Philosophical Inquiry into the Extent of ICT Usage for Professional Development of Secondary School Principals

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Abstract: This study philosophically examined the extent of ICT usage for professional development of principals in secondary school in South East, Nigeria. Specifically, the study examined the extent of ICT facilities usage for professional development of principals and the extent of the challenges of male and female principal's competencies in ICT usage for professional development in secondary schools in South East, Nigeria. Two research questions and a null hypothesis guided the study. The population of the study comprised 819 principals in secondary schools in South East, Nigeria. A questionnaire tagged "Information Communication Technology and Professional Development Questionnaire (ICTPDQ) was used to collect data needed for the study. The instrument solicited information on the extent of ICT facilities usage for professional development and the challenges of male and female principal's competencies in ICT usage for professional development in secondary schools in South East, Nigeria. The result of the findings showed that there is no significant difference (p>0.05) in the mean ratings of male and female principals on the extent of ICT usage for professional development in secondary schools in South-East, Nigeria. Recommendation is also made that principals should be encouraged by the government to attend ICT training by providing the needed funds and facilities for the programme.

Key words: Information, communication, technology, professional development, principals, secondary schools

INTRODUCTION

Technology is the order of the day and every individual and organization strives to improve in their technological know how. Knowledge in English adage is power and information is the instrument that gives power. According to Okonmah (2009), individuals must either formally or informally circulate information from time to time and from one person to another. This could be orally, written, visual, continous or periodic information. The word information is any communication in form of data, facts or opinion which may come through medium such as textual, numerical, graphic, cartographic, narrative or in audio-visual form (UNESCO., 2005). The principal as the chief executive officer of secondary school needs such information for effective administration and communication.

Communication is a very important tool for effective administration in the school. According to Okorji (2014), communication is the transfer of information and feelings from one individual or group to another which must be well encoded and decoded. Ojebode (2006) observed that communication can be interpersonal and this is a process of transmitting information from one individual or group to another through the process of sharing and exchanging ideas, thoughts, feelings and instructions. The principal cannot perform the administrative roles effectively without effective communication between or among staff members, therefore, communication plays effective roles in school setting for effective achievement of educational objectives.

Technology is the scientific acquisition of skills, techniques, methods and processes to achieve set objectives. According to Thiere (2000), technology is the use of all the hardware and software tools employed in the collection, storing, retrieving, manipulating, sending and receiving of information. According to Babajide and Bolaji (2003), Information and Communication Technology (ICT) is diverse technological tools and resources used to create, disseminate, communicate, store and manage information. Ogbonnaya (2010) opined that ICT is simply the use of modern day technology devices mostly

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computers and relevant software packages to store information and use the information when the need arises. According to Moor (1985), philosophy of ICT refers to the influence brought about by this new technology.

Information and Communication Technology (ICT) operates as a network to make organizations more efficiently and effectively managed. ICT is seen by O'Donnell and Henriksen (2002) as a veritable tool in communicative action. ICT contribute to improvements in the provision of basic social services, disseminate valuable information and improve the efficiency of principals, especially, in school administration (Woherem, 2000). ICT plays crucial role in most areas of the society in the sense that with internet connectivity, one can transact business in the globe with no physical contact with the buyer. Mailer observed that ICT include all the gadgets involved in processing information such as internet services, satellite connection, e-mail, interface boxes, sensors, telephones, television, videos, radios, among others. These gadgets can be used to link one organization to another within or outside the country (Hornby, 2004). With the aid of technological development, information and instruction can be generated, transmitted, stored and retrieved at a faster speed, hence, the need for technological facilities. Olorunsola (2007) observed that male principals use ICT facilities than the females and through ICT facilities, effective school administration which results to meeting educational needs can be achievd.

