

## Article

# Impact of Principals' Use of Information and Communication Technology on Management of Public Secondary Schools in Jalingo Education Zone, Taraba State Nigeria

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**Abstract:** This study investigated the impact of principals' use of Information and Communication Technology (ICT) on the management of public secondary schools in Jalingo Education Zone, Taraba State, Nigeria. Specifically, the study examined three objectives and three research question and three hypotheses were tested at 0.05 level of significance. A descriptive survey research design was adopted for the study. The population comprised 1,835 teachers drawn from 43 public secondary schools in Jalingo and Ardo-Kola Local Government Areas of Taraba State. A sample of 313 teachers was selected using the Krejcie and Morgan sampling table and simple random sampling technique. Data were collected using a researcher-developed instrument titled Principals' Information and Communication Technology Use and Management Questionnaire. The instrument was validated by experts in Measurement and Evaluation and Educational Administration and Planning, while its reliability was established through a pilot study using Cronbach's Alpha, which yielded an overall reliability coefficient of 0.83. Data collected were analyzed using mean and standard deviation to answer the research questions, while Chi-square statistics were used to test the null hypotheses at the 0.05 level of significance. The findings revealed that principals' ICT competence, frequency of ICT use, utilization of various ICT tools of public secondary schools in Jalingo Education Zone. The study concluded that effective integration of ICT by principals enhances administrative efficiency, communication, record management, supervision, and decision-making in secondary schools. It was recommended, among others, that the Taraba State Government and the Post Primary Schools Management Board should provide adequate ICT facilities in schools, organize regular ICT capacity-building programmes for principals, ensure reliable internet connectivity, and formulate policies that encourage the effective integration of ICT into school management practices.

**Keywords:** information and Communication Technology (ICT), School management, Public secondary schools, Principals, ICT literacy, Frequency of ICT use, ICT tools, Administrative efficiency, Jalingo Education Zone, Taraba State

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## Introduction

Effective management is essential for the successful operation and achievement of educational objectives in public secondary schools. School management involves the coordination of human, material and financial resources to ensure effective teaching, learning and attainment of institutional goals. The principal, as the administrative head of the school, plays a central role in planning, organizing, coordinating, supervising and evaluating school activities. According to Adegbiya and Fakomogbon in the contemporary educational environment, the effective performance of these responsibilities increasingly depends on the ability of school administrators to use Information and Communication Technology (ICT) to support administrative and managerial processes [1].

Information and Communication Technology has become an important component of modern educational administration because it facilitates the collection, processing, storage, retrieval and dissemination of information. ICT can support principals in maintaining students' records, managing staff information, preparing reports, communicating with stakeholders, monitoring school activities and making timely administrative decisions. However, the availability of ICT facilities alone may not guarantee effective management. The level of ICT literacy possessed by principals is particularly important because administrators need appropriate knowledge and skills to operate digital devices and applications effectively Afolabi. ICT literacy refers to the knowledge, skills and competencies required to access, understand, evaluate and use digital technologies effectively. Principals with higher levels of ICT literacy are more likely to use computers, digital applications and online platforms confidently in performing administrative responsibilities. Conversely, limited ICT literacy may result in overdependence on manual administrative procedures, difficulty in managing digital information and reduced efficiency in school management. The National Policy on ICT in Education emphasizes the development of digital competencies among educational personnel as an important requirement for effective integration of ICT into educational processes [2].

Another important consideration is the frequency with which principals use ICT tools in carrying out their administrative responsibilities. Frequent use of ICT can enable principals to become more familiar and proficient with digital technologies. Regular use may facilitate faster communication, efficient record management, timely preparation of reports and improved monitoring of school activities. In contrast, infrequent use of ICT may limit the benefits that can be derived from available technologies and may encourage continued dependence on conventional administrative practices. Thus, the frequency with which principals employ ICT tools may have implications for the effectiveness of school management [3].

