating that budget constraints are perceived as a significant challenge, though opinions vary. The third item highlights the issue of limited access to high-speed internet and technical infrastructure affecting the effective use of e-facilities. It has a mean score of 2.48 and a standard deviation of 1.104, suggesting that respondents generally find this to be a considerable hindrance. The fourth item concerns the training and support provided to staff members for effectively utilizing enhanced e-facilities. It has a mean score of 3.24 and a standard deviation of 0.953, implying that, on average, respondents believe that staff members have received adequate training and support. The fifth item points to resistance to change among school staff as a challenge in implementing e-facilities. It has a mean score of 3.18 and a standard deviation of 1.036, indicating that, on average, respondents perceive this resistance as a moderate challenge. The sixth item discusses the increased workload for administrative staff due to the integration of e-facilities. It has a mean score of 3.34 and a low standard deviation of 0.854, implying that most respondents see this as a significant challenge with minimal variation in opinions. The seventh item relates to communication and collaboration between different departments in the school regarding the implementation of enhanced e-facilities. It has a mean score of 2.71 and a standard deviation of 1.094, suggesting that respondents are less confident about the clarity and extent of communication and collaboration between departments.

The final item evaluates whether the benefits of using enhanced e-facilities in administrative processes outweigh the challenges faced during implementation. It has a mean score of 3.29 and a standard deviation of 1.024, indicating that, on average, respondents believe that the benefits are perceived as outweighing the challenges. In summary, Table 3 highlights the challenges faced by secondary schools when implementing enhanced e-facilities in their administrative processes. These challenges include budget constraints, limited access to technical infrastructure, resistance to change, and increased workload. While respondents generally view the implementation process as relatively smooth and consider staff training and the benefits of e-facilities favorably, concerns about communication and collaboration between departments remain.

Test of Hypotheses

Ho_1: There is no difference in between administrative efficiency and schools with high and low e-facility utilization.

Test of difference in between administrative efficiency and schools with high and low e-facility utilization.

					Test Value = 0					
					t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Administrative efficiency	N	Mean	Std. Deviation	Std. Error Mean	53.681	28	.000	4.00242	3.8536	4.1512
Schools with high and low e-facility utilization.	30	4.0024	.61933	.07456	86.019	28	.000	4.24396	4.1455	4.3424
	30	4.2440	.40983	.04934						

The analysis conducted to test the hypothesis (Ho1) which states, "There is no difference in administrative efficiency between schools with high and low e-facility utilization," yielded highly significant results. The statistical test compared the mean levels of administrative efficiency in schools with high and low e-facility utilization. The test produced a t-value of 53.681, with 28 degrees of freedom, and a two-tailed significance level (p-value) of 0.000 ($p < 0.001$). This extremely low p-value indicates a substantial statistical difference. Furthermore, the mean difference between the two groups was found to be 4.00242, with a 95% Confidence Interval of the Difference ranging from 3.8536 to 4.1512. In essence, the results show that there is a highly significant difference in administrative efficiency between schools with high and low e-facility utilization. Specifically, schools with high e-facility utilization exhibit significantly better administrative efficiency compared to those with low utilization. The confidence interval's exclusion of zero further reinforces the statistical significance. Consequently, we reject the null

hypothesis (Ho1) and conclude that there is indeed a statistically meaningful distinction in administrative efficiency based on the extent of e-facility utilization. Schools with high utilization of e-facilities clearly demonstrate superior administrative efficiency when compared to schools with lower utilization

Discussion of findings

The results presented in Table 1 indicate that e-facilities are generally accessible and available for administrative tasks in the surveyed schools, with mean scores ranging from 2.71 to 3.47. The relatively high mean scores, such as the 3.47 for the overall contribution of electronic facilities to administrative efficiency, suggest that respondents perceive e-facilities as positively contributing to the efficiency of administrative processes. However, the variability in responses, particularly concerning the maintenance and updating of e-facilities (mean = 2.85), highlights potential gaps in the infrastructure's upkeep, which could undermine the long-term effectiveness of these tools.
These findings align with the broader literature, which emphasizes the importance of regular maintenance and updating of digital infrastructure to ensure its continued effectiveness (Wang & Hsu, 2019). Inadequate maintenance can lead to system failures and inefficiencies, thereby negating the potential benefits of e-facilities (Johnson & Smith, 2020).

The data from Table 2 suggests that the implementation of enhanced e-facilities has led to noticeable improvements in administrative efficiency, as evidenced by high mean scores across items related to speed, accuracy, and the reduction of manual tasks. For instance, the mean score of 3.45 for overall administrative efficiency improvement indicates that respondents strongly believe in the positive impact of e-facilities. This is consistent with previous research that has demonstrated how digital tools can streamline administrative processes, reduce errors, and save time (Chen et al., 2018; Adeyemi & Olaleye, 2019).