Based on the fact that ICT is important for professional development of the nation and due to population explosions in the secondary schools it has become pertinent that the use of ICT facilities in the process enhance effective administration, supervision and communication. According to Federal Republic of Nigeria FRN (2006), ICT has made administrative responsibilities of the principals to go beyond writing notices or invitations to teachers and other staff and school boards these has been overtaken by online contact through the use of ICT facilities, information are disseminated and staff carryout their responsibilities as soon as possible in secondary schools. Secondary school is an educational institution where skills and knowledge are being acquired after primary school which lasts from 4-6 years (FRN., 2004). Both male and female principals to a little extent use ICT facilities to discharge their administrative duties and these principals need ICT skills and knowledge, so as to adapt to new technological development in the school system. The new development in the use of ICT facilities for school administration proves principals without ICT skills as analog. Aribisala (2006) opined that ICT facilities are constantly playing pertinent roles in various organizations and the ability to provide, access, adopt

and utilize the information facilitate fast dissemination of information. For principals to be ICT compliant, so as to manage the ICT facilities, technological skills and expertise are needed which points at the need for professional development on the use of ICT facilities.

Professional school administrators (principals) carry out job that requires special training and the society expect such an individual to exhibit some skills, attitudes and certain behavioural standards equivalent to the training given to the individual to prepare for ever advancing technology (Onwurah, 2004). In any organization, for growth to take place there must be training. Training has been observed as part of human development. Human development is a process of enlarging people's choice. According to Ojajuni *et al.* (2013), these choices can be infinite and change over time. In any organization, the most essential things are existence of information communication and technology which helps to maintain good interpersonal relationship, acquire knowledge through ICT training and have access to resources needed to carry out their duties. If these essential choices are not available, many other opportunities of achieving administrative effectiveness by the principal in the school remain inaccessible.

Professional development is planned activities that are concerned with increasing and enlarging the capabilities of employees. Professional development are those ICT training given to administrators (principals) who are concerned with tasks that need special skill or development, especially, those ones that need high level of education (Peretomode, 2005). This professional development is geared towards improving upon worker's performance with the ultimate aim of achieving set organizational goals. Thus, professional development of secondary school principals is aimed at enhancing their capabilities, so that, they can effectively handle their administrative responsibilities as chief administrators in secondary schools.

Professional development focuses on providing the analysis necessary to identify the individual interests, values, competencies, activities and assignments needed to develop skills for future jobs (development). According to Jerry and Seteven, professional development includes both individual and organizational activities. Individual activities include career planning, career awareness and utilizing career resource centers. Organizational activities include job posting systems, mentoring systems, career resource center development and maintenance using school principals as career counselors, providing career development workshops and seminars, human resource planning, performance appraisal, career programmes.

Professional development is the lifelong process of managing learning, work, leisure and transitions in order to move toward a personally determined and evolving preferred future. According to CSGD. (2012), professional development services are programmes and services that are intended to help individuals to explore and sort out questions related to employability, direction, skills development, personal development, progression and making a difference. According to Ugwoke *et al.* (2013), principals need to improve their knowledge in administrative skills, attitudes and behaviour on the job. The reason necessitates the need for professional development of principals while on the job which includes pre-service training which rarely prepares principals for future positions and their accompanying responsibilities. Constant changes in educational policies coupled with educational and technological innovations which are nurturing unprecedented innovations in the transmission of information, greatly affects the speed of knowledge, production and transfer which have rendered most principals inadequate in the aspect of quality assurance (Chabra, 2005).

Professional development activities usually focuses on improving the conceptual skills the intellectual abilities needed to handle complex situations and do a better job. Professional development, however is geared towards improving upon principal's quality assurance practices with the ultimate aim of achieving set educational goals. This professional development help principal to accept other staff and show concern for their individual feelings, the development also, helps to maintain effective communication within the school and for the principal to build some skills in managing both the human and material resources in the school (NCSL., 2008).

Professional development exposes principals to positive methods of school administration. This training forms a bridge for a continuous acquisition of knowledge by people entrusted with the tasks of administration. According to Okendu (2009), professionally, this exposure is therefore, indispensable for continuity and effectiveness of system to be developed and sustained. Specifically, professional development is a managerial concept that encourages quality assurance. This implies that the principal is developed to sharpen his creative, imaginative and analytical disposition towards quality assurance.

Professional development of principals involves activities that can stimulate principals to observe school events more carefully, assess their quality assurance thoughtfully and share new insights. According to

Oboegbulem (2007), every organization has a mandate. Every employee has to work in line with the objectives of the organization. An effective organizational head is one who achieves the set objectives of the organization with the limited human resources, material resources and time. This involves the principal's ability to acquire knowledge and skills on how to use available resources to achieve the pre-determined objectives.

