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The Impact of Information and Communication Technology on Principals' Administrative Competence in Public Secondary Schools in Ekermor Local Government Area of Bayelsa State

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ABSTRACT

This study examines the impact of information and communication technology on principals' administrative competence in Ekeremor L.G.A. of Bayelsa State. The study was guided by three research questions. The Study adopted a descriptive survey design. The target population of the study was the twenty one (21) principals of the twenty one (21) public secondary schools in Ekeremor Local Government Area of Bayelsa State. All twenty one (21) principals formed the sample size due to the small size of the population. A questionnaire titled: The Impact of Information and Communication Technology on Principals Administrative Competence in Public Secondary Schools in Ekeremor Local Government Area of Bayelsa State (TIICTPACPSSELGABS) developed by the researcher was used for the collection of data. The instrument was formatted on a four point scale of Strongly Agree, Agree, Disagree and Strongly Disagree. Two expert in measurement and evaluation in the Faculty of Education in the Niger Delta University validated the instrument. The reliability of the instrument was established using test re-test method and the two sets of scores were correlated using Pearson's Product Movement Correlation (PPMC) Technique to obtain a reliability of 0.78 which therefore means that the instrument was reliable. The questionnaire were administered by the researcher and one research assistant. Mean and Standard Deviation were the statistical tools used for the data analysis. The findings from the study revealed that information and communication strategies like digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning will greatly enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State. Based on the findings, it was concluded that adequate provisions and application of information and communication strategies will definitely boost principals' administrative competence as such the study therefore, recommended that among others that principals in Ekeremor L.G.A should adopt digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning as strategies to enhance their administrative competence.

Introduction

ICT stands for information and Communication Technology. It refers to technology that provide information through communication. Information and Communication Technology (ICT) is very important in our every-day lives. It has indeed made the world a global village. People can easily communicate and send mails to one another from different part of the world. ICT is studied in the context of how modern technology affect the society positively. Information and Communication Technology includes devices which encompasses cell phones, computers and network hard ware, satellite systems among others. It has various services and applications such as video conferencing and distance learning. Information and Communication Technology is seen in different context which includes ICT in Education, Health care, Library etc. (Allen, 2017).

Information and Communication Technology (ICT) tend to improve the teaching and learning process in school. This could be done with the use of communication tools in the classroom as instructional materials. Such communication tools includes computers, projectors, instructional television, interactive white board, electronic board among others. Information and Communication Technology plays a very significant role in the lives of individuals and organizations as it has the potential to transform the nature of education where teaching and learning takes place as well as the role of students and teachers in the learning process. The benefits derived from information and Technology in Education are enormous. Among others Information and Communication Technology motivates and empowers the teacher and the learner thereby promoting an atmosphere for effective teaching and learning in schools (Kazu, 2018).

Competence is the quality of being well qualified physically and intellectually for a particular job. Competence has to do with having the right knowledge and abilities at a level of expertise which is sufficient for one to be able to carry out a task appropriately. A principal, teacher or student who is competent has the right knowledge and skill required to use communication technology effectively to carry out a task. Such knowledge and skill includes: personal dispositions, sensitivity, abilities and value skills as well as the application of such knowledge and skill so as to get the job done. These implies that competence does not just involve having the knowledge and skill but also how to apply such in getting a job done (Kiymet, 2020).

Principals should be aware of the advantages technology can bring to the classroom in particular and the school in general. Technology bring both real life and virtual experiences. Principals should ensure that teachers are well equipped with technological resources to boost their competency; this will enable them to teach the subject matter and content effectively and efficiently while incorporating technological concepts and skills. UNESCO 2018 identified three aspect of competence standards for teachers' professional development. They include: knowledge creation, knowledge deepening and technological literacy. These three approaches generates six components in the educational system. They include: Policy and vision, curriculum, assessment, pedagogical ICT, organization and administration as well as principals' professional development.

In our world today, the limitation of distance have been broken by technology. With the use of phones, Skype and other devices alike the students can easily get connected to boundless learning opportunities thereby making it possible for learning to take different innovative platforms. It is seemingly difficult, if not impossible to address quality education without making mention of the use of Information and Communication Technology. Information and Communication Technology is considered as one of the pillars upon which quality education for all is built. It has the capacity to bring the world together, even the most remote and disadvantaged of communities (Ndongfack, 2020).

