



INFLUENCE OF ICT ADOPTION ON ADMINISTRATIVE EFFECTIVENESS OF PRINCIPALS IN PUBLIC SECONDARY SCHOOLS IN ABUJA

Rev. Fr. Attah Emmanuel Ojoma
Ave-Maria University, Piyanko, Nasarawa State, Nigeria
Email: fadaemmanuelattah@gmail.com
Tel: 08154071695

Abstract

This study focused on the influence of ICT adoption on administrative effectiveness of principals in public secondary schools in Abuja. The design for this study is descriptive survey. The population was all the school leaders, specifically principals in public schools in Abuja. A sample of twenty (20) school principals and teachers from twenty different schools in Abuja were selected to participate in this study. A standardized questionnaire was used to collect data on ICT adoption and leadership effectiveness. The questionnaire was administered online and in-person. The instrument was subjected to face validity, and it was validated by three experts from Prince Abubakar Audu University, Anyigba. One from measurement and evaluation, the other two are from educational administration and planning. The internal consistency reliability coefficient of 0.66 was obtained. The data collected were analyzed using descriptive statistics of mean and standard deviation for research questions. A mean response of 2.5 was used as the cut off point for decision making. The hypotheses formulated for the research were tested using the inferential statistics of T-test at 0.05 level of significance. The result from the three hypotheses revealed among others that; there is no significant difference in the mean score of principals and teachers on the three hypotheses tested. This implies that all the hypotheses were accepted. Based on the findings, the following recommendations were made; principals and other school stakeholders should strive towards the adoption of ICT for effective school administration, principals must apply these factors in carrying out their administrative task, and finally, efforts should be made by stakeholders in addressing the challenges identified.

Keywords: ICT, Principal leadership styles, school administration.

Introduction

The rapid advancement of Information and Communication Technology (ICT) has transformed the educational landscape, necessitating school leaders to adapt and leverage technology to enhance leadership effectiveness (Leithwood & Jantzi, 2008). According to Abimbade (2002) educational technology vis-à-vis instructional technology whether as a field of education or new terminology to what has been there before like teaching aids or apparatus, as it was earlier called but recent achievements in the field of computer



and communication technologies have offered tremendous opportunities for learning by electronic means. Therefore, the world of technology continued to grow and today the whole world has become a global village. By the beginning of the 21st millennium educational technology stretched educational boundaries and created new ones on a daily basis. Corroborating this, Enefu, et al (2022) noted that the introduction of new multimedia technologies and the Internet in teaching-learning relationship has been seen as a means to improve accessibility, efficiency and quality of learning by facilitating access to information resources and services as well as remote exchanges and collaboration. Nonetheless, by the middle of the 20th century the growth in technology and applications in the field of education has been unavoidable.

Hence, principals, as key leaders, play a crucial role in integrating ICT into school administration, teaching, and learning (Anderson & Dexter, 2005). The impact of ICT on school leadership remains a topic of ongoing debate and research (Gunter, 2001). Recent studies have highlighted the potential of ICT to improve administrative tasks, communication, and decision-making (Bryson & Stewart, 2004; Kowalski & Lim, 2008). ICT adoption can enhance principals' productivity, efficiency, and effectiveness in managing school operations (Scherer & Siddiq, 2019). Moreover, technology can facilitate communication with stakeholders, including teachers, students, parents, and the broader community (Leithwood & Jantzi, 2008).

Despite these potential benefits, research suggests that principals' ICT adoption and usage vary significantly (Anderson & Dexter, 2005). Factors such as technological expertise, access to resources, and institutional support influence principals' ability to effectively integrate ICT into their leadership practices (Kowalski & Lim, 2008). The influence of Information and Communication Technology (ICT) on school leadership has been a topic of increasing interest in recent years. Research has shown that ICT can enhance school leadership by improving communication, decision-making, and data management (Enefu, et al, 2022). Principals who adopt ICT are more likely to experience improved leadership effectiveness, including better student outcomes and increased teacher collaboration (Wang, 2018). Recent studies have highlighted the importance of ICT in enhancing



principals' administrative tasks, including communication, decision-making, and data management (Yee, 2017). ICT can also facilitate collaboration and communication among teachers, students, and parents, leading to improved student outcomes (Hew & Brush, 2007).

