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MPACT OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) ON THE MANAGEMENT OF SECONDARY EDUCATION IN ENUGU STATE, NIGERIA

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Abstract
The study examined the impact of information communications technology (ICT) on the management of secondary education in Enugu State, Nigeria. Two research questions and two null hypotheses guided the study. The research questions were answered using mean and grand mean scores, while the hypotheses were tested using t-test statistics at .05 level of significance. Descriptive survey research design was adopted for the study using a 15 item instrument tagged; impact of information and communications technology questionnaire (IICTQ). The instrument was developed by the researcher and was validated by three experts, two in Educational Management and the third in Measurement and Evaluation. All the experts are from the Faculty of Education, ESUT. The reliability coefficientof the instrument was determined using Cronbach Alpha. Alpha values for clusters 1 and 2, yielded .64 and .67 respectively, while the overall reliability coefficient yielded .71, indicating a high reliability of the instrument for the study. The population for the study comprised all 291 principals of all the 291 public secondary schools in Enugu State. 82 of the principals were female, while 209 were male. There was no sampling because the population was small and

manageable. Following data analysis, findings reveal that; ICT has to a little extent impacted on secondary education in Enugu State in the areas of teaching methods and instructional materials utilization. It was equally found that there was no significant difference between the mean scores of both male and female principals on the impact of ICT on the management of secondary education in Enugu State in the areas of teaching methods and utilization of instructional materials. Recommendations include; better funding of secondary education, provision of requisite facilities especially ICT facilities and equipment and continuous training and retraining of teachers especially on ICT.

Keywords: Information Communication Technology, management, education and secondary education

Introduction

For any relationship to succeed and be sustained, certain, elements are indispensable. Such elements include trust, honesty and effective communication. Communication is very vital, because individuals within groups must communicate on daily basis to enhance their day to day activities and the achievement of organizational purposes. Such organizations could be families, corporate entities, churches and town unions. The list is endless.In time past, letter writing, oral messaging through intermediaries and analog telephony were the major means of communication. These ancient means of communication like letter writing could take weeks or even months to accomplish. However the advent of ICT had changed everything. It is important at this point to conceptualize the term, 'ICT'. In the words of Chukwu and Aguba (2010: 1-2):

> *Information Communication Technology has revolutionized and simplified information dissemination, sharing, gathering and usage throughout the world. Researchers, students, housewives, farmers and businessmen could at the touch of a button access valuable information from any part of the world at a breakneck speed*

through the information super highway or the internet. Infact the world has become a global village with ICT. ICT has indeed become the new phenomenon.

The researcher completely agrees with the position of Chukwu and Aguba in explicating the vital place of ICT in today's world. Iwu, Ike and Chimezie (2006) assert that ICT is the acquisition, processing, storage and dissemination of vocal, practical, textual and numeric information by a microelectronic based combination of computing and telecommunication. It is the use of computer to process, store and transmit data. ICT is a medium used to describe exciting and innovation ways of providing lifelong learners with global access to information (Anulobi and Anulobi 2011).

Contributing Uchegbu (2010) opines that ICT mostly refers to computers and the internet. It is a term that refers to more than just computer. Siraj-Blatchford and Whitebread (2003) defines ICT as anything that allows us to get information, to communication with each other or have an effect on the environment using electronic or digital equipments. It could consist of the following hardware and software types, computer, video cameras, internet, telephone, tape recorders, television, projectors, electronic white boards, programmable toys among others Olutunji(2010) maintains that information communication technology is a marriage of two advanced technologies: computing (manipulating information) and communicating. He contends that ICT has to do with the storage, retrieval, manipulation and dissemination of information and all equipment involved. Theseequipmentinclude:

- Technology for broadcasting information-radio, television, camcoder.
- Technology for communicating through voice and sound or images-microphones, digital cameras, loudspeakers, telephones, cellular phones and graphical calculators.

Oloruntegbe in Chukwu (2012:30) list the benefits of ICT in schools to include:

- It exposes teachers to e-learning which is capable of instant updating,

storage/retrieval, distribution and sharing of instruction and other types of information.

- The teacher utilizes the dynamism of ICT to demonstrate some difficult science concepts, principles and theories, thereby giving meaning to classroom instruction and making lesson presentation an exciting and interesting one.

