

PEDAGOGICAL COMPETENCY IMPROVEMENT NEEDS OF EDUCATIONAL ADMINISTRATORS FOR EFFECTIVE UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN SECONDARY SCHOOLS ADMINISTRATION IN ENUGU STATE, NIGERIA

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Abstract

This study investigated pedagogical competency improvement needs of educational administrators in information and communication technologies (ICT) utilization in secondary schools administration in Enugu state. Three research questions guided the study. A descriptive survey research design was adopted. The population of the study was 486 principals. The sample consisted of 221 principals selected randomly from 221 schools. The instrument used for data collection was a structured competency questionnaire developed by the researchers which was face validated by five experts, three from the department of computer science education and two from educational administration and planning unit of the department of educational foundations, faculty of education, University of Nigeria, Nsukka. Cronbach alpha reliability method was used to determine the internal consistency of the pedagogical competency improvement needs index of the items; a reliability coefficient index of 0.78 and 0.86 were obtained for cluster one and two respectively while frequency counts and percentage scores were used to answer cluster three. Two hundred and twenty one copies of the instrument were administered which were all retrieved and analyzed using weighted mean and standard deviation. A benchmark of 2.50 mean was set as acceptance or rejection criterion. The study revealed that pedagogical competency improvements of principals were very much needed as basis for smooth administration of secondary schools. It was also found that: lack of power supply and absence of internet facilities were major impediments to effective utilization of ICT towards enhancing pedagogical technique and effective school administration. Other problems of ICT utilization include principals' phobia for adopting ICT based school administration and low availability of ICT facilities, among others. Based on these findings, recommendations were made to enable state government to plan and implement a vigorous ICT training as well as design and implement a program for retraining principals on ICT applications skills in secondary schools.

Keywords: Information and communication technologies (ICT), principals, pedagogy, competency improvement, administration and needs.

Introduction

The learning needs have systematically shifted in the bid to remain relevant in a changing technological environment of learners globally through the application of information and communication technologies (ICT) into school administrations. Proper education of the society for work guarantees rapid national development and full employment of citizenry (Okolocha and Nwadiani, 2015). The principals are at the helms of affairs of secondary schools in the efforts to achieve needed transformations through efficient and effective school administration (Babalola, 2008). School administration exists for the primary role of ensuring the smooth operations of the school system. The

role of school administrator is increasingly challenging in secondary schools system due to the recent incursion of modern technologies into school administration. School administrator refers to the school head or executive whose sole responsibility is to plan, organize, coordinate and ensure adequate staffing, controlling to enhance the attainment of set educational objectives. The educational administrator is expected to engage in professional development so as to be efficient and effective through skills acquisition, continuous training program to acquire a body of knowledge necessary to achieve educational goals. Babalola (2010) stated that educational administrator is a term used to describe principals, vice principals and directors of schools in official capacity. According Evans (2020), school administrators are expected to perform duties in line with current technological innovations in teaching and learning to effectively manage and administer schools. Operationally, educational administrator is a professional with requisite skills through training and education having capacity to administer schools effectively.

Pedagogy refers to the method of teaching including the aims of education and the ways in which such goals may be achieved. Pedagogy is the combination of teaching methods and learning activities, contents and the learning assessments projects and tasks that measure students' learning outcomes. Kind and Chan (2019) proposed that pedagogical content knowledge (PCK) is the synthesis of content knowledge that is expertise about a subject area, pedagogical knowledge that is expertise about teaching methods, assessment, classroom management and how students learn. Content Knowledge (CK) without pedagogical knowledge (PK) limits instructors' ability to teach effectively or inclusively. Novice instructors that rely on traditional lecture methods are likely to have limited pedagogical knowledge and may also be replicating their own inherited teaching practices and nuances. The postulations averred by Kind and Chan (2019) although from the science education perspectives potently apply across disciplines because all learners are expected to achieve a desirable learning goals at the point of learning assessments. Hence, diversifying and critically assessing teaching methods, learning activities and assignments are very important roles of the school administrator and will vary according to specific learning situations and desirable achievement targets. This assertion was corroborated by Koontz, Donnel and Weihrich (2002) who posited the roles that principals play in transforming teaching and learning process thus; "it is the principal who shape future of learning environment to accommodate new pedagogy and teachers' active engagement to think rationally and apply necessary instructional material". At secondary schools, principals' effectiveness plays key roles in the overall cognitive development of the learners. Presently, ICT is at the epicenter of the teaching and learning in many secondary schools today.