The types of ICT tools used by principals also constitute an important dimension of ICT application in school management. Different ICT tools perform different administrative functions. For instance, computers and word-processing applications can be used for preparing official documents, spreadsheets can facilitate data analysis and financial records, electronic mail can support communication, while school management information systems can assist in storing and retrieving institutional data. Similarly, instant messaging and online communication platforms can facilitate rapid interaction between principals, teachers, students, parents and other stakeholders. The usefulness of ICT in school administration may therefore depend partly on the appropriateness of the tools selected and the purposes for which they are used Adebayo and Olawale. In Nigeria, the integration of ICT into educational administration has received increasing attention because of the need to improve efficiency, accountability and access to educational information. Nevertheless, the effective use of ICT by school administrators remains dependent on their digital competencies, the regularity with which they use ICT and the range of tools they employ in performing their responsibilities. In Taraba State, particularly in public secondary schools within Jalingo Education Zone, principals are expected to respond to increasing administrative demands while ensuring effective coordination of teaching, learning and school resources. The extent to which they possess adequate ICT literacy, frequently use ICT tools and employ appropriate types of ICT tools may therefore influence the effectiveness of school management. It is against this background that the present study focuses on the impact of principals' use of ICT on the effective management of public secondary schools in Jalingo Education Zone, Taraba State, Nigeria [4].

### Statement of the Problem

Effective management of public secondary schools is essential for the achievement of educational objectives. Principals are responsible for coordinating teachers, students and other school personnel, maintaining institutional records, communicating with stakeholders, monitoring school activities, managing resources and ensuring the implementation of educational policies. As administrative responsibilities continue to increase, ICT provides opportunities for principals to perform many of these functions more efficiently. However, the extent to which ICT contributes to effective school management may depend considerably on the competencies and patterns of ICT use among principals.

One major concern is the level of ICT literacy among principals. Effective use of ICT requires administrators to possess adequate knowledge and skills in operating digital devices, software applications and online platforms. Where principals have limited ICT literacy, they may experience difficulties in using technology for record keeping, data processing, communication, report preparation and other managerial functions. Such limitations may reduce the potential benefits of ICT and encourage continued reliance on manual administrative procedures. The Federal Ministry of Education (2019) recognizes digital competence as an important requirement for effective ICT integration in the education sector. However, there is concern about whether principals in public secondary schools in Jalingo Education Zone possess sufficient ICT literacy to support effective school management [5].

A second problem relates to the frequency of ICT use by principals. Although ICT may be available for administrative purposes, its effectiveness may be limited when it is used only occasionally. Frequent use of ICT can promote familiarity, confidence and efficiency, enabling principals to integrate technology into routine managerial activities. On the other hand, infrequent use may reduce opportunities for principals to develop and maintain their digital competencies and may limit the contribution of ICT to administrative effectiveness. In public secondary schools in Jalingo Education Zone, it is not sufficiently established whether principals frequently use ICT tools in carrying out their management responsibilities or whether ICT is used only for selected administrative activities.

The types of ICT tools used by principals also constitute a problem requiring empirical investigation. ICT encompasses a wide range of tools, including computers, word-processing applications, spreadsheets, electronic mail, internet-based platforms, messaging applications and school management information systems. Different tools provide different opportunities for improving administrative processes. The use of inappropriate or limited ICT tools may constrain the efficiency of school management, whereas the appropriate use of diverse digital tools may facilitate communication, information management, monitoring and decision-making. However, there is inadequate empirical evidence regarding the specific types of ICT tools commonly used by principals and the extent to which their use contributes to effective management of public secondary schools in Jalingo Education Zone [6].

The problem, therefore, is not merely whether ICT exists within public secondary schools, but whether principals possess the necessary ICT literacy, use ICT tools frequently, and employ appropriate types of ICT tools in carrying out their managerial responsibilities. Despite the increasing emphasis on ICT integration in education, there remains a need for empirical evidence on how these three dimensions of principals' ICT use relate to effective management within the specific context of Jalingo Education Zone, Taraba State.

### **Purpose of the Study**

The main purpose of the study is to examine the impact of principals' use of information and communication technology on the effective management of public secondary schools in Jalingo Education Zone, Taraba state, Nigeria.

Specifically, the study sought to:

1. Determine the impact principals' level of ICT literacy on the effective management of public secondary schools in Jalingo Education Zone, Taraba state
2. Examine the impact of principals' frequent use of ICT tools on the effective management of public secondary schools in Jalingo Education Zone, Taraba state
3. Find out the types of ICT tools used by principals on the effective management of public secondary schools in Jalingo Education Zone, Taraba state

### **Research Questions**

The following research questions will guide the study

1. What is the impact of principals' level of ICT literacy on the effective management of public secondary schools in Jalingo Education Zone, Taraba state?
2. What is the impact of principals' frequent use of ICT tools on the effective management of public secondary schools in Jalingo Education Zone, Taraba state?
3. What are the types of ICT tools used by principals on the effective management of public secondary schools in Jalingo Education Zone, Taraba state?