However, the adoption of ICT by principals is influenced by various factors, including technological expertise, access to resources, and institutional support (Al-Mahmood, 2017). Principals with higher levels of technological expertise are more likely to adopt ICT and use it effectively in their leadership practices (Ertmer, 2019). Furthermore, research has shown that ICT can enhance principals' leadership effectiveness by providing them with data-driven insights to inform decision-making (Sclater, 2017). ICT can also facilitate principals' communication with stakeholders, including teachers, students, and parents (Gunter, 2018). Technological expertise is a significant factor influencing principals' ICT adoption (Ertmer, 2019). Principals with higher levels of technological expertise are more likely to adopt and effectively use ICT in their leadership practices. Access to resources, including hardware, software, and internet connectivity, is another crucial factor (Al-Mahmood, 2017). Principals who have access to adequate resources are more likely to adopt and use ICT effectively.

ICT can also facilitate collaboration and communication among teachers, students, and parents, leading to improved student outcomes (Hew & Brush, 2007). However, the adoption of ICT in educational institutions is influenced by various factors, including technological expertise, access to resources, and institutional support (Al-Mahmood, 2017). Principals with higher levels of technological expertise are more likely to adopt ICT and use it effectively in their leadership practices (Ertmer, 2019). Recent studies have also highlighted the impact of ICT on leadership effectiveness, including improved decision-making, enhanced communication, and increased productivity (Sclater, 2017). ICT can also provide leaders with data-driven insights to inform decision-making and improve student outcomes (Gunter, 2018).

Despite the benefits of ICT in school leadership, there are challenges to its adoption, including inadequate infrastructure, lack of training, and resistance to change (Knezek,



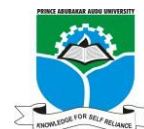
2017). Therefore, it is essential to address these challenges and provide support for principals to effectively integrate ICT into their leadership practices. The adoption of Information and Communication Technology (ICT) in educational institutions has transformed the way administrative tasks are managed and leadership effectiveness is enhanced (Enefu, et al 2022). Recent studies have shown that ICT adoption can improve administrative efficiency, enhance decision-making, and increase leadership effectiveness (Wang, 2018). Stressing the Knezek, (2017) aver that despite the benefits of ICT adoption, there are challenges to its implementation, including inadequate infrastructure, lack of training, and resistance to change. Therefore, it is essential to address these challenges and provide support for leaders to effectively integrate ICT into their leadership practices. The adoption and effective use of Information and Communication Technology (ICT) by principals in school leadership is influenced by various factors. Recent studies have identified several key factors that impact principals' ICT adoption and use.

Hence, this study aims to investigate the impact of ICT on school leadership, focusing on principals' technology adoption and administrative tasks. By exploring the relationship between ICT usage and leadership effectiveness, this research seeks to contribute to the existing body of knowledge and inform strategies for promoting effective ICT integration in school leadership. The purpose of the study was to determine the influence of ICT adoption on administrative effectiveness of principals in public secondary schools in Abuja. Three hypotheses guided the study. These are:

Hypothesis 1: There is no significant difference in the mean score of principals and teachers on the importance of ICT adoption of principals' effective management of administrative tasks in public secondary schools in Abuja.

Hypothesis 2: There is no significant difference in the mean score of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja.

Hypothesis 3: There is no significant difference in the mean score of principals and teachers on the challenges to principals' adoption of ICT for administrative effectiveness



in public secondary schools in Abuja.

Method

The design of this study is descriptive survey. The population was all the school leaders, specifically principals in public schools in Abuja. A sample of twenty (20) school principals and teachers from twenty different schools in Abuja were selected to participate in this study. A standardized questionnaire was used to collect data on ICT adoption and leadership effectiveness. The questionnaire was administered online and in-person. The instrument was subjected to both face and content validity, and it was validated by three experts from Kogi State University, Anyigba. One from measurement and evaluation, the other two are from educational administration and planning. The internal consistency reliability coefficient of 0.66 was obtained. The data collected were analyzed using descriptive statistics of mean and standard deviation for research questions. A mean response of 2.5 was used as the cut off point for decision making. The hypotheses formulated for the research were tested using the inferential statistics of T-test at 0.05 level of significance.