With the aid of Information and Communication Technology (ICT), the school environment is transformed into an interactive, learner-centered, and environmentally friendly system that extends beyond the traditional classroom setting. It ensures adequate participation in the teaching and learning process and creates virtual environments where learners can experiment and explore knowledge. ICT therefore offers a wide range of choices and innovative approaches that are largely absent in traditional classroom settings (Ogbonnaya, 2020). In the same vein, ICT has had a revolutionary impact on education and pedagogical practices (Ololube, 2006). Various ICT facilities are utilized in teaching and learning processes. These include radio, optical fibres, satellite equipment, computers, multimedia systems, internet services, overhead projectors, videos, fax machines, CD-ROMs, electronic boards, and slides among others (Okolocha & Nwadiani, 2015). In school administration, ICT is applied through systematized feedback systems, computer-

based operational networks, video and audio conferencing, internet-based platforms, CD-ROMs, encoders, digital cameras, multimedia tools, and computer-assisted instruction (Umeifekwem, 2005). Similarly, Ugwoke (2011) noted that computer applications in the classroom include Computer Aided Instruction (CAI), Computer Assisted Learning (CAL), Computer Managed Learning (CML), simulations, tutorials, demonstrations, drills and practice exercises, computer games, and application programming. These applications provide teachers with efficient and effective tools for addressing learners' individual differences (Olorundare, 2006). Furthermore, ICT makes lessons more interesting, easier, and engaging, improves the presentation of instructional materials, and enhances access to computers for personal and educational use. Based on this premise, school administrators need to be equipped with relevant pedagogical skills for improvement in order to effectively manage and supervise teachers' instructional delivery. Otherwise, such inadequacies may result in confusion, instructional supervisory anxiety among teachers, and administrative stress. To effectively address emerging functional challenges in school administration, principals require continuous improvement in pedagogical competencies, leadership capacity, and instructional supervision skills. These competencies enable effective coordination of teaching and learning processes, enhancement of teacher performance, and assurance of quality instruction within schools.

However, the effective application of these competencies is often constrained by infrastructural and technological challenges, particularly in the use of ICT. This is in line with the report of Wokocha, Wolugbom, Appah, and Olurunfummi (2016), which indicated that challenges encountered in the use of ICT are largely due to the non-availability of internet facilities and related accessories, thereby hindering effective utilization in teaching and learning processes. In support of this view, Nwosa and Okolocha (2014) also identified the non-availability of ICT facilities as the major bane of effective ICT instructional delivery in secondary schools in Edo and Delta States of Nigeria. Their findings further revealed that even where ICT facilities are available; there is still a need for continuous competency skill improvement among users to ensure effective instructional delivery. These findings collectively lend credence to existing empirical evidence in the literature. Other importances include making schools' administration more efficient and providing professional support through the internet (Vasudevaiah, 2016). According to the author, ICT stimulates classroom interaction and discourage passivity, liberate teaching and learning from the constraints of the linear curriculum and provides a bridge between the home and school learning (Vasudevaiah, 2016). However, it must be stressed that the effective use of various methods of ICT in administration will to a large extent depend on the availability of the ICT facilities as principals and teachers' competence in using them.

Competency is an essential element which is obtainable through training and education so as to be able to demonstrate optimal level of performance skills. Akpan (2014) described competency as ability to do something well, measured against a standard especially ability acquired through experience and training. Vasudevaiah (2016) viewed competencies as ability to possess suitable and sufficient skills, knowledge and experience for carrying out a particular task. To be competent means having enough skills or knowledge to do something to a satisfactory standard. In other words, for a school administrator to be competent in changing times of modern ICT applications in school administration competency improvement is required. Improvement is needed to make something better than before. Improvement is core to efficient service delivery to meet up with the minimum standard of best practice. The need for improvement arises as a result

of ineffectiveness and inefficiencies in the process as orchestrated by inadequate knowledge, skills and abilities. These shortcomings constitute ineffectiveness in performance leading to inability to achieve set target. The inherent gaps in today's management and administration of secondary schools might stem from the variances in innovative utilization of ICT in the running of secondary schools filled through competency improvements to enable schools achieve set goals and objectives.

