

INFLUENCE OF DIGITAL COMPETENCIES ON SECONDARY SCHOOLS ADMINISTRATION IN ONDO STATE

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Abstract

This study investigated influence of principal digital competencies for secondary school administration in Ondo State, Nigeria. The study was guided by three research questions and three hypotheses. The descriptive survey design was adopted. The population of the study consisted of all the 206 principals in Ondo state. A sample size of 86 principals was selected using the stratified random sampling technique. The instrument for data collection was a self-structured questionnaire titled “Principal Digital Competence Questionnaire (PDCQ). Three experts validated the instrument, while the overall reliability coefficient of 0.77 was obtained using Cronbach Alpha method. Mean scores and standard deviation were used to answer the research questions. The findings revealed among others that, teleconferencing, videoconferencing and tele-computing have various impacts in facilitating distance learning, collaborative projects, virtual field trips, access to experts, and online assessments of students’ performance and classroom management in the school system. The study concluded that investing in digital proficiency significantly contributes to the overall effectiveness and efficiency of school administration. The study recommended that, to enhance overall effectiveness, educational authorities should invest in comprehensive digital competence training programs for principals, encompassing teleconferencing, video-conferencing, and tele-computing skills.

Keywords: Digital competency, principal, secondary school, administration

Introduction

Over the years, the school system has remained a focal point for the transformation of all sectors of the society both in the developed and developing nations. The school is an institution for training, molding and equipping the attendees with skills and knowledge that can make them to be reasonable, productive, and competitively participate to the socio-economic development of the economy. In order for the school to meet the demands of this digital or computer age, the school operators and administrators have to embrace all the provisions, innovations and advancements of technology for school administration through digital competencies.

Digital competency is a critical tool for modern school administrators, encompassing the ability to leverage on digital tools, evaluate information critically, and foster a culture of innovation. Digital competence according to Karaku and Kılıç (2022) is regarded as the skills and literacy that an average citizen needs to learn in the digital information society. Digital competence can also be defined as the knowledge, skills and abilities that are required of an individual to navigate the ICT tools and platforms for optimum job performance and betterment of his/her life. Digital competencies include innovation capacity and the incorporation of emerging trends in education, including the use of information technology (Idika et al., 2021) by the critical stakeholders in education which the principals are not exempted. Digital technology provides great opportunity to help schools advance student learning effectiveness, day-today administration, and acquire 21st century skills. Therefore, this study provides a framework for implementing digital literacy initiatives in schools, ensuring administrators are prepared to support 21st-century learning environments competently in this era of advance technology.

The advent of technology has made educational institutions to rely on the use of effective and collaborative technology tools to ensure the smooth running of the institution. The need, function, key initiatives and requirements of the academic institution environment has evolved beyond the traditional setting. The education sector being one of the cornerstones of societal development uses technological tools to enhance the process of administration, teaching and learning. There is a need to build the school environment on an information technical foundation that takes into consideration the current economic environment as well as other business ventures impacting the education market as a whole. Different types of educational technologies have evolved from time to time and each technology addresses the questions of improving administration, instructional reach, and delivery, as well as the teaching and learning quality. Audio-visual aids, print, mass media, computer mediated learning; teleconferencing videoconferencing and tele-computing are technologies that are available in education and training. These technologies co-exist with the old technologies and often converge within combinations to achieve better results. Teleconferencing, video computing and telecomputing are good examples of convergence of technologies.

Teleconferencing is a form of computer mediated communication which allows information to be sent from one individual to another or a group, and vice versa without the constraints of time and location. Teleconferencing is one of the main advanced Information and Communication Technologies used by principals for communicating and coordinating administrative process. Negash et al. (2008) defined teleconferencing as a meeting among two or more participants which allows them to interact by means of a two-way video and audio transmission simultaneously, as well as to exchange data in real time through the internet. Teleconferencing has become an indispensable tool in academic institutions seeing that it offers the opportunity for several persons and machines to collaborate and participate in live exchange and mass articulation of knowledge or information while remaining in divergent regions but linked by a telecommunication system. The recent pervasive penetration of digital technology has significantly elevated the importance of a platform of digital capabilities.