Anulobi and Anulobi (2011: 208) further highlight the benefits of ICT in education to include:

1. It is used as a supplement and alternative to conventional teaching system.
2. It helps to improve and develop the learning abilities of the students
3. ICT helps many people to become educated through distance education.
4. ICT enhances research activities both within and outside the school environment.

It is equally important to note that ICT improves teaching and learning process in various schools. It offers access to education to the remotest regions thereby serving those who do not have the opportunity of face to face learning (Oludotun in Chukwu, 2010; Siddiqui, 2008). ICT makes the achievement of stated objectives in education easier and faster. What then is management?

Management as a concept, has no single universally accepted definition. However what is well known is that management involves;

1. People;
2. Coordination of the efforts of the group, including material resources;
3. Achieving predetermined objectives.

Drucker (2004), submits that management involves administering and coordinating resources effectively and efficiently in an effort to achieve the goals of the organization. Daft in Unachukwu (2014), maintains that management is the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading and controlling organizational resources. Bhagwan and Bhushan as cited by Sule (2016), argues that management is the process of directing and facilitating the work of

people organized in formal groups to achieve a desired goal. Bateman and Snell (2004), assert that management is the process of working with people and resources to accomplish organizational goals.

The foregoing postulations are a clear indication that achieving organizational goals is not possible without effective and efficient management. The elements of management as advanced by Henri Fayol(1841-1925) include:

1. Forecast and plan (prevoyance): Examining the future and drawing up a plan of action. The elements of strategy;
2. To organize: Build up the structure, both material and human of the undertaking
3. To command: Maintain the activity among the personnel
4. To coordinate: Binding together, unifying and harmonizing all activity and effort
5. To control: Seeing that everything occurs in conformity with established rules and expressed command.

Education is the process through which worthwhile values, beliefs, norms and attitudes of a given society are transferred from the older to the younger generation. It remains an indispensable instrument for social change. In the words of Akani (2012), education is an instrument of change which empowers its recipients to be creative and become change agents useful to themselves and the society at large. In highlighting the importance of education, Rousseau avers that:

> We are born weak; we need strength, helpless, we need aid, foolish, we need reason. All that we lack at birth all that we need when we come to man's estate is the gift of education. This education comes to us from the education of men, what we gain by our experience of our surrounding is education (Rousseau in Akani 2012:95).

In similar vein, the federal Republic of Nigeria (2013), maintains that education remains the most potent instrument for national development. In the light of the foregoing, qualitative and

functional education for everyone and especially our future leaders become compelling.

This is education that children receive after primary education as well as before the tertiary stage. The objectives of secondary education as enunciated in the National Policy on Education, FRN (2013:29-30), include, amongst others to;

1. Offer diversified, curriculum to cater for the differences in talents, disposition, opportunities and future roles,
2. Provide trained manpower in the applied science, technology and commerce at sub-professional grades,
3. Provide entrepreneurial, technical and vocational job-specific skills for self-reliance, and for agricultural, industrial, commercial and economic development;
4. Inspire students with a desire for self-improvement and achievement of excellence;
5. Raise morally upright and well-adjusted individuals who think independently and rationally, respect the views and feelings of others and appreciate the dignity of labour.

It has been noted and it is clear that the globalization phenomenon has traversed all sectors of our lives and society, including Enugu state. Enugu state with capital in Enugu is one of the 36 states that make up the Federal Republic of Nigeria. It is located in the South East Zone of the country. The extent to which globalization has impacted on the management of secondary education in the state is uncertain. This is the gap the present study intends to fill.

Statement of the Problem

The ICT, experience has touched peoples' lives around the world in education, health, agriculture, business, and finance. The list continues. In Enugu state, Nigeria, the extent to which ICT has impacted on the management of secondary level of education is uncertain. This is the problem of the present study. This could be put in question form thus; to what extent has ICT impacted on the management of secondary education in Enugu State?

Research Questions

The following research questions guided the study:

1. To what extent has information communication technology impacted on the management of secondary education in Enugu state in the area of teaching methods?
2. To what extent has ICT impacted on the management of secondary education in Enugu state in terms of instructional materials utilization?

Hypotheses

The following null hypotheses tested at .05 level of significance were formulated to guide the study.

1. There is no significance difference between the mean response scores of male and female principals on the impact of ICT on the management of secondary education in terms of teaching methods
2. There is no significant difference between the mean response scores of male and female principals on the impact of ICT on the management of secondary education in Enugu state in terms of instructional materials utilization.