Through this, competency improvement is an effort made to update the competency levels of staff through constant education and training to upgrade in line with what is required of the profession in order to enable the people that are being served. According to Morris (2020), competency improvement refers to all trainings and education that a worker received or needed to acquire in order to succeed in his or her career as certain jobs demanded which include innovative ICT based school administration. The need for competency improvement is enshrined in the mandatory continuing professional development (MCPD) for school administrators (NPE, 2013). According to Morris (2020), pedagogical improvement covers all aspects of education and training designed to equip teachers and principals with the methodologies for imparting and appropriate supervisory techniques to ensure smooth teaching and learning takes place. Morris further stated that examples of pedagogical improvement include training programmes, coaching, mentoring and consultations. These approaches are intended to help educational administrators to acquire skills and a body of knowledge needed for efficient and effective administration of schools. Hence, ICT skills capability needs for school administrators are direly required in order to secure efficient and effective school administration.

School administrators need capacity building in terms of pedagogical skills to be able to manage and supervise teachers' instructional delivery. According to Nwaosa and Okolocha (2014) need is a circumstance that requires something to be done. Similarly, Chuka (2002) posited that need is what one requires in order to meet a target standard. When the target is attained or a teacher achieves a measurable standard through improved competency the outcome will lead to saleable skills and knowledge for the students to be employable after graduation. In Enugu state, lessons deliveries by teachers have been worsening especially in public schools. Delivery of lessons are associated with use of lesson plan not backed by materials and teaching aids relevant to effective and efficient pedagogical principles, even some lesson notes are used repeatedly over a decade not minding innovation trends globally. Some teachers do not attend classes regularly and send lessons notes for coping by the students, come late and or do not teach the subjects assigned to them fully (Nwaosa and Okolocha, 2014). In addition, Oladeji (2007) observed that the decline in quality service delivery of teachers in the Enugu states stems from inadequate professional development programmes for principals and teachers especially in the area pedagogy through ICT utilization. Oladeji (2007) posited that teachers' performance in public secondary schools is still a serious challenge with cases of poor teaching and low ICT utilization. The problem for the low utilization of ICT includes inadequate training, resistance to change, computer phobia (Ugwoke, 2011). Other observable limiting factors include poor infrastructure, lack of internet facilities, inadequate fund and low skills to manage computer assisted instructions among others. Based on these, studies are needed to determine structure challenges bedeviling secondary schools administrators from implementing an ICT enabled school administration, teaching and learning in Enugu state, Nigeria.

Statement of the Problem

Adoption of ICT based schools administration promises to revolutionize and enhance teaching and learning outcomes. Today, educational systems are facing myriads of problems ranging from poor quality teachers, inadequate knowledge and teaching methods, poor school administration, infrastructural decay and lack of learning facilities culminating in poor students' academic achievement. Students have become more of passive listeners than practical oriented learners. They tend to simply memorise and regurgitate facts and concepts. On the other hand, principals seem to be unable to clearly demonstrate adequate knowledge and skills about ICT based school administration due to paucity of skills required to manage digital school environment. The school administrators not having fair knowledge and skills about ICT pose serious challenges to the integration ICT into teaching and learning in a modern era of secondary school system. This scenario particularly affects students of nowadays who are suppose to work as office clerks, small business managers using modern information and communication technologies. The problem confronting the teaching and learning school administration can be handled using myriads of ICT facilities that can be independently used by principals, teachers and students if they possess requisite knowledge and skills. This will further enhance both teachers and principals' job performance and inspire their active participation thereby reducing boredom, fatigue and inherent in rigorous school administration. As a result many school administrators are bereft of skills to utilize modern ICT in schools.

Purpose of the Study

The general purpose of the study was to determine the pedagogical competency improvement needs of school administrators for enhancement of secondary schools administration in Enugu state. Specifically, the study determined:

1. The pedagogical competency improvement skills needed by schools administrators in monitoring teachers' ICT utilization in secondary schools.
2. The structural limiting factors in utilization of ICT facilities in the schools.
3. The availability of ICT facilities in effective administration of secondary schools.