Video conferencing or video conference (also known as a video teleconference) is a set of interactive telecommunication technologies which allow two or more people in different location to interact via two way video and audio transmission simultaneously. Video conferencing according to Omotayo and Umoru (2015), is an advanced form of video calls that enables real time audio and visual communication between users in different locations, facilitated by various video conferencing software. Participants can join group video conferencing, present content, record meetings, and communicate via messages, all from their personal computer using different video conferencing services. Tele-computing refers to the use of computers and telecommunications technologies to communicate and exchange information between two or more distant locations. It involves the transfer of data, messages, or other forms of communication via networks, such as the internet, telephone lines, satellite communications, or wireless connections. Tele-computing enables remote access to resources, collaboration, and the sharing of information, making it easier for individuals or organizations to communicate and work together regardless of their physical location.

The goal of today's principal is to be more efficient, up- to-date, and prompt in delivering qualitative objectives created by fully integrated communication technology and collaborative. The leadership and administrative bar of principals will have to be raised high in order to meet up with present and future global challenges. This will not be about

what the principals need to learn, but about how it is learned. In that regard, the optimal and efficient use of technology will play a major role in framing the future of administrative effectiveness in schools. By this, many administrative solutions will be based on outcomes relating to the use of technology such as teleconferencing, videoconferencing and tele-computing. Learning new technologies should be paramount in every principal's job description as this will help to change the entire school's perspective about the use of technology thereby making it a priority. This will spur the principal to make positive and drastic changes on how technology is used in schools and to also ensure that the staffs are provided with the requisite knowledge and skills needed for administrative effectiveness. In turn, teachers will need to learn how to use technology in classrooms without walls. For traditional principals, this will be mind boggling, and for future oriented principals, it will be exhilarating.

There is little doubt that new technology-savvy principals will be taking the lead. Students of the future will be taking virtual field trips to other countries. They will be video conferencing digitally with foreign experts who can help them develop understanding and skills. Distance will no longer be an issue. Principals, wanting students to compete globally will no longer be able to ignore the importance of digital competencies. These principals, with a new vision, will be taking steps to change mind-sets, policies and practices. Principals are expected to adapt to network technical innovations that allow for better implementation and resiliency of new network services. These innovative network services should be able to operate seamlessly and efficiently within the school, and should also support different voice, video and data services. This should enhance communication process and should also heighten the collaboration with other professional colleagues. One of the most reliable ways of holding meetings is through teleconferencing and this reliability has increased tremendously over the years due to globalization and rapid advancement in technology.

Principals are known to feel isolated in their work despite the fact that they are being surrounded by so many administrative issues, teachers, students, parents and the community clamoring for their attention. Borema (2011) in an interview of school principals to discover the challenges faced by principals and the support they needed to be successful uncovered that loneliness almost seems to be an epidemic to the office of school administrator, especially in small schools. Hobson et al as cited in Garcia-Garduno, Slater and Lopez-Gorosave (2011) identified challenges faced by principals especially in their early years of principal-ship to be feelings of professional isolation and loneliness. Principals were found to experience limited interactions with other principals and administrators about complex, multifaceted, and important issues, such as student achievement, social climate, safety, and school improvement. Administration of secondary education has become more complex as a result of the increasing number of students' enrolment, staff strength and multifaceted administrative needs of the schools. There has been an increasing public fear and complaints that the administrative effectiveness of principals has dwindled. This could be attributed to the fact that most principals are usually not on ground to oversee the effective smooth running of the schools due to incessant travels out of the school location for administrative meetings. This dampens the commitment level of the teachers and other staff in general. There are no immediate opportunities to get public reaction to issues as they arose and to interact with other principals and administrators about important administrative issues. Furthermore, a high accountability demand is placed on secondary school principals with little or no support for computer mediated interactions which leaves the principals feeling isolated and

ineffective in the discharge of their administrative duties. Hence, this paper looks at principals' digital competence for effective administration of public secondary schools.