Method

Descriptive survey research design was adopted for the study using a researcher developed instrument, tagged: impact of ICT questionnaire (IICTQ). The instrument was designed with a four point scale of Very Great Extent (VGE) 4points, Great Extent (GE) 3points, Little Extent (LE) 2points and Very Little Extent (VLE) 1point The study was carried out using all 291 principals in all the 291 public secondary schools in Enugu state. There was no sampling because the population was small and manageable. Of the 291 principals, 82 were female, while 209 were male. The use of principals for the study was as a result of their experience and strategic placing in secondary education administration and management. This places them in a vantage position to respond appropriately to issues pertaining to the impact of ICT on the management of secondary education in Enugu state.

The instrument for data collection was validated by three experts from the Faculty of Education, Enugu

State University of Science and Technology (ESUT), Agbani, Enugu State. Two of the experts were from the Department of Educational Management, while the remainder was from the Department of Science and Computer Education (Measurement and Evaluation Unit). The reliability coefficient of the instrument was determined using Cronbach Alpha. Alpha values for clusters one and two yielded .64 and .67 respectively, while the overall value yielded .71, indicating a high reliability of the instrument for the study.

Of the 82 questionnaire distributed among female principals, 75 were well completed and returned, giving a return rate of 91%. Also, of the 209 questionnarie given out to male principals, 193 were well completed and returned, giving a return rate of 92%. Equally of the 291 questionnaire given out to the whole respondents, 268 were returned, giving a retrieval rate of 92%.

For data analysis and decision rule, any item with mean of 2.50 and above was regarded as great extent, while any mean less than 2.50 was regarded little extent. The mean average was obtained by summing up the values of the four point scale and dividing the value by the number of the four point scale thus, $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$

For the hypotheses, when t-calculated was equal to or greater than the t-crtical, the null hypothesis was rejected meaning there was significant difference between the mean scores of the respondents. Conversely, when t-calculated was less than t-critical (t-crit), the hypothesis was not rejected indicating there was no significant difference between the mean scores of both the male and female principals.

AJEMATES

Table 1: Mean scores, grand mean and standard deviation of respondents on the extent to which ICT has impacted on the management of secondary education in terms of teaching methods

S/N	Items	N= 193 Male principals							N = 75 Female Principals						
		VGE 4	GE 3	LE 2	VLE 1	$\bar{X}$	SD	DEC.	VGE 4	GE 3	LE 2	VLE 1	$\bar{X}$	SD	DEC.
	Extent to which ICT has impacted on the following teaching methods in secondary schools in Enugu state														
	Demonstration	16	28	41	108	1.75	0.99	LE	6	11	9	49	1.65	1.01	LE
	Lecture method	10	21	36	126	1.56	0.88	LE	8	10	13	44	1.76	1.05	LE
	Presentation method	33	41	46	73	2.18	1.12	LE	-	13	17	45	1.57	0.77	LE
	Discussion method	29	35	44	85	2.04	1.11	LE	10	14	16	35	1.99	1.10	LE
	Brainstorming	19	28	38	108	1.78	1.03	LE	5	12	14	44	1.71	0.97	LE
	Role play	22	29	46	96	1.88	1.05	LE	9	13	15	38	1.91	1.08	LE
	GrandMean& SD					**1.87**	**1.03**	**LE**					**1.77**	**0.97**	**LE**

Table 1 reveals that there was a grand mean of 1.87 for male principals, as well as 1.77 for female principals. This indicates that ICT has impacted to a little extent on the management of secondary education in Enugu State in the area of teaching methods.

Table 2: Mean scores, grandmean and standard deviation of respondents on the extent to which ICT has impacted on the management of secondary education in terms of instructional materials utilization