Professional development of principals involves retraining principals in areas of new curriculum, subject content and teaching methods. This retraining according to Oboegbulem (2007), increase knowledge and improves skills and competencies of serving principals and teachers. A high quality professional development programmes for principals can involve the principals in new roles as school leaders, peer advisers and teacher-researchers. Principals work with colleagues as peer advisers, providing information and feedback on the implementation of new programmes or instructional strategy. The researcher further stated that, professional development also involves school administrator's review of curriculum plans and reflection on instructional and student assessment practices. In the same vein, the processes of principal professional development programmes can be viewed from a mix of processes such as: self managed growth, professional training plan, collaborative learning, community conversations, principal institutes, portfolio development, institutional professional development, tailored and packaged external programmes.

As already seen what professional development is all about, male and female principals play significant roles in the school as chief administrators of the schools. The most critical role of principals is management of the staff in the school. The principal influences the attitudes, perceptions and functions of the staff in the school. Male and female principal's professional ICT training focuses on the acquisition of technological skills needed to carryout current administrative job. This deal with preparing male and female principals for future positions that will require special skills, knowledge and abilities (Okendu, 2009). Although, professional development involves researches and acquisition of knowledge through ICT workshops, conferences and seminars such provisions are neglected in secondary school administration due to lack of fund to organize such programmes. Adeniyi (1995) observed that principal professional ICT training and development are neglected and is a work activity that can make a very significant contribution to the overall effectiveness and profitability of school administration.

Presently, there has been increased interest of people on how computers and the internet services can be used to improve the efficiency and effectiveness of administration in education. The federal government also intends to equip all schools with communication technological gadgets. This is yet, to be achieved due to the fact that most secondary schools especially those in the rural areas in South East, Nigeria lack basic facilities such as electricity, computers and internet services. Moreover, most of the schools in the urban areas which were supplied with computers, printers, photocopiers, internet services and other ICT facilities lack access to their usage. This is due to the fact that many of those supplied facilities are not functional. Other reasons include lack of confidence on ICT equipment usage, lack of time, lack of skills to manipulate and maintain the equipment, lack of competence with the use of ICT equipment, facilities, materials and difficulty in adapting with the current technological trend. Ajayi (2008) observed that the use of ICT facilities involves skills and expertise in information communication and technology. The researcher further, asserts that large numbers of secondary school principals do not acquire technological training to ease their administrative duties. Principals who possess ICT skills without frequent usage of the facilities lack effective manipulation of the facilities thereby making their administrative duties cumbersome and analog. The poor usage of ICT facilities and challenges of principal's competencies in ICT usage for professional development in secondary schools in South East, Nigeria motivate the researchers to embark on the study.

Research questions: The following research questions were formulated to guide the study:

- To what extent are the usages of ICT facilities for professional development of principals in secondary schools in South East, Nigeria?
- To what extent are the challenges of male and female principal's competencies in ICT usage for professional development in secondary schools in South East, Nigeria?

Hypothesis: A null hypothesis was formulated to guide the study:

- H_{01}: there is no significant difference in the mean ratings ($p<0.05$) of male and female principals on the extent of ICT usage for professional development of principals in secondary schools in South East, Nigeria

MATERIALS AND METHODS

Descriptive survey design was adopted for the study. The study was carried out in South East Nigeria. South East, Nigeria is made up of five states namely: Abia, Anambra, Ebonyi, Enugu and Imo states. The study covered all the principals in public secondary schools in all the states in the South East, Nigeria which are Abia (207), Anambra (254), Ebonyi (221), Enugu (283) and Imo (282). Abia and Ebonyi states have three education zones each while Anambra, Enugu and Imo have six education zones each giving a total of 1,247 principals. The sample size for this was 819 that is, 413 males and 406 females principals in government owned secondary schools in South East, Nigeria. Balloting without replacement was used to draw three states out of the five states that constitute South East states. That is Anambra (254), Enugu (283) and Imo (282). All the principals in the sampled states were used for the study.