Methods

The study adopted descriptive survey research design. Descriptive survey, according to Ikegbusi (2021) is the kind of survey which uses sample from a population to document, describe and explain what is in existence or non-existence on the present status of phenomenon being investigated. The study was carried out in Enugu state, Nigeria. The population of the study consisted of all the secondary school principals in Enugu state. The sample consisted of 221 principals out of a population 686 principals using simple random sampling technique. A self-designed structured questionnaire was used to collect data for the study. The instrument for data collection was 42-competency cluster structured questionnaire items for collecting data. The questionnaire was divided into two categories of needed and availability. The needed category has a 4-point response scale of Highly Needed (HN), Moderately Needed (MD), Slightly Needed (SN), Not Needed (NN) with a corresponding values of 4, 3, 2 and 1 for category one. A checklist was used for collection of data on availability of facilities. The questionnaire was validated by five experts two from educational administration unit and two from the department of computer science education and one from measurement and evaluation unit. The validated questionnaire was subjected to cronbach alpha reliability method yielding coefficient of 0.87 And 0.86. This proved that the internal consistency of competency improvement items of the

questionnaire was valid. The whole copies of the questionnaire were retrieved. Weighted mean on competency improvement needed index (INI) were employed in answering research questions one and two while frequency counts and percentages were used in answering research question three. On (INI) any questionnaire item that scored less than 2.50, means that improvement is not needed while any item that scored 2.5 and above indicates that improvement is needed.

RESULTS

Research Question One: What are the pedagogical competency improvement skills needed by administrators in monitoring teachers utilization of ICT in secondary schools?.

Table 1: Pedagogical performance skills analysis on teachers' use of ICT facilities (PPST)

S/N	Items	\bar{X}	SD	Remarks
1.	Ability of administrators to effectively monitor teachers' video conferencing application	2.75	0.78	Highly Needed
2.	Ability to make use of computer assisted instruction	2.81	0.67	Moderately Needed
3.	Ability to carry out computer simulation	3.56	0.75	Highly Needed
4.	Ability to use power-point presentation	3.88	0.48	HN
5.	Ability to use computer games	2.61	0.39	MN
6.	Ability to apply computer tutorials	3.85	0.45	HN
7.	Ability to use wide range of ICT	3.41	0.77	HN
8.	Possess extensive e knowledge of current technologies	2.93	0.56	MN
9.	Demonstrate an extensive use of technologies to communicate, network and locate resources	2.68	0.37	M N
10.	Ability to support learning through computer based assignment	3.11	0.51	HN
11.	Demonstrate strong monitoring skills leading to design of safe instruction in a variety of ICT assisted instructional mode	3.42	0.11	HN
12.	Monitor use of wide range of instructional materials and tools	3.55	0.19	HN
13.	Ability to implement multimedia instruction	3.34	0.58	HN
14.	Use innovative and varied means of communicating information systems	2.87	0.38	MN
15.	Develop active student engagement with available ICT resources	2.72	0.63	MN
16.	Ability to plan and implement instruction based ICT facilities	3.72	0.45	HN

Table 1 shows low capacity of administrators' pedagogical competency skills to monitor utilization of ICT facilities in secondary schools. Especially administrators were seen to be backward in monitoring teachers' use of ICT materials for teaching particularly in video conferencing 2.75 highly needed, use of computer assisted instruction 2.81 highly needed, ability to use power-point presentation, 3.88 which is highly needed, ability to make use of computer tutorials 3.85, computer simulation and games 3.56 highly needed and 2.61 moderately needed respectively. On the average the pedagogical competency

improvement skills were highly needed as majority of items appears above benchmark score of 2.50 indicating that competency skills are highly needed for the administrators

Research Question Two: What are the limiting factors in the utilization of ICT facilities in schools?

Table 2: Structural Limiting Factors to the Utilization of ICT Facilities

S/N	Items	\bar{X}	SD	Remarks
1	Inadequate internet service	3.54	0.34	Accept
2.	Epileptic electricity supply	3.67	0.12	Accept
3.	Teachers are not trained on use of ICT facilities	2.73	0.46	Accept
4.	Lack of ICT integration in teaching of subjects	3.45	0.82	Accept
5.	No in-service training for teachers on the use of ICT	2.62	0.91	Accept
6.	ICT materials not sufficient	2.83	0.38	Accept
7.	Absence of information technology centre	2.41	0.54	Reject
8.	Lack of functional computers in school	3.62	0.47	Accept
9.	Expensive cost of maintaining ICT facilities	3.52	0.59	Accept
10.	Teachers phobia for the use of ICT	3.14	0.51	Accept
11.	Students inability to adapt to use of ICT in learning	3.61	0.58	Accept

Table 2, shows that the limiting factors for the use of ICT utilization pose serious challenges to the administrators capability to monitor modern ICT facilities utilization which have almost made impracticable. The worst among these include epileptic electricity supply 3.67, lack of computers 3.62, phobia for the use of computers in teaching 3.14, inadequate internet service 3.54 and lack of ICT integration in teaching 3.45 mean scores.