Statement of the Problem

The principals of secondary schools seem not equipped with modern administrative competence in the use of digital technology in their day to day running of the school system. The world today is changing with different trends of digital technological development. Principals as school leaders are expected to respond to the changing requirements of the society in order to live up to expectations in meeting with the challenges and changes of the digital age. The use of digital devices in the classroom to plan lesson and other teaching and learning activities has become necessary in the present world of teaching. The principal is the implementer of educational curriculum. While curriculum is changing today, and recently, the integration of technology into teaching and learning processes has created the need for principal digital competence. But most principals are still stagnant and virtually unable to cope with the new knowledge and new trends in education sector. However, the continuous use of the same unimproved knowledge, methods and notes, even as the society and knowledge is evolving at a rapid rate with increasing technological development may have affected the achievement of educational goals and objectives in recent time. This situation is worsened when the school principal lacks the knowledge, skills and attitudes to utilize tele-conferencing, video conferencing, inability to create learning networks and digital content in tele-computing. This adversely affects the administration of secondary schools. It is therefore the focus of this study to investigate the influence of principals' digital competencies on secondary school administration in Ondo State.

Purpose of the Study

This study investigated the influence of principals' digital competencies of public senior secondary schools administration in Ondo State. Specifically, the sought to:

1. ascertain the extent to which principals' digital competence in video-conferencing influence public senior secondary schools administration in Ondo State;
2. examine the extent to which principals' digital competence in tele-conferencing influence public senior secondary schools administration in Ondo State;
3. determine the extent to which principals' digital competence in Tele-computing influence public senior secondary schools administration in Ondo State.

Research Questions

The following research questions guided the study:

1. To what extent do principals' digital competencies in video-conferencing influence public senior secondary schools administration in Ondo State?
2. To what extent do principals' digital competencies in Tele-conferencing influence public senior secondary schools administration in Ondo State?
3. To what extent do principals' digital competence in Tele-computing influence public senior secondary schools administration in Ondo State?

Methods

The study adopted the descriptive survey research design. The population of this study consisted of all the 206 principals in public secondary schools in Ondo State. (Source: Ondo State Senior Secondary School Board RSSSB, 2021). The sample size was principals. The stratified random sampling technique was used in selecting the respondents. The instrument for data collection was a self-structured questionnaire titled

“Principal Digital Competence Questionnaire (PDCQ). The Part ‘A’ of the questionnaire will be made up of the demographic data of the respondents while the part ‘B’ was made up of structured items centered on the variables of the study. The instrument was structured in line with the modified 4- points Likert response scale which provided four levels of opinion as: Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE), and weighted mean of $4+3+2+1=10/4=2.5$. The questionnaire was subjected to face validation by three experts in the Faculty of Education, University of Nigeria, Nsukka, who made necessary corrections and certified the instrument usable for the study. The internal consistency of the instrument was established by administering 10 copies 10 principals in Ekiti State which was outside the study area. The Cronbach Alpha method was used to determine the internal consistency and overall reliability coefficient of 0.77 was obtained. The direct delivery and retrieval method was used in the administration of the instrument. The data collected for the study were analyzed using Mean, Standard Deviation to answer all the research questions.

Results

Research Question One: To what extent do principals’ digital competencies in video-conferencing influence public senior secondary schools administration in Ondo State?

Table 1: Mean and Standard Deviation on the extent to which principals’ digital competencies in video-conferencing influence public senior secondary schools administration.

