Secondary School Teachers' Attitude Towards Information And Communication Technology In Ondo State, Nigeria

[1]BADA, Steve Olusegun, PhD
[2]NUHU, Muslimat Adebanke, PhD

[1]Dept of Psychology, Federal College of Education, Kano
bdolusegun@gmail.com 08068063806
[2]Dept of Social Sciences Education, University of Ilorin, Ilorin
muslimatnuhu@yahoo.co.uk 08033081661

Abstract

This study was carried out to examine secondary school teachers' attitude toward information and communication technology. The study covered twenty selected secondary schools in Ondo South senatorial district of Ondo state. Four hundred teachers were selected from 20 selected secondary schools out of 300 secondary schools in Ondo State using systematic random sampling technique. Five research questions and 5 hypotheses were formulated for the study. A descriptive survey method was adopted for the study. Data were collected and subjected to inferential statistics like frequency and percentage and chi-square. A questionnaire tagged "Teachers' Attitude and Access to Information and Communication Technology" (TAAICT) adopted from Yusuf (2003) which has 20 items and divided into 3 sections was used to collect data. The validity and reliability of the instrument was ascertained, the instrument was valid and reliable. The findings showed that there was significant difference in the overall attitude of secondary schools' teachers towards information and communication technology using teacher age, subject discipline, gender and years of experience and as variables. Based on the above findings, recommendations were made such as, government should encourage the use of modern technology in form of computer services; provide funds to schools through the Ministry of Education, purchase computer machine, and make them available to all public schools as operating in some private schools; government should also employ computer teachers who will not only teach the students but need to be computer literate.

Key Words: *Teachers' Attitude, Information and Communication Technology*

Introduction

Information and communication technology incorporates two main technologies or domains of study namely, computers and telecommunications. It is the technology of gathering, analyzing, manipulating, storing and communicating data. Today, the world data encompasses voice, text, numbers, fax, graphics, pictures, video and multimedia (Woherem, 2000). The word is used to refer to data or sets of data that have been processed and/or manipulated to produce meaningful and useful information (Woherem, 2000). Computer systems are made of two major component for them to carry out their data or information processing functions. The two parts are hardware and software. Computer hardware refers to the physical component of the computer that is, those aspects of the computer that can be physically manipulated. While software refers to the sets instructions that are fed into the main machine that enables the computer to process data/information (Woherem, 2000).

Information technology is the acquisition, processing, storage and discrimination of vocal, pictorial, textual and numerical information micro-electronics – base combination of computing and telecommunications. It involved acquiring, storing, processing and distributing information by electronic means (including radio,

television, telephone and computer) (Russel & Bradley, 1998). It is the convergence of computing and telecommunications technologies. Other part is telecommunication, which radically alters the balance of power between institutions, governments and people by broadly disseminating important information (Woherem, 2000). Whilst people have been communicating from time immemorial with word, their hands, stone tablets and smoke signs telecommunication, it is the technology that is used to bring about the communication of voice and data signals over great geographical distance.

The terms, information and communication technology in teaching learning activities is seen as one used tools to achieve improved teaching and learning outcomes. Learning technologies are referred to as enhance student learning. Therefore, teachers must help students to be relevant and be active participants in modem information and communication technology. Yusuf (1998) emphasized that attitude is important in view of the fact that it is the controller of actual behavior of individual, consciously and unconsciously.

Secondary schools in Nigeria are institutions of learning where education is given after primary school, and today it is divided into junior and senior secondary school. It includes those private institutions offering correspondence subjects. Secondary school could be used to develop innate genius in the youth and enhance their capacity to stand by themselves (Yuen, 2002). Thus, secondary school could be used as investment that could yield rich productive dividends in a very near future, which could have far reaching effects on information and communication technology (Murphy & Greenwood, 1998).

Teachers' attitude refers to the cognition, beliefs and factual knowledge of the human and non-human which eventually positively influence his/her behavior toward the issues or things (Meyer, 2000). Therefore, the uptake of ICT by teachers is very essential in secondary school in the sense that it helps develop their skills to meet the challenges of the future through the use of information and communication technology. The attitude of secondary school teacher toward the use of information and communication technology to attain a high level acquisition of knowledge by student is worthy of being examined critically.

Communication, according to Mayer (2002) is a study of the manner in which individual exchange messages the purpose of such message transactions and factors that will enable a message to achieve its objectives. One word, which runs across the above definition is "message" then message according to a pattern. Communication involves the transmission of information from one person to another. It is only effective when it is interactive and it involves feedback, it is done for the purpose of entertaining, persuading, informing and instructing. It is a process: it is dynamic, on-going ever changing and continuous. It includes all methods of conveying and kind of through, feeling and attitude between person(s). It can be man to machine, animal to animal, machine to machine and animals to machine. In education, communication is the result of planned human and non-human interaction (Richardson, 2000).

In education, Cuban (1999) stated that the method and the process have to be matched to the objectives to effective communication. Any breakdown in communication may lead to conflict, failure, war, misunderstanding and other chaotic situations. Information and communication technology is very important in everybody interaction. Carnoy (2004) in relation to education stated that attitude could be divided three types the belief, the inclination. To act and how it affects an individual's motivation. She then made it as distinctions as follows:

i.   The cognitive attitude, which refers to what, a person believes about education.

ii.   The affective attitude which refers to how the students is incline to act toward   education and

iii.   The behaviours attitude which is referred to as the determination, which affects motivation and substations, one's interest in the task being done in spite of the entire above, attitude is not a concrete term. This is because it can only be inferred from the way a person behaves towards certain objects, situations or ideas soil is easy to determine whether an attitude has been truly formed.