Table 3 reveals several challenges associated with implementing enhanced e-facilities in secondary schools within AMAC. The smoothness of the implementation process is perceived positively, with a mean score of 3.50, but significant challenges remain, particularly in terms of budget constraints (mean = 3.19) and limited access to high-speed internet and technical infrastructure (mean = 2.48). These findings resonate with the literature, which frequently cites inadequate funding and infrastructure as major barriers to the successful adoption of e-facilities in educational settings (Kim & Lee, 2021; Okeke & Okeke, 2020).

Moreover, the mean score of 3.18 for resistance to change among staff underscores the human factor as a critical challenge in implementing new technologies. This finding is consistent with previous studies that have identified resistance to change as a common obstacle in the adoption of educational technologies (Dwivedi et al., 2019). Overcoming this resistance requires targeted training and change management strategies to ensure that staff are not only equipped with the necessary skills but also motivated to embrace new systems (Bello, 2020).

The hypothesis test results provide robust evidence that schools with high e-facility utilization exhibit significantly better administrative efficiency than those with low utilization. The t-test results, with a t-value of 53.681 and a p-value of 0.000, clearly reject the null hypothesis, indicating a strong positive relationship between e-facility utilization and administrative efficiency. These findings are consistent with the literature that highlights the transformative potential of e-facilities in enhancing school administration (Smith & Johnson, 2018; Aminu, 2019). However, it is important to recognize that while the statistical analysis confirms a significant

difference, the study's design is correlational, meaning tit does not definitively establish causality. While e-facilities are contributing to improved efficiency, other factors not measured in this study, such as leadership quality or staff motivation, could also play a role (Liu & Chen, 2019).

Conclusion

This study explored the impact of optimizing e-facilities utilization on administrative efficiency in public secondary schools within the Abuja Municipal Area Council (AMAC). The research focused on three main objectives: assessing the current state of e-facility utilization, measuring the impact of enhanced e-facilities on administrative efficiency, and identifying the key challenges faced by schools in implementing these tools. A survey research design was employed, gathering quantitative and qualitative data from school administrators, including principals and vice-principals, across selected public secondary schools in AMAC.

The findings revealed that e-facilities are generally accessible and available for administrative tasks, with a positive contribution to the efficiency of school operations. Respondents indicated that e-facilities have significantly improved the speed, accuracy, and effectiveness of administrative processes, particularly in communication, data management, and task automation. However, the study also highlighted several challenges, including budget constraints, limited access to high-speed internet, inadequate technical infrastructure, and resistance to change among staff. The hypothesis testing further confirmed that schools with high e-facility utilization demonstrate significantly better administrative efficiency compared to those with lower utilization.

The study concludes that optimizing the utilization of e-facilities is crucial for enhancing administrative efficiency in public secondary schools within AMAC. The effective implementation of these digital tools has the potential to streamline administrative tasks, reduce manual workloads, improve communication, and enable data-driven decision-making. However, to fully realize these benefits, schools must address the challenges identified, particularly in terms of funding, infrastructure, and staff training.

The research underscores the importance of continued investment in e-facilities and the need for a strategic approach to their implementation, including regular maintenance, upgrades, and capacity-building initiatives. By overcoming the existing barriers, schools can create a more efficient and effective administrative environment, ultimately contributing to better educational outcomes. Future studies should explore the long-term effects of e-facility utilization and develop more precise metrics for assessing their impact on school administration.

Recommendations

Based on the findings of this study, the following recommendations are made to optimize e-facilities utilization and enhance administrative efficiency in public secondary schools within the Abuja Municipal Area Council (AMAC):

1. It is crucial for the government and school management to invest in upgrading the technical infrastructure, including high-speed internet connectivity and modern electronic devices. Additionally, comprehensive training programs should be provided to all administrative staff to enhance their digital literacy and competence in using e-facilities. This will ensure that the staff can fully utilize the available e-facilities to improve administrative processes effectively.

2. To maintain the efficiency of e-facilities, schools should establish a routine maintenance schedule and regularly update their electronic systems. This includes ensuring that all software and hardware components are up-to-date and functioning optimally. Allocating a dedicated budget for the maintenance and upgrading of e-facilities will prevent technical issues from hindering administrative tasks and ensure continuous, smooth operations.
3. Schools should develop a robust system for monitoring and evaluating the impact of e-facility utilization on administrative efficiency. This system should include clear metrics and indicators for assessing improvements in efficiency, such as reductions in processing time, error rates, and cost savings.

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