The instrument for data collection was researchers developed questionnaire titled: Information Communication Technology and Professional Development Questionnaire (ICTPDQ). The questionnaire was divided into two sections namely, section A contains the biodata of the respondents while section B was divided into two clusters I and II. Cluster I elicited information on the extent of ICT facilities usage for professional development. Cluster II elicited information on the challenges of male and female principals' competencies in ICT usage for professional development in secondary schools in South East, Nigeria. To ensure that the items of the instrument were valid, the copies of the instruments were given to three experts for face and content validity. The two experts from Educational Administration and Planning unit and one expert from Measurement and Evaluation unit, all from the Faculty of Education, University of Nigeria, Nsukka. Their comments, corrections and inputs were effectively used in modification of the final copy of the questionnaire.

To determine the reliability of the instrument, a trial test was conducted using 20 principals in public secondary schools in Kogi State which is outside the area of study. Cronbach alpha method was used to determine the internal consistency of the instruments which yielded reliability indices of 0.76 for cluster A and 0.78 for cluster B, respectively. The overall reliability coefficient value of 0.77 was obtained which indicated that the instrument was highly reliable for the study. The researchers administered the questionnaire with the help of three trained research assistants. The 795 copies of the questionnaires were retrieved that is 395 males and 400 females representing 97% return rate.

A 4 point rating scale of Very Great Extent (VGE) 4 points, Great Extent (GE) 3 points, Little Extent (LE) 2 points and Very Little Extent (VLE) 1 point were used, respectively. All items with a mean rating of 2.50 and above were regarded as Very Great Extent (VGE) and Great Extent (GE) while items with mean ratings below 2.50 were regarding as Little Extent (LE) and Very Little Extent (VLE). Mean and Standard Deviation were used to answer the research questions. The t-test statistics was used to test the null hypothesis at 0.05 level of significance.

RESULTS AND DISCUSSION

Research question 1: To what extent do principals use ICT facilities for professional development in secondary schools in South East, Nigeria?

Table 1 shows that, the mean ratings of male and female principals on items 1-10 are within the mean range of 1.50-2.49 indicating that both male and female principals to a little extent use ICT for professional development. Besides, the overall mean ratings of 2.33 and 2.26 for the male and female principals, respectively, indicate that male principals had higher mean rating than the female principals. However, the overall standard deviation of 0.65 and 0.59 for male and female principals, respectively imply that male principals varied much in their individual ratings than the female principals.

- H_{o1}: there is no significant difference in the mean ratings of male and female principals on the extent of ICT facilities usage for professional development in secondary schools in South East, Nigeria

Table 2 reveals that, the probability associated with the calculated value of t(1.560) for the difference in the mean ratings of male and female principals on the extent of their usage of ICT for professional development in secondary schools is 0.119. Since, the associated probability value of 0.119 is >0.05 level of significance, the null hypothesis was rejected. This implies that there is no significant difference (p>0.05) in the mean ratings of male and female principals on the extent of their usage of ICT for professional development in secondary schools in South East, Nigeria.

Research question 2: What are the challenges of principal's competencies in the ICT usage for professional development in secondary schools?

Table 3 shows that, the mean ratings of the principals to items 11-25 on the challenges of principal's competencies in the ICT usage for professional development in secondary schools are more than the 2.50 criterion mean for decision rule. This means that statement of items 11-25 are the challenges of principal's competencies in the ICT usage for professional development in secondary schools.

Table 1: Mean and standard deviation of the ratings of principals on the extent of ICT facilities usage for professional development

Item statements	Genders	N-values	Mean	SD	Decision
1. Use of desktop computers provided by the government for carrying out administrative duties in school	Male	395	2.49	1.26	LE
	Female	400	2.37	1.25	LE
2. Use of laptops computers for carrying out administrative duties	Male	395	2.45	1.09	LE
	Female	400	2.26	1.06	LE
3. Creating whatsapp groups for dissemination of information	Male	395	1.98	1.08	LE
	Female	400	1.93	1.08	LE
4. Use of internet facility to discharge duties	Male	395	2.21	1.11	LE
	Female	400	2.21	1.10	LE
5. Using modems for internet services for easy communication when the need arises	Male	395	2.03	1.07	LE
	Female	400	2.01	1.04	LE
6. Making use of facebook interconnectivity	Male	395	2.02	1.02	LE
	Female	400	2.24	1.04	LE
7. Making use of internet relay charts while discharging your duty	Male	395	2.16	1.10	LE
	Female	400	2.16	1.09	LE
8. Use of smart phones to disseminate information to staff for immediate response	Male	395	2.44	1.15	LE
	Female	400	2.42	1.16	LE
9. Making use of television message to disseminate information to staff	Male	395	2.25	1.17	LE
	Female	400	2.12	1.04	LE
10. Communicating to the staff through radio services	Male	395	2.31	1.14	LE
	Female	400	2.45	1.07	LE
Overall mean	Male	395	2.33	0.65	LE
	Female	400	2.26	0.59	LE