### **Research of Hypotheses**

The following null hypotheses were formulated and will be tested at 0.05 level of significance

**Ho1.** There is no significant impact of principals' level of ICT literacy on the effective management of public secondary schools in Jalingo Education Zone, Taraba state

**Ho2.** Principals' frequent use of ICT tools does not significantly impact on the effective management of public secondary schools in Jalingo Education Zone, Taraba state

**Ho3.** Types of ICT tools used by principals do not significantly impact on the effective management of public secondary schools in Jalingo Education Zone, Taraba state

### **Methods**

A descriptive survey research design was adopted, with a population of 1,835 teachers from 43 public secondary schools in Jalingo and Ardo-Kola Local Government Areas, from which a sample of 313 teachers was selected using the Krejcie and Morgan sampling table and simple random sampling technique. Data were collected using the Principal Information and Communication Technology Management Questionnaire, while mean and standard deviation were used to answer the research questions and Chi-square statistics were used to test the null hypotheses at the 0.05 level of significance. The study concluded that principals' ICT literacy, frequency of ICT use, and the types of ICT tools employed are important dimensions of ICT utilization that contribute to effective management of public secondary schools in Jalingo Education Zone.

### **Results**

#### **Date presentation and Interpretation**

#### **Research Question One:**

What is the impact of principals' level of ICT literacy on management of public secondary schools in Jalingo Education Zone, Taraba state

**Table 1.** Mean and Standard Deviation Ratings on the Impact of Principals' Level of ICT Literacy on Management of Public Secondary Schools in Jalingo Education Zone

| Item              | Statement                                                                                                                  | N   | Mean        | Std. Dev.   | Remark   |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|-----|-------------|-------------|----------|
| 1                 | My principal can use word processing software such as Microsoft Word to prepare and format school documents.               | 313 | 3.12        | 0.88        | A        |
| 2                 | My principal can use spreadsheet applications such as Microsoft Excel to manage school data and budgets.                   | 313 | 2.95        | 0.91        | A        |
| 3                 | My principal can design and deliver presentations using software such as Microsoft PowerPoint for meetings and events.     | 313 | 2.84        | 0.97        | A        |
| 4                 | My principal can use email efficiently for official school communications.                                                 | 313 | 3.08        | 0.89        | A        |
| 5                 | My principal can navigate the internet to search for educational resources.                                                | 313 | 3.15        | 0.85        | A        |
| 6                 | My principal can use school management software to store, retrieve, and analyze student and staff records.                 | 313 | 2.76        | 0.96        | A        |
| 7                 | My principal can utilize online collaboration tools such as Google Workspace and Microsoft Teams to coordinate with staff. | 313 | 2.68        | 1.02        | A        |
| 8                 | My principal can troubleshoot basic ICT-related problems without relying entirely on external support.                     | 313 | 2.59        | 1.05        | A        |
| <b>Grand Mean</b> |                                                                                                                            |     | <b>2.90</b> | <b>0.94</b> | <b>A</b> |

**Decision Rule:** Mean score of 2.50 and above = Agree (A); Mean score below 2.50 = Disagree (D).

**Source:** Field Survey, 2026.

Table 1 presents the mean and standard deviation ratings of respondents on the impact of principals' level of ICT literacy on the effective management of public secondary schools in Jalingo Education Zone. The results revealed that all the items recorded mean scores above the criterion mean of 2.50, indicating respondents' agreement that principals possess various ICT literacy competencies that positively influence school management [7]. Specifically, respondents agreed that principals can navigate the internet to search for educational resources (Mean = 3.15, SD = 0.85), use word processing software such as Microsoft Word to prepare and format school documents (Mean = 3.12, SD = 0.88), and use email efficiently for official school communications (Mean = 3.08, SD = 0.89). Similarly, respondents agreed that principals can use spreadsheet applications such as Microsoft Excel (Mean = 2.95, SD = 0.91), design presentations using Microsoft PowerPoint (Mean = 2.84, SD = 0.97), use school management software (Mean = 2.76, SD = 0.96), utilize online collaboration tools (Mean = 2.68, SD = 1.02), and troubleshoot basic ICT-related problems (Mean = 2.59, SD = 1.05). The cluster grand mean of 2.90 with a standard deviation of 0.94

indicates that respondents generally agreed that principals' ICT literacy has a positive impact on the effective management of public secondary schools in Jalingo Education Zone, Taraba State [8].