S/N	ITEMS	Mean $\bar{X}$	Standard Deviation	Remark
1	It can be used to deliver live instruction to teachers and students outside schools	2.99	0.85	High Extent
2	Collaboratively, it can be used to facilitate group projects between students who are located in different locations.	3.06	0.75	High Extent
3	Videoconferencing can be used to provide professional development opportunities for teachers.	2.70	0.79	High Extent
4	Videoconferencing allows teachers to bring in guest speakers from anywhere in the world without need for travel.	2.73	0.77	High Extent
5	It helps to improve communication by allowing administrators see and hear each other in real time.	2.58	0.83	High Extent
6	It saves time and money by allowing administrators conduct meetings virtually.	3.06	0.81	High Extent
Overall Mean		2.86	0.81	High Extent

Table 1 above illustrates mean and standard deviation values representing the influence of principals’ digital competence in video-conferencing on the administration of public senior secondary schools. The overall interpretation suggests a high extent of positive influence, with a grand mean of 2.86 and a standard deviation of 0.81, across various items such as delivering live instruction, facilitating collaborative projects, providing

professional development, bringing in guest speakers, enhancing real-time communication, and saving time and money through virtual meetings.

Research Question Two: To what extent do principals' digital competencies in Tele-conferencing influence public senior secondary schools administration in Ondo State?

Table 2: Mean and Standard Deviation on the extent to which principals' digital competencies in Tele-conferencing influence public senior secondary schools administration

S/N	ITEMS	Mean $\bar{X}$	Standard Deviation	Remark
7	It allows students and teachers to connect remotely which can facilitate distance learning.	2.94	0.61	High Extent
8	It allows teachers and students and teachers to work together on projects and assignments from anywhere in the world.	3.06	0.56	High Extent
9	It enables distance learners to complete their education while working full-time.	2.62	0.86	High Extent
10	It can be used to take students on virtual field trips to museums, historical sites, and other locations around the world.	3.03	0.71	High Extent
11	It provides students with access to experts in various fields who may not be available to come to the school in person.	2.85	0.98	High Extent
12	It can be used for online assessments such as online quizzes, tests and presentations.	2.71	0.89	High Extent
Overall Mean		2.88	0.78	High Extent

Data in Table 2 above presents mean and standard deviation values indicating the extent to which a principals' digital competence in tele-conferencing influence administration of public senior secondary schools. The overall interpretation suggests a high extent of positive influence, with a grand mean of 2.88 and a standard deviation of 0.78 across various items, such as facilitating distance learning, enabling collaborative projects, supporting distance learners, organizing virtual field trips, connecting with experts, and conducting online assessments.

Research Question Three: To what extent do principals' digital competence in Tele-computing influence public senior secondary schools administration in Ondo State?

Table 3: Mean and Standard Deviation on the extent to which principals' digital competencies in Tele-computing influence public senior secondary schools administration.

S/N	ITEMS	Mean $\bar{X}$	Standard Deviation	Remark
13	It saves schools cost on office space, utilities, and other overhead costs.	3.06	0.67	High Extent
14	It enables administrators to keep track record such as students' files, attendance records and other data.	2.79	0.80	High Extent
15	It enables administrators collaborate with colleagues in different locations allowing them to share ideas and resources more easily.	2.78	0.75	High Extent
16	It can be used to collect and analyse data about student performance school operations and other key metrics.	2.81	0.78	High Extent
17	It can be used to manage classrooms by using online tools to create and share lesson plans, track student progress and communicate with parents.	2.66	0.77	High Extent
18	It provides online learning opportunities for students through the use of field trips and online lectures.	3.08	0.78	High Extent
Overall Mean		2.87	0.77	High Extent

This Table 3 above outlines mean and standard deviation values indicating the influence of principals' digital competence in tele-computing on the administration of public senior secondary schools in Ondo state. The overall interpretation suggests a high extent of positive influence, with a grand mean of 2.87 and a standard deviation of 0.77, across various items such as cost savings, record-keeping, collaboration, data analysis, classroom management, and providing online learning opportunities, highlighting the multifaceted benefits of tele-computing in school administration.]