Research Question Three: What are the availability of ICT facilities towards competency improvement of administrators’

Table 3: Availability of ICT facilities towards competency improvement of administrators’

S/N	Items	Available	%	Not available	%
1.	Internet	98	44	123	56
2.	Computers	45	20	176	80
3.	Projectors	56	25	165	75
4.	Television sets	38	17	183	83
5.	Radio	63	29	158	71
6.	Recording players	32	14	189	86
7.	Tape recorders	42	19	179	81
8.	Disc players	37	17	184	83
9.	Electronic board	15	7	206	93
10.	Electronic mail	14	6	207	94

As shown in table 3, the percentage of available ICT facilities in secondary schools is very low, especially considering percentage of the availability of electronic boards, disc players, electronic mail, recording players and tape recorders which are very essential for storing information that can be recycled for commutations and teaching of subject topics scoring less than 50% and the least being percentage of 6%.

Discussion

The findings of the study revealed that school administrators require competency improvement skills in ICT facilities such as video conferencing, PowerPoint presentations, computer tutorials, computer simulations, support for computer-based assignments, and

the ability to demonstrate and network across different computer resources. The findings are in consonance with the study of Ugwoke (2015), who posited that secondary school principals must be continuous learners through professional development programmes in order to keep abreast of emerging technological innovations for effective school administration. Similarly, Ololube (2006) reported that ICT integration in education significantly enhances pedagogical practices and administrative effectiveness through continuous capacity development of school personnel.

The findings of the study revealed that school administrators face several limitations in the use of ICT, including phobia for computer applications, resistance to change, and non-availability of ICT facilities. The findings are in consonance with the study of Okolocha and Nwadiani (2015), who posited that the non-availability of ICT facilities and inadequate technological infrastructure constitute major barriers to effective ICT utilization in schools. In the same vein, Nwosa and Okolocha (2014) reported that lack of ICT facilities and inadequate teacher and administrator competence significantly hinder effective ICT-based instructional delivery in secondary schools.

The findings of the study revealed that the capacity of school administrators to apply ICT facilities depends largely on availability of ICT resources, mastery of relevant skills, adequate funding, and stable power supply. The findings are in consonance with the study of Wokocha, Wolugbom, Appah, and Olurunfummi (2016), who posited that non-availability of internet facilities and related accessories, remains a major challenge to effective ICT utilization in schools. Similarly, Nwosa and Okolocha (2014) found that even where ICT facilities are available, inadequate competency skills among users significantly affect effective instructional delivery and administrative performance. Overall, the findings indicate that effective school administration through ICT is strongly dependent on the availability of facilities and the competence of administrators in their utilization. However, infrastructural challenges, lack of training, and resistance to ICT adoption continue to hinder effective implementation in secondary schools. These findings collectively emphasize the need for continuous professional development, improved ICT infrastructure, and supportive educational policies to enhance administrative efficiency and instructional effectiveness.

Contribution to Knowledge

This study contributed to knowledge by providing empirical evidence on the ICT competency needs of school administrators for effective school administration and instructional supervision. It highlighted that both ICT facility availability and administrators' competency skills are critical for effective ICT integration in school management. The study also identified key ICT skill areas required by administrators, thereby expanding understanding of how infrastructural and capacity gaps jointly affect effective school administration in secondary schools.

Conclusions

Secondary schools administrators lack pedagogical skills needed for effective secondary schools administration using ICT facilities. Owing to the effective use of ICT in schools administration is hampered by inability of administrators to utilize ICT facilities coupled with infrastructural problems. It has been observed that schools administrators in secondary schools in Enugu state shy away from utilization of ICT due to low level of knowledge to implement ICT in schools. Majority schools lack ICT facilities, especially internet, stable power supply, and worst still phobia in the use of ICT due to lack of relevant skills.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Government and relevant educational stakeholders should ensure adequate provision of ICT facilities in secondary schools, including internet services and other digital resources necessary for effective school administration.
2. Regular and compulsory capacity-building programmes should be organized for school administrators to enhance their skills in the use of ICT tools such as video conferencing, PowerPoint presentations, computer-based tutorials, simulations, and other relevant applications for effective administration and supervision.
3. Continuous professional development training should be provided for school administrators to strengthen their pedagogical and ICT competencies, while also addressing challenges such as ICT phobia and infrastructural constraints that hinder effective utilization.

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