**Research Question Two:** What is the impact of principals' frequent use of ICT tools on management of public secondary schools in Jalingo Education Zone, Taraba state?

**Table 2.** Mean and Standard Deviation Ratings on the Impact of Principals' Frequency of Use of ICT Tools on the effective management of public secondary schools in Jalingo Education Zone, Taraba State

| Item       | Statement                                                                                                                       | N   | Mean | Std. Dev. | Remark |
|------------|---------------------------------------------------------------------------------------------------------------------------------|-----|------|-----------|--------|
| 9          | My principal uses a computer or laptop to prepare and manage official school documents.                                         | 313 | 3.18 | 0.87      | A      |
| 10         | My principal uses email to communicate with teachers, parents, and education authorities.                                       | 313 | 2.94 | 0.95      | A      |
| 11         | My principal uses spreadsheet applications such as Excel to manage financial records, student data, and administrative reports. | 313 | 2.83 | 0.98      | A      |
| 12         | My principal uses presentation tools such as PowerPoint during staff meetings, training sessions, and school events.            | 313 | 2.71 | 1.02      | A      |
| 13         | My principal uses the internet to search for educational policies, guidelines, and teaching resources for school improvement.   | 313 | 3.05 | 0.89      | A      |
| 14         | My principal uses school management software to track students' academic performance records.                                   | 313 | 2.65 | 1.04      | A      |
| 15         | My principal uses online collaboration platforms such as Google Workspace and Microsoft Teams to share information with staff.  | 313 | 2.47 | 1.08      | D      |
| 16         | My principal uses mobile communication applications such as WhatsApp to quickly disseminate important school information.       | 313 | 3.21 | 0.83      | A      |
| Grand Mean |                                                                                                                                 |     | 2.88 | 0.96      | A      |

Source: Field Survey, 2026

Table 2 presents the mean and standard deviation ratings on the impact of principals' frequency of use of ICT tools on the effective management of public secondary schools in Jalingo Education Zone, Taraba State. The table reveals that items 9, 10, 11, 12, 13, 14, and 16 had mean ratings of 3.18, 2.94, 2.83, 2.71, 3.05, 2.65, and 3.21 respectively [9]. The mean ratings imply that the respondents agreed that principals frequently use computers or laptops to prepare and manage official school documents, use email to communicate with teachers, parents and education authorities, utilize spreadsheet applications such as Excel to manage financial records, student data and administrative reports, employ presentation tools such as PowerPoint during meetings and school events, use the internet to search for

educational policies and teaching resources, utilize school management software to track students' academic records, and use mobile communication applications such as WhatsApp to disseminate important school information promptly [10].

The corresponding standard deviations of 0.87, 0.95, 0.98, 1.02, 0.89, 1.04, and 0.83 indicate that the respondents' opinions were relatively close to one another. The table further reveals that item 15 had a mean rating of 2.47 with a corresponding standard deviation of 1.08, which is below the benchmark mean of 2.50. This indicates that respondents disagreed that principals frequently use online collaboration platforms such as Google Workspace and Microsoft Teams to share information with staff. The cluster grand mean of 2.88 with a standard deviation of 0.96 indicates that respondents generally agreed that principals' frequent use of ICT tools positively impacts the management of public secondary schools in Jalingo Education Zone, Taraba State [11].

**Research Question Three:** What are the types of ICT tools used by principals on the effective management of public secondary schools in Jalingo Education Zone, Taraba state?

**Table 3.** Mean and Standard Deviation Ratings on the Impact of Types of ICT Tools Used by Principals on the Effective Management of Public Secondary Schools in Jalingo Education Zone, Taraba State