Results

Hypothesis 1: There is no significant difference in the mean score of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools in Abuja.

Table 1: t-test Analysis of the Difference in the Mean Scores of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools in Abuja.

Status	No	\bar{X}	SD	Dif	t-cal.	Sig	Decision
Principals	20	3.0	.70	38	-3.400	.005	Accept
Teachers	20	3.5	.63				

The result of the hypothesis which states that there is no significant difference in the mean score of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools in Abuja was



accepted. This is because the t-calculated of -3.400 is less than the critical value of .005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools.

Hypothesis 2: There is no significant difference in the mean score of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja.

Table 2: t-test Analysis of the Difference in the Mean Scores of teachers and students on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja.

Status	No	\bar{X}	SD	Dif	t-cal.	Sig	Decision
Principals	20	3.2	.60	38	-.760	.005	Accept
Teachers	20	2.7	.72				

The result of the hypothesis which states that there is no significant difference in the mean score of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja was accepted. This is because the t-calculated of -.760 is less than the critical value of .005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools.

Hypothesis 3: There is no significant difference in the opinion principals and teachers on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja.



Table 3: t-test Analysis of the Difference in the Mean Scores of teachers and students on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja.

Status	No	\bar{X}	SD	Dif	t-cal.	Sig	Decision
Principals	20	3.7	.69	38	-.860	.005	Accept
Teachers	20	2.5	.82				

The result of the hypothesis which states that there is no significant difference in the opinion principals and teachers hold on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja was accepted. This is because the t-calculated of -.860 is less than the critical value of .005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools.

Discussion of Findings

The findings of the hypothesis which states that there is no significant difference in the mean score of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools in Abuja was accepted. This is because the t-calculated of -3.400 is less than the critical value of .005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the importance of ICT adoption on principals' effective management of administrative tasks in public secondary schools. This is consistent with research by Lee (2010), which found that integrating ICT in school communication systems leads to better stakeholder engagement and information flow. Schools that implement ICT tools, such as emails and instant messaging platforms, report higher satisfaction levels from both educators and parents (Selwyn, 2011). This suggests that similar improvements found in this study reflect broader trends, where technology reduces communication barriers in educational settings. Similarly, this finding also mirrors research by Eynon (2008), which concluded that ICT enhances decision-making



by providing quick access to data and trends that inform policy changes. However, this study also notes that other factors may influence decision-making. It also aligns with Uslu (2019), who highlighted that while ICT improves access to information, the quality of decisions depends on leadership skills and institutional support.

However, the finding contrasts with findings by Yuen and Ma (2011), who demonstrated that regular ICT integration typically yields tangible benefits such as time savings and accuracy improvements. The difference could be attributed to variations in ICT infrastructure across different schools or limitations in training, as highlighted in further sections of the research.

The finding of the hypothesis which states that there is no significance difference in the mean score of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja was accepted. This is because the t-calculated of -0.760 is less than the critical value of 0.005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the factors that influence principals' adoption of ICT for administrative effectiveness in public secondary schools. The finding agrees with Al-Mahmood, (2017) who noted that the adoption of ICT by principals is influenced by various factors, including technological expertise, access to resources, and institutional support. Similarly, the finding corroborates, Ertmer (2019), view that principals with higher levels of technological expertise are more likely to adopt ICT and use it effectively in their leadership practices.

The finding of the hypothesis which states that there is no significance difference in the mean score of principals and teachers on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools in Abuja was accepted. This is because the t-calculated of -0.860 is less than the critical value of 0.005 at 0.05 level of significance. Thus, there is no significant difference between mean scores of principals and teachers on the challenges to principals' adoption of ICT for administrative effectiveness in public secondary schools. This finding agrees with Knezek, (2017) who submitted that despite the benefits of ICT adoption, there are challenges to its



implementation, including inadequate infrastructure, lack of training, and resistance to change.