S/N	Items	N= 193 Male principals							N = 75 Female Principals						
		VGE 4	GE 3	LE 2	VLE 1	$\bar{X}$	SD	DEC.	VGE 4	GE 3	LE 2	VLE 1	$\bar{X}$	SD	DEC.
	Extent to which ICT has impacted on the following usage of the instructional materials in secondary schools in Enugu State														
	Diagrams	21	29	38	105	1.82	1.05	LE	-	17	24	34	1.77	0.80	LE
	Charts	23	21	36	113	1.76	1.06	LE	7	12	19	37	1.85	1.01	LE
	Tables	17	28	40	108	1.76	1.00	LE	6	16	20	33	1.93	0.99	LE
	Flow charts	20	31	43	99	1.85	1.04	LE	-	11	13	51	1.47	0.74	LE
	Graphs	22	28	37	106	1.82	1.06	LE	-	9	22	44	1.53	0.70	LE
	Worksheet	15	31	40	107	1.76	0.99	LE	11	8	16	40	1.87	1.11	LE
	Audio/video clips	18	26	39	110	1.75	1.01	LE	5	10	8	52	1.57	0.96	LE
	Grand Mean& SD					**1.79**	**1.03**						**1.71**	**0.90**	**LE**

Table 2 indicates that the grand mean for both male and female principals was 1.79 and 1.71 respectively. This shows that to a little extent, ICT has impacted on the management of secondary education in Enugu State in the area of instructional materials utilization.

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Table 3: t-test of significant difference between the mean scores of male and female principals on the impact of ICT on the management of secondary education in terms of teaching methods

Respondents	N	$\overline{X}$	SD	Df	t-cal	t-crit	Decision
Male principal	193	1.87	1.03	266	0.74	1.96	Not Significant
Female principal	75	1.77	0.97				

Table 3 indicate that t-calculated of 0.74 is less than t-crit of 1.96 at .05 level of significance, the hypotheses was therefore not rejected implying no significant difference between the mean scores of both groups of respondents.

Table 4: t-test of significant difference between the mean scores of male and female principals on the impact of ICT on the management of secondary education in the area of instructional materials utilization

Respondents	N	$\overline{X}$	SD	df	t-cal	t-crit	Decision
Male principal	193	1.79	1.03	266	0.67	1.96	Not Significant
Female principal	75	1.71	0.90				

Table 4 reveals that the value of t-calculated at .67 is less than the t-crit of 1.96, at .05 level of significance. The hypotheses was therefore not rejected, implying that there was no significant difference between the mean scores of both groups of respondents.

Findings of the Study

1. Information communication technology has impacted to a little

extent on the management of secondary education in Enugu State in the areas of teaching methods and instructional materials utilization.

2. There is no significant difference between the mean response scores of both male and female principals on the impact of ICT on the management of secondary education in Enugu State in the areas of teaching methods and instructional materials utilization.

Discussion of the Findings

ICT is acquisition, processing storage and dissemination of vocal, textual and numeric informationby a microelectronic based combination of computing and communication. The study found that ICT has impacted to a little extent on the management of secondary education in Enugu State. This is not good at all. Oloruntegbe in Chukwu (2012), Uchegbu (2010) and Olutunji (2010) agreed that ICT has a lot of benefits to education in general and secondary eduction in particular. They listed some of the benefits to include:

1. ICT is used as a supplement and alternative to conventional teaching and learning system.
2. It helps to improve and develop the learning abilities of students.
3. ICT enhances research activities both within and outside the school environment amongst other benefits.

The findings of the present study suggest that the positive impact of ICT is lost to secondary education in Enugu state. This could mean that in this age when ICT that has compressed the world into a global village, secondary education in Enugu State is still operating on analogue. This is in line with Onyekwere, Okoriga and Dike (2017), who lament the poor state of Nigeria's education. This becomes more worrisome in an age of ICT when access to information has been greatly enhanced.

Akani (2012), espouses the indispensable place of education in human growth and development. This education must of course be of the highest quality in order to achieve it purposes. It becomes imperative that secondary education in Enugu state must reap the benefits of ICT to remain competitive.

Conclusion

Education remains the most potent instrument for the transformation of individuals and societies. Secondary education in Enugu state and elsewhere is strategically placed in the achievement of the above mandate. It becomes therefoore compelling that secondary education in Enugu State must be made qualitative and relevant in order to be able to contribute its quota in the enerous task of producing individuals who are ready to contribute towards the development of society.

Recommendations

The following are recommended:

1. Better funding of secondary education in Enugu state by all stakeholders especially the governments (both state and local).
2. Provision of requisite facilities and equipment in the various Secondary Schools especially ICT equipment, so that the students and the school in general could be better placed to benefit from the positive impact of globalization.
3. Continuous training and retraining of teachers especially in the area of ICT, so as to enhance their capacity to utilize the benefits of globalization in the classroom for the benefit of all.

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