| Item       | Statement                                                                                                                  | N   | Mean | Std. Dev. | Remark |
|------------|----------------------------------------------------------------------------------------------------------------------------|-----|------|-----------|--------|
| 17         | My principal uses a desktop computer/laptop to prepare and store important school documents.                               | 313 | 3.16 | 0.86      | A      |
| 18         | My principal uses a projector to enhance presentations during meetings, workshops, and school events.                      | 313 | 2.78 | 0.92      | A      |
| 19         | My principal uses a printer/scanner to digitize school records.                                                            | 313 | 2.69 | 0.95      | A      |
| 20         | My principal uses an interactive whiteboard/smartboard to facilitate visual communication during meetings.                 | 313 | 2.41 | 1.03      | D      |
| 21         | My principal uses the school's public address system to make announcements of important information.                       | 313 | 2.84 | 0.89      | A      |
| 22         | My principal uses mobile phones to manage communication and access information on the go.                                  | 313 | 3.21 | 0.81      | A      |
| 23         | My principal uses data storage devices to secure school records.                                                           | 313 | 2.58 | 0.96      | A      |
| 24         | My principal uses photocopiers to reproduce teaching materials, memos, and administrative documents for school management. | 313 | 2.47 | 0.98      | D      |
| Grand Mean |                                                                                                                            |     | 2.77 | 0.93      | A      |

Source: Field Survey, 2026

Table 3 presents the mean and standard deviation ratings on the impact of types of ICT tools used by principals on the effective management of public secondary schools in

Jalingo Education Zone, Taraba State. The table shows that items 17, 18, 19, 21, 22, and 23 had mean ratings of 3.16, 2.78, 2.69, 2.84, 3.21, and 2.58 respectively with corresponding standard deviations of 0.86, 0.92, 0.95, 0.89, 0.81, and 0.96 respectively [12]. The mean ratings imply that the respondents are of the opinion that principals use desktop computers/laptops to prepare and store important school documents, projectors to enhance presentations during meetings, workshops and school events, printers/scanners to digitize school records, public address systems to make announcements of important information, mobile phones to manage communication and access information, and data storage devices to secure school records for effective school management. The table further reveals that items 20 and 24 had mean ratings of 2.41 and 2.47 with corresponding standard deviations of 1.03 and 0.98 respectively. These mean ratings are below the criterion mean of 2.50, indicating that respondents disagreed that principals use interactive whiteboards/smartboards to facilitate visual communication during meetings and photocopiers to reproduce teaching materials, memos, and administrative documents for effective school management. The grand mean of 2.77 with a standard deviation of 0.93 indicates that respondents generally agreed that the types of ICT tools used by principals positively influence the management of public secondary schools in Jalingo Education Zone, Taraba State [13].

### Hypotheses Testing

Ho<sub>1</sub>: There is no significant impact of principals' level of ICT literacy on the effective management of public secondary schools in Jalingo Education Zone, Taraba State.

**Table 4.** Chi-Square test on the Impact of Principals' Level of ICT Literacy on the Effective Management of Public Secondary Schools

| N   | Df | $\chi^2$ -cal | $\chi^2$ -tab | Sig. | Decision |
|-----|----|---------------|---------------|------|----------|
| 313 | 7  | 248.63        | 14.07         | 0.03 | Rejected |

The value in parentheses are ( $\chi^2 = 248.63$ ,  $df = 7$ ,  $p = 0.05 > 0.03$ ).

Table 4 presents the result of the Chi-Square test examining the impact of principals' level of ICT literacy on the management of public secondary schools. The result shows a calculated Chi-Square value ( $\chi^2$ -cal) of 248.63 with 7 degrees of freedom, while the critical Chi-Square value ( $\chi^2$ -tab) is 14.07 at the 0.05 level of significance.

Since the calculated Chi-Square value of 248.63 is greater than the tabulated value of 14.07 ( $248.63 > 14.07$ ), the null hypothesis is rejected. In addition, the reported significance value of 0.03 is less than the 0.05 level of significance ( $0.03 < 0.05$ ), further confirming that the result is statistically significant [14].

Therefore, the finding indicates that principals' level of ICT literacy has a statistically significant impact on the management of public secondary schools. This implies that differences in principals' ICT literacy levels are associated with differences in how effectively public secondary schools are managed. Principals with higher levels of ICT literacy are likely to be better positioned to use digital technologies for administrative communication, record keeping, planning, monitoring, decision-making and other school management activities. Decision: The null hypothesis is rejected. Thus, there is a significant impact of principals' level of ICT literacy on the management of public secondary schools.

Ho<sub>2</sub>: Principals' frequent use of ICT tools does not significantly impact on the effective management of public secondary schools in Jalingo Education Zone, Taraba State.