Conclusion

In summary, the findings of this research are largely in line with existing studies, reinforcing the view that ICT use enhances school administration by improving communication, decision-making, and data management. However, the study also raises important questions about the role of ICT infrastructure and training in determining the specific benefits experienced from ICT use. These findings suggest that future research should focus on identifying the conditions that maximize the effectiveness of ICT in school administration, particularly in terms of training, tool selection, and institutional support.

Recommendations

1. Principals and other school stakeholders should strive towards the adoption of ICT for effective school administration.
2. The effectiveness of ICT is predicated on decision-making, leadership style and others, hence, principals must apply these factors in carrying out their administrative task.
3. Additionally, efforts should be made by stakeholders in addressing the challenges identified.

References

- Al-Mahmood, R. (2017). Factors influencing the adoption of ICT by school principals. *Journal of Educational Leadership and Management*, 1(1), 1-12.
- Anderson, R. E., & Dexter, S. L. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly*, 41(1), 49-82.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.



- Bryson, J., & Stewart, J. (2004). The impact of ICT on leadership in schools. *Journal of Educational Administration*, 42(6), 673-688.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- Enefu, S.M. & Akoji, A. (2022). Information and communication technology competencies possessed and required by principals for supervision of instruction in secondary schools in North central states, Nigeria.
- Ertmer, P. (2019). Teacher leadership and ICT: A systematic review. *Journal of Educational Technology Development and Exchange*, 12(1), 1-25.
- Eynon, R. (2008). The use of ICT for decision-making in schools. *Journal of Educational Administration*, 46(5), 671-682.
- Gunter, H. M. (2001). *Leaders and leadership in education*. Paul Chapman Publishing.
- Gunter, H. M. (2018). The complexities of school leadership: A review of the literature. *Educational Management Administration & Leadership*, 46(3), 341-356.
- Hennessy, S. (2010). Teacher professional development in ICT: *Strategies and outcomes*. *Computers & Education*, 55(3), 1122-1130.
- Hew, K. & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, 55(3), 223-252.
- Knezek, G. (2017). Overcoming barriers to ICT adoption in schools. *Journal of Educational Computing Research*, 56(4), 419-433.
- Kowalski, T. J., & Lim, M. (2008). The impact of ICT on school leadership: A review of the literature. *Journal of Educational Administration*, 46(6), 733-744.
- Lee, M. (2010). The role of ICT in improving communication in schools. *Education and Information Technologies*, 15(4), 313-323.
- Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: A review of the literature. *Journal of Educational Administration*, 46(6), 645-656.
- Ng, E. (2013). Principals' ICT leadership and school performance. *Journal of Educational Administration*, 51(6), 761-781.



- Scherer, R., & Siddiq, F. (2019). Principals' technology adoption and leadership: A systematic review. *Journal of Educational Administration*, 57(3), 259-274.
- Sclater, N. (2017). The impact of data analytics on school leadership. *Journal of Educational Leadership and Management*, 1(2), 1-15.
- Selwyn, N. (2011). *Schools and school leadership in the digital age*. Routledge.
- Uslu, O. (2019). ICT in decision-making: A meta-analysis. *Educational Management Administration & Leadership*, 47(1), 27-47.
- Wang, Y. (2018). ICT leadership and teacher collaboration: A systematic review. *Journal of Educational Technology Development and Exchange*, 11(1), 1-20.
- Williams, P. (2015). ICT and school data management systems: A review of empirical studies. *Computers in the Schools*, 32(2), 139-159.
- Yee, D. (2017). The impact of ICT on school administration: A review of the literature. *Journal of Educational Leadership and Management*, 1(2), 1-15.
- Yuen, A. H. K., & Ma, W. W. K. (2011). Exploring the influence of ICT use on the perceived benefits in administrative tasks. *Computers & Education*, 57(1), 206-214.