Table 2: t-test analysis of the difference in the ratings of male and female principals on the extent of ICT facilities usage for professional development in secondary schools

Gender	N	Mean	SD	df	t-cal	Sig. (2-tailed)
Male	395	2.33	0.65	793	1.560	0.119
Female	400	2.26	0.59	-	-	-

Table 3: Mean and standard deviation of the ratings of the principals on the challenges of principal's competencies in the ICT usage for professional development in secondary schools

Item statements	Mean	SD	Decision
11. There is poor provision of computer hardware	3.22	1.04	Agree
12. Majority of the principals cannot use the basic software installed in the computer	3.33	1.03	Agree
13. There is no regular maintenance of ICT facilities for normal administrative functions	2.87	1.09	Agree
14. Inadequate provision of ICT facilities for the school principals to carry out their duties	3.40	1.17	Agree
15. Irregular supply of electricity for ICT facilities usage	3.35	1.05	Agree
16. Internet services are not always available for principals to use the ICT facilities in carrying out their duties	3.17	1.09	Agree
17. Lack of necessary ICT skills by the principals	3.44	1.17	Agree
18. Principals find it difficult to integrate ICT into the administrative process	2.91	1.11	Agree
19. Principals find it difficult to acquire web skills because of lack of internet connectivity	2.98	1.08	Agree
20. High cost of ICT for professional development	3.19	1.17	Agree
21. Principals lack adequate time to concentrate in the acquisition of ICT skills	3.01	1.65	Agree
22. Lack of sponsorship for principals engagement in ICT professional development	3.32	1.23	Agree
23. Lack of funds to procure ICT gadgets	2.99	1.43	Agree
24. Many principals are not ICT literate	2.78	1.12	Agree
25. Non functionality of the ICT gadgets supplied	3.45	1.24	Agree
Overall mean	3.22	0.67	Agree

The findings revealed that both male and female principals to a little extent use ICT facilities for professional development. The findings also showed that male principals had higher mean rating than the female principals. This is in line with Olorunsola (2007) who opined that male principals use ICT facilities than females in the schools. The findings that male principals varied much in their individual ratings than the female principals are also in line with Ojajuni *et al.* (2013) who observed variations in the choice and ratings among the principals as regards to extent of ICT usage for professional development. The findings also revealed that lack of facilities such as electricity, computers and internet services, lack of confidence on ICT equipment usage, lack of skills to manipulate and maintain the equipment are the challenges of principal's competencies in the ICT usage for professional development in secondary schools in South East, Nigeria. The present findings support Ajayi (2008) who opined that lack of basic facilities such as electricity, computers and internet services, lack of confidence on ICT equipment usage, lack of skills to manipulate and maintain the equipment, lack of competence with the use of ICT equipment, facilities, materials and difficulty in adapting with the current technological trend challenge the administrative duties of secondary school principals.

CONCLUSION

The result of the study revealed that secondary school principals to a little extent use ICT facilities for professional development while discharging their administrative responsibilities. However, the findings showed that there is no significant difference in the mean ratings of male and female principals on the extent of their ICT usage for professional development in secondary schools in South East, Nigeria. This implies that both male

and female principals to a little extent use ICT facilities even when the facilities are made available but due to the fact that the principals lack the skills and expertise needed, this serves as a challenge to their competencies on ICT usage while discharging their administrative duties. Epistemologically, the degree of effectiveness of principals in schools today is directly proportional to their knowledge of ICT and their usages. Also, philosophically, principals without ICT skills are analog and needs ICT training, so as to adapt to the new trends in education. Principals should be encouraged by the government to attend ICT training by providing the needed funds and facilities for the programme.

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