**Table 5.** Chi-Square test on the Impact of Principals' Frequent Use of ICT Tools on the Effective Management of Public Secondary Schools

| N   | Df | $\chi^2$ -cal | $\chi^2$ -tab | Sig. | Decision |
|-----|----|---------------|---------------|------|----------|
| 313 | 7  | 82.54         | 14.07         | 0.00 | Rejected |

The value in parentheses are ( $\chi^2 = 82.54$ ,  $df = 7$ ,  $p = 0.05 > 0.00$ ).

Table 5 presents the result of the Chi-Square test on the impact of principals' frequent use of ICT tools on the management of public secondary schools. The result indicates that the calculated Chi-Square value ( $\chi^2$ -cal) is 82.54 with 7 degrees of freedom, while the tabulated Chi-Square value ( $\chi^2$ -tab) is 14.07 at the 0.05 level of significance.

Since the calculated Chi-Square value of 82.54 is greater than the tabulated value of 14.07 ( $82.54 > 14.07$ ), the null hypothesis is rejected. Furthermore, the significance value of 0.00 is less than the 0.05 level of significance ( $0.00 < 0.05$ ), indicating that the result is statistically significant [15].

The finding therefore shows that principals' frequent use of ICT tools has a significant impact on the management of public secondary schools. This implies that the regular use of ICT tools by principals contributes significantly to effective school management. Frequent use of ICT can facilitate administrative communication, information management, record keeping, planning, supervision, monitoring and timely decision-making in public secondary schools.

Decision: The null hypothesis is rejected. Therefore, there is a significant impact of principals' frequent use of ICT tools on the management of public secondary schools.

Ho<sub>3</sub>: Types of ICT tools used by principals do not significantly impact on the effective management of public secondary schools in Jalingo Education Zone, Taraba State.

**Table 6.** Chi-Square test on the Impact of Types of ICT Tools Used by Principals on the Effective Management of Public Secondary Schools

| N   | Df | $\chi^2$ -cal | $\chi^2$ -tab | Sig. | Decision |
|-----|----|---------------|---------------|------|----------|
| 313 | 7  | 74.26         | 14.07         | 0.00 | Rejected |

The value in parentheses are ( $\chi^2 = 74.26$ ,  $df = 7$ ,  $p = 0.05 > 0.00$ ).

Table 6 presents the result of the Chi-Square test on the impact of the types of ICT tools used by principals on the management of public secondary schools. The result shows that the calculated Chi-Square value ( $\chi^2$ -cal) is 74.26 with 7 degrees of freedom, while the tabulated Chi-Square value ( $\chi^2$ -tab) is 14.07 at the 0.05 level of significance. Since the calculated Chi-Square value of 74.26 is greater than the tabulated value of 14.07 ( $74.26 > 14.07$ ), the null hypothesis is rejected. Also, the significance value of 0.00 is less than the 0.05 level of significance ( $0.00 < 0.05$ ). This indicates that the observed relationship is statistically significant. The finding therefore reveals that the types of ICT tools used by principals have a significant impact on the management of public secondary schools. This implies that the particular ICT tools available to and utilized by principals can influence the effectiveness of school management. The use of appropriate ICT tools, such as computers, smartphones, internet facilities, projectors, electronic communication platforms and other digital resources, can enhance administrative communication, record keeping, planning, supervision, information sharing and decision-making. Decision: The null hypothesis is rejected. Therefore, there is a significant impact of the types of ICT tools used by principals on the management of public secondary schools.

## Discussion

Findings arrived at in this study are discussed in this section. The study examined the impact of principals' use of Information and Communication Technology (ICT) on the effective management of public secondary schools in Jalingo Education Zone, Taraba State, Nigeria. The findings of the study were discussed based on the answers to the research questions and test of the corresponding hypotheses.

The study found that principals' level of ICT literacy significantly influences the management of public secondary schools in Jalingo Education Zone, Taraba State. This implies that principals who are competent in the use of digital tools such as word processing, spreadsheets, internet applications, and communication software are more effective in school administration. This finding agrees with the study of Adebayo and Olatunji, who reported that ICT literacy among school administrators enhances record keeping, communication, and decision-making in secondary schools in Nigeria. Similarly, Abdullahi emphasized that ICT competence among school leaders improves administrative efficiency and data-driven management. However, the finding contrasts with Abubakar and Adetunji who observed that despite ICT literacy among some principals, inadequate infrastructure limits the actual impact on school management in some Nigerian states. This suggests that literacy alone may not be sufficient without adequate ICT facilities. This suggests that even when ICT tools are available, effective school management is largely dependent on the ability and willingness of principals to use them. In other words, human capacity appears to be more critical than physical availability alone.