Technology literacy involves the approach to prepare learners and the entire citizenry that are capable of taking up new technologies to support social development and improve economic productivity with improved basic literacy skills. Knowledge deepening involves the application of school knowledge to solve complex problems. While knowledge creation involves the increase in productivity by creating individuals that are continually engaged and benefit from knowledge creation and innovation. This different approaches could be attributed to personal, pedagogical and subject oriented competencies, where personal competence involves individuals' ability to use basic ICT tools. Pedagogy competence involves the use of presentation of software and other digital media to supplement a lesson, while subject orientated competence involves the use of ICT as very important tool in the classroom. This set of competencies aims to prepare students to become users of various ICT platforms to help students and teachers (UNESCO, 2018).

Principals should demonstrate knowledge skills in information and data management. According to Eze (2023) technology has the capability to improve the professional environment for students. Through the application of the internet, internet research and collaborative planning, students can connect to both local and external resources for their professional activities rather than relying on the isolating environment that the learning imposed on them in the past.

The introduction of Information and Communication Technology into schools learning process was driven by global forces which is beyond the school- based decision making. The expansion of technology across a wide range of areas including educational institutions, schools and universities came

with the main intention of improving the teaching and learning environment. From the origin, the implementation of ICT in education was to transform the teaching and learning process from the traditional principal-centered endevour to a learner-centered approach with active participation of the learner (Voogt, 2023).

Information and Communication Technology tools in education make it possible to investigate and experiment with instructional ideas, discover patterns and relations and stimulate thinking. The nature of teaching and learning has changed considerably because of the availability of Information and Communication Technology (ICT). Principals should recognize and practice ethical use of technology in both their personal and professional life. It is very pertinent as to review ethical standards as well as social responsibility. Information and Communication Technology creates ethical standards because it changes the instrumentation of human action. (Johnson, 2021)

Several frameworks on Information and Communication Technology, social and ethical policies are available that define several standards and provides guidelines. For example, the mutual respect production, access dissemination, preservation and the use of information in the electronic environment and also the international society for technology emphasizes the need to promote and model digital citizenship and responsibility (Universal Test Equipment, 2016). The national Information and Technology Competency standard (2019) specifically emphasized the following: understanding and the absence of legal practices in the use of technology, recognized practice, ethical use of technology in both personal and professional life, plan, model and the promotion of a safe and sound technology supported learning environment will facilitate suitable access to technology that addresses learning, social and cultural diversity. Therefore the readiness of the students to use Information and Communication Technology in the classroom in terms of their ICT skills and degree of competence on the use of such ICT tools in the teaching and learning process needs to be properly examined. Information and Communication Technology redefines how people think and how people communicate. It brings benefits and new possibilities as well as risks and new problems. In a world where Information and Communication Technology has come to define how people live and work and has critically affected their culture and values. It is very important to review ethical issues as well as social responsibility (Sembok, 2020).

Information and Communication Technology creates ethical issues because it changes the instrumentation of human action. The Information and Communication Technology ethical issue is unique as it provides new species of traditional moral issues. This raises serious ethical questions for individuals and organizations. Most importantly, students need to understand these issue, (Johnson, 2023).

One of the domains in the standard is the social and ethical competencies related to social, ethical, legal and human issues and community linkage. Specifically, the standard emphasizes the following: understanding and observing legal practices in the use of technology, recognize and practice ethical use of technology in both personal and professional life, plan, model and promote a safe and sound technology supported learning environment and facilitate equitable access to technology that addresses learning as well as social and cultural diversity (Edewor, 2023).

Information and communication technology is very key to boosting principals' administrative competence which will lead to good teaching and learning process in the school. For the school to get it right, it need a competent principal and for the principal's competence to be enhanced, he/she need good ICT knowledge which will help him in the administration of the school. To enhance their administrative competence, principals in secondary schools should ensure that they take full advantage of digital technology available to them. The principal should look at areas of information like digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning. This will help them to have a solid digital base for their administrative function. Some of the advantages information and communication technology will provide principals includes: access to quick retrieval of file, minimize human mistakes, use emails and group platforms to broadcast updates to staff and parents fast, conducting virtual meetings, have transparent reporting system, monitor teacher lesson plans and classroom delivery electronically, use electronic spreadsheet for precise financial planning and resources allocation, access to brows internet resources to adopt modern curriculum designs and school policies among others.