Discussion

The outcomes derived from Table 1, which explores the influence of principals' digital competence in video-conferencing for administration of public senior secondary schools; revealed a high extent of positive influence across various aspects such as delivering live instruction, facilitating group projects, providing professional development opportunities, and saving time and money through virtual meetings. With a grand mean of 2.86 and a standard deviation of 0.81, the results indicate a consistent and favorable trend, emphasizing the significant role of video-conferencing skills in enhancing the overall efficiency and collaborative capabilities of school administrators. The finding is in line with Ogunshola and Abiodun (2017) reported that digital competencies in video-conference are necessary for the school principals to fully participate in the digitalization of school administration. Also, in agreement with Cabero et al. (2020), who reported that digital

competence is a key which all citizens must acquire to remain relevant in future and for principals to remain 21st century administrators.

The findings from Table 2, which focuses on the influence of principals' digital competence in tele-conferencing for the administration of public senior secondary schools, indicate a generally high extent of positive impact across various dimensions, such as facilitating distance learning, collaborative projects, virtual field trips, access to experts, and online assessments. This suggests that a principal's proficiency in tele-conferencing can significantly contribute to the enhancement of educational processes and administrative efficiency in schools. The high overall grand mean of 2.88 and standard deviation of 0.78 reinforce the consistency of these positive outcomes, underscoring the potential benefits of incorporating tele-conferencing skills into the skill set of school principals. The findings highlight the importance of recognizing and fostering digital skills in educational leadership without emphasizing gender distinctions, emphasizing the need for comprehensive professional development programs that cater to both male and female principals to ensure equitable access and application of digital tools for effective school administration. The findings agreed with Tagbo (2024), who reported that digital facilities such as cloud storage and tele-conferencing are very useful for archiving data that does not need to be accessed frequently like financial records and school administration. The findings also agreed with Yardarm (2011), found that administrators' digital technologies competencies in such area like tele-conferencing can have positive influence on learning effectiveness administrative efficiency.

The results from Table 3, which focuses on a principal's digital competence in tele-computing for effective administration in public senior secondary schools, highlight a high extent of positive impact across various dimensions such as cost savings, record-keeping, collaboration, data analysis, classroom management, and online learning opportunities. The grand mean of 2.87 and a standard deviation of 0.77 underscore the consistent positive outcomes, emphasizing the multifaceted benefits of tele-computing skills in enhancing administrative processes within educational institutions. This study's finding is in agreement with the finding of Iroegbu and Etim (2017), they stated that tele-conferencing facilities were lacking in schools and that principal's gender has no significant influence on their attitude towards the use of teleconferencing. Also, inline with Groff (2013), who reported that digital technologies create a practical, cost-effective division of labour, one that, empowers teachers to perform complex instructional tasks and principals for effective school administration. It agreed with Dede (2011), who posited that technologies such as tele-computing can be used to deepen learning, they can also help prepare students for life and easy school administration for principals.

Conclusion

Based on the findings of this study, the following conclusions were made; the comprehensive examination of the influence of principals' digital competencies across video-conferencing, tele-conferencing and tele-computing in public senior secondary schools yields insightful findings. Tables 1, 2, and 3 collectively underscore the positive impact of digital competencies on various aspects of school administration, including distance learning, collaborative projects, virtual field trips, record-keeping, data analysis, and cost savings. The consistently high grand means and standard deviations across these tables suggest that investing in digital proficiency significantly contributes to the overall effectiveness and efficiency of school principals in managing educational institutions. As educational institutions continue to integrate digital tools into administrative processes,

these results underscore the significance of fostering a diverse and inclusive approach to digital skill development among school leaders.

Recommendations

Based on the findings, the researcher made the following recommendations

1. Educational authorities should invest in comprehensive digital competence training programmes for principals, encompassing tele-conferencing, video-conferencing, and tele-computing skills to enhance secondary school administration.
2. Government should consider integrating digital skills as a core criterion in the selection of school principals. This can be achieved by updating leadership frameworks, job descriptions, and evaluation criteria to explicitly include the expectation of digital proficiency.
3. The government should provide functional computer system with internet connection and other digital facilities in public secondary schools for principals to use in carrying out their administrative functions.

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