The study also revealed that the frequency of ICT use by principals significantly impacts school management. Principals who frequently use ICT tools for communication, documentation, and academic coordination tend to manage schools more effectively. This finding is consistent with Adekunle and Yusuf, who found that regular use of ICT tools enhances administrative speed, transparency, and efficiency in secondary schools in Southwestern Nigeria. Likewise, Ololube reported that frequent ICT utilization improves school supervision and staff coordination. In contrast, Bulus, and Ibrahim. argued that many school administrators underutilize ICT tools due to workload pressure and limited time, which reduces their effectiveness. This difference may be due to variations in ICT exposure and training across regions. Frequent use of ICT tools strengthens administrative efficiency, particularly in communication, documentation, and decision-making processes. Schools where ICT is regularly applied are likely to experience faster information flow and improved coordination among staff.

The study found that the types of ICT tools used by principals such as computers, projectors, mobile phones, printers, and storage devices significantly influence school management. This finding is supported by Afolabi, who noted that the availability and use of appropriate ICT tools enhance documentation, instructional supervision, and communication in schools. Similarly, Lawal and Ibrahim emphasized that diverse ICT tools improve administrative efficiency and data management in secondary schools. However, the finding differs from Ajayi and Afolabi, who reported that in some rural schools, the use of ICT tools is still limited to basic devices like mobile phones due to lack of advanced infrastructure such as interactive boards and management systems. The study further revealed that the availability of ICT tools significantly affects the management of public secondary schools. Schools with adequate ICT facilities such as computers, internet connectivity, projectors, and storage devices tend to have better administrative performance. This finding aligns with Ogunlade and Fagbenle, who found that availability of ICT infrastructure is a strong predictor of effective school management in Nigerian secondary schools. Similarly, UNESCO reported that schools with adequate ICT facilities demonstrate improved efficiency in administration and learning outcomes. However, the finding disagrees with Suleiman, who observed that even where ICT tools

are available, poor maintenance and lack of technical support reduce their effective utilization in some Nigerian schools. Furthermore, ICT tools are generally available in most schools, the availability of advanced tools remains limited. This indicates that infrastructural development has not fully matched the growing demand for ICT-driven administration in secondary schools.

### Conclusion

Based on the findings of the study, it was concluded that principals' use of ICT has important implications for the effective management of public secondary schools in Jalingo Education Zone, Taraba State. Specifically, the study established that the level of ICT literacy of principals is an important factor in the effective performance of administrative responsibilities. Principals who possess adequate knowledge and skills in the use of ICT are better positioned to employ digital technologies in record keeping, communication, information processing, supervision, reporting and decision-making. This finding underscores the importance of developing principals' digital competencies for effective school administration. The study also concluded that the frequency with which principals use ICT tools is relevant to effective school management. Regular use of ICT enables principals to integrate technology into their routine administrative activities and may improve their efficiency, communication, coordination and management of school information. Frequent engagement with ICT tools can also strengthen principals' familiarity and confidence in applying technology to different administrative tasks. Furthermore, the study concluded that the types of ICT tools used by principals are relevant to effective management of public secondary schools. Different ICT tools provide opportunities for principals to perform different administrative functions more effectively. The appropriate use of computers, word-processing applications, spreadsheets, electronic mail, internet-based platforms and other digital tools can facilitate information management, communication, documentation, monitoring and decision-making. Based on the findings and conclusions of the study, the following recommendations were made: Principals should be encouraged to use ICT tools frequently in their routine administrative activities. Regular use of ICT should be integrated into activities such as record keeping, preparation of reports, communication, supervision, data processing, monitoring and decision-making to enhance administrative efficiency and effectiveness. The Ministry of Education should encourage principals to utilize a wider range of appropriate ICT tools for different administrative functions. Principals should be trained on the effective use of computers, word-processing applications, spreadsheets, electronic mail, internet platforms, messaging applications and school management information systems, depending on the specific administrative task involved. Continuous professional development programmes should be provided to enable principals to update their ICT competencies. Such programmes should emphasize both basic and advanced digital skills so that principals can confidently adopt and apply relevant ICT tools in managing their schools.

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