Statement of the Problem

The use of information and communication Technologies (ICT) in education is not just considered to be teaching and learning tool, but also an important means of administration of an organization. However, Information and Communication Technology has not been taken seriously in Nigerian public secondary schools. It is either the non-availability of Information and Communication facilities or when they are even available they are in a very deplorable state. This is indeed a very big problem in Nigeria public secondary school.

Principals in schools should ensure that they take full advantage of information and technology to improve their administrative competence. The principal should look at areas of information and communication technology like digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning. This will help principals to have a solid digital base for their administrative functions and access to quick retrieval of file, minimize human mistakes, use emails and group platforms to broadcast updates to staff and parents fast, conduct of virtual meetings, have transparent reporting system, monitor teacher lesson plans and classroom delivery electronically, use electronic spreadsheet for precise financial planning and resources allocation, access to brows internet resources to adopt modern curriculum designs and school policies among others.

The study became imperative because most principals are incapacitated today in public secondary schools in Nigeria with particular emphasis on Ekeremor Local Government Area of Bayelsa State due to their lack of knowledge of Information and Communication Technology and its importance. The study tends to use Information and Communication Technology strategies such as digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning to enhance principals' administrative competence in Ekeremor Local Government Area of Bayelsa State.

Purpose of the Study

The major purpose of the study was to determine:

1) How digital record keeping and data management will enhance principals' administrative competence in pubic secondary schools in Ekeremor L.G.A of Bayelsa State.
2) How digital communication and collaboration will enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.
3) How digital instructional supervision and planning will enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

Research Questions

The study was guided by the following research questions

1) How does digital record keeping and data management enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?
2) How does digital communication and collaboration enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?
3) How does digital instructional supervision and planning enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?

Research Methodology

This study used the descriptive survey design as data were collected from a representative sample of the population and the findings were generalized to the entire population. The population of the study comprised of the twenty one (21) principals from the twenty one public secondary schools in Ekeremor Local Government Area of Bayelsa State. All twenty one (21) principals formed the sample size due to the small size of the population. A questionnaire titled: The Impact of Information and Communication Technology on Principals Administrative Competence in Public Secondary Schools in Ekeremor Local Government Area of Bayelsa State (TIICTPACPSSELGABS) developed by the researcher was used for the collection of data. The instrument was formatted on a four point scale of Strongly Agree, Agree, Disagree and Strongly Disagree. Two expert in measurement and evaluation in the Faculty of Education

in the Niger Delta University validated the instrument. The reliability of the instrument was established using test re-test method and the two sets of scores were correlated using Pearson's Product Movement Correlation (PPMC) Technique to obtain a reliability of 0.78 which therefore means that the instrument was reliable. The questionnaire were administered by the researcher and one research assistant. Mean and Standard Deviation were the statistical tools used for the data analysis.

Results

Research question one

1) How does digital record keeping and data management enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?

Table 1: Summary of mean and standard deviation scores and mean rating of how digital record keeping and data management enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A. of Bayelsa State.

S/N	Item Statement	Mean	SD	Decision
1	Digital databases allow principals to search and access students' grades, staff files, and attendance list instantly without searching through physical cabinets and enhance principals' administrative competence.	2.89	0.92	Strongly Agree
2	Cloud storage and encrypted software protect critical school files from physical damage, theft unauthorized viewing and enhance principal administrative competence. .	2.87	0.91	Strongly Agree
3	Electronic analysis of students performance and teacher punctuality helps principals spot trends early offer and academic support and enhance their administrative competence	2.83	0.94	Strongly Agree
4	Digital financial reports and attendance logs make it easy for principals to share transparent data with school boards, auditors, and ministry official and enhance their administrative competence.	2.87	0.91	Strongly Agree
	Grand Mean/SD	**2.87**	**0.92**	**Strongly Agree**

Cut-off mean=2.50, Total=21

The above table showed a mean rating of 2.89, 2.87, 2.83 and 2.87 for items 1, 2. 3, and 4 and a grand mean of 2.87 for research question one which is on how digital record keeping and data management enhances principals' administrative competence in Ekeremor L.G.A of Bayelsa State. With a grand mean of 2.87 which is above the cut-off mean of 2.50 the study was able to establish that the respondents agreed that digital record keeping and data management enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

Research question two

2) How does digital communication and collaboration enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?

Table 2: Summary of mean and standard deviation scores and mean rating of how digital communication and collaboration enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

S/N	Item Statement	Mean	SD	Decision
5	Principals' use of emails, e-circulars, and message apps to send notice instantly to teachers and parents thereby reducing delays to tied paper memos and help to enhance their administrative competence.	3.02	0.97	Strongly Agree
6	Digital channels let staff and stake holders reply quickly to transparent school climate and enhance principals' administrative competence.	2.77	0.98	Strongly Agree
7	Tele-conferencing which allows principals to host staff meetings or external experts without travel constraints will enhance their administrative competence.	2.88	0.99	Strongly Agree
8	Principals participating and guiding teachers to participate in online conference, workshop and peer networks that upgrade their performance quality on the job will enhance principals' administrative competence.	2.83	0.94	Strongly Agree
	Grand Mean/SD	**2.88**	**0.97**	**Srongly Agreet**

Cut-off mean=2.50, Total=21

The above table showed a mean rating of 3.02, 2.77, 2.88 and 2.83 for items 5, 6. 7, and 8 and a grand mean of 2.88 for research question two which is on how digital communication and collaboration enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State. With a grand mean of 2.88 which is above the cut-off mean of 2.50 the study was able to establish that respondents agreed that digital communication and collaboration enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

Results

Research question three

How does digital instructional supervision and planning enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State?

Table 3: Summary of mean and standard deviation scores and mean rating of how digital instructional supervision and planning enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A. of Bayelsa State.

S/N	Item Statement	Mean	SD	Decision
9	Digital planning tools and learning management systems (LMS) equips principals with real time analytics to make objective administrative decisions thereby enhancing their administrative competence.	2.84	0.99	Strongly Agree
10	Data dashboards highlight learning gaps, enabling principals to plan targeted interventions, allocate resources where they are needed the most and enhance their administrative competence.	2.74	0.97	Strongly Agree
11	Principals monitoring teachers' lesson plan and classroom electronically will enhance their administrative competence.	2.93	0.89	Strongly Agree
12	Principals access to brows internet resources to adopt modern curriculum designs, school policies and better ways of planning will and enhance their administrative competence.	2.89	0.92	Strongly Agree
	Grand Mean/SD	**2.85**	**0.94**	**Strongly Agree**

Cut-off mean=2.50, Total=21

The above table showed a mean rating of 2.84, 2.74, 2.93 and 2.89 for items 9, 10. 11 and 12 and a grand mean of 2.85 for research question three which is on how digital instructional supervision and planning enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State. With a grand mean of 2.80 which is above the cut-off mean of 2.50 the study was able to establish that the respondents agreed that digital instructional supervision and planning enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

DISCUSION OF FINDINGS

1. The study showed that digital record keeping and data management will surely enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State. This was evident with the responses with the respondents which showed a grand mean and standard deviation of 2.87 and 0.92 respectively. This clearly establish the fact that principals' use of digital record keeping and data management will enhance principals' administrative competence in Ekeremor L.G.A of Bayelsa State.
2. The study also proved that digital communication and collaboration will enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State This was clearly shown in the responses from the respondents which showed a grand mean and standard deviation of 2.85 and 0.97 respectively. This established the fact that digital communication and collaboration will definitely enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State
3. The study further indicated digital instructional supervision and planning will enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State. This was clearly shown in the responses from the respondents which showed a grand mean and standard deviation of 2.85 and 0.94 respectively. This established the fact that the use of digital instructional supervision and planning will surely enhance principals' administrative competence in public secondary schools in Ekeremor L.G.A of Bayelsa State.

Conclusion

On the basis of the findings the study concluded that lack of principals' knowledge and usage of information and communication technology has hindered them from being competent on their job. As such the study was able to identify ways through wish principals can use opportunities and skills in information and communication technology to improve on their administrative competence. Some of the ways the study established that principals in public secondary schools in Ekeremor L.G.A of Bayelsa State can enhance their administrative competence through information and communication technology are digital record keeping and data management, digital communication and collaboration as well as digital instructional supervision and planning.

Recommendations

On the basis of the findings and conclusion of the study, the following recommendations were made.

1) To promote administrative competence by principals in public secondary schools in Ekeremor L.G.A of Bayelsa State, government, policy makers and principals should ensure that proper digital record keeping and data management are done in schools.
2) To promote administrative competence by principals in public secondary schools in Ekeremor L.G.A of Bayelsa State, government, policy makers and principals should ensure that proper digital communication and collaboration is done in schools.
3) To promote administrative competence by principals in public secondary schools in Ekeremor L/G.A of Bayelsa State, government, policy makers and principals should ensure that proper digital instructional supervision and planning is done in schools.

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