Statement of the Problem

Attitude is a function of many things. However human experiences go a long way in influencing his attitude towards things events or situation. Unfortunately, Nigeria is just emerging as an information and communication technological nation and this has been responsible for the low level of attitude of teachers toward ICT. This is because the concept of ICT is new to them and majorities of them have not had the opportunity of experiencing the concept. With the rate at which societies are developing, there is very likely to be a time when majority of school instruction would be via information and communication technology. Even, currently, the National Open University of Nigeria (NOUN) has been the bulk of its instruction in ICT and with the need to develop themselves through further education, it become necessary that teacher in secondary school should be exposed to ICT this is because students of this level of education in themselves are seriously embracing ICT and it would not be good for teacher who are suppose to teach them to be naïve in the concept. Also examination bodies have embraced ICT with result and registration on the internet.

With the above stated reason, should teachers be ignorant of ICT? The answer to this is no. For it is the teacher that is responsible for teaching and they should be there in illuminating the lives of the youths. It is based on these that a study on secondary schools teachers attitude toward the use of information and communication technology, needs to be carried out.

Purpose of the Study

The main purpose of this study is to investigate into secondary school teacher's attitude towards information and communication technology. Specifically, the study was designed to:
   a)   Find out the attitudes of graduate and NCE teachers to ICT?
   b)   Find out the attitude of teachers to ICT based on age?
   c)   Find out the attitude of teachers to ICT based on subject discipline?
   d)   Find out the attitude of teachers to ICT based on gender?
   e)   Find out the attitude of teachers to ICT based on years of experience?

Research Hypotheses

   1.   There is no significant difference in the attitudes of graduate and NCE teachers to ICT.
   2.   There is no significant difference in the attitude of teachers to ICT based on age groups.
   3.   There is no significant difference in the attitude of teachers to ICT based on subject discipline.
   4.   There is no significant difference in the attitude of teachers to ICT based on gender.
   5.   There is no significant difference in the attitude of teachers to ICT based on years of experience.

Scope of the Study

This study is designed to find out secondary school teachers' attitude towards Information and Communication Technology in Ondo State. The study covered 20 secondary schools and 400 teachers from the total 300 secondary schools using simple random and systematic random techniques. Frequency and simple percentages and chi-square was used to analyse the data collected.

Methodology

Research Design

The research design adopted for this study is the descriptive survey method. Oniye (1999) described the descriptive survey method as the research design that deals with systematic description of an event in a way that is factual and accurate. In a descriptive survey method, the researcher collects information from a representative sample upon which inferences are drawn about the perception of the target population. The descriptive research type of the survey method was employed for the investigation so as to obtain necessary

information from teachers of the sample secondary school. More so, the personal experience and observations as observed during teaching learning situation were also considered.

Population, Sample and Sampling Technique

The target population for this study was all the secondary school teachers within the 300 secondary schools in Ondo State. However, the sample for this study includes four hundred (400) teachers from twenty (20) of the selected schools from Ondo South Senatorial District of Ondo State. To achieve this figure, simple random sampling technique was used to select the sampled schools, the names of all the secondary schools in Ondo South were written on pieces of paper and numbered on tallies and the tallies was placed in a box. After this, an uninformed person was asked to pick twenty of the tallies. To select the sampled teachers, the researcher visited each of the randomly selected schools. Systematic random sampling technique was used to select the sampled teachers. The researcher took permission from the school authority to carry out the distribution of the questionnaires, the instrument was distributed to all selected teachers and were immediately collected for collation and scoring.

Instrumentation

The main instrument that was used in collecting data for this research is a questionnaire tagged "Teachers' Attitude and Access to Information and Communication Technology" (TAAICT). This instrument was adopted from Yusuf (2003) and used by the researcher. The questionnaire was designed into 3 sections, section 'A' was designed to request for demographic data on each of the respondents, these data included, name of school, subject discipline and qualification, age and sex of respondent and years of teaching experiences. These are indices used as the predictive variable for hypothesis that was tested. Section 'B' was developed to know the respondents level of exposure to ICT these covered six operational concept in information and communication technology and respondents were requested to tick the levels. Section C, however was developed to probe into the attitude of teachers towards information and communication technology. This section was designed with a 4 Likert type response scale. The options ranged from Strongly Agree to Strongly Disagree.

Psychometric properties

Validity: Validity means how accurately the test results represent or predict the particular characteristics intended (Abiri, 2006). In order words, a test is said to be valid when it measures what it purports to measures. To establish the validity of the instrument, the questionnaire was given to five experts in the Faculty of Education, University for vetting, after which corrections were made and the instrument was adjudged suitable for usage.

Reliability: According to Stagnor (2004), the reliability of a measuring instrument is the extent to which the instrument is free from random error, thus measuring consistently over time the variable of interest. The reliability of the instrument used for this research study was established using the test-retest method within an interval of four weeks. Pearson Product Moment Correlation co-efficient was used in computing the correlation co-efficient of the instrument. A reliability co-efficient of 0.82 was obtained, hence, the instrument was statistically adjudged to be reliable and considered suitable for research use.

Procedure for Data Collection

The researcher personally administered the questionnaire among the teachers of the sampled schools. The respondents were expected to indicate their responses by ticking strongly agree, agree, disagree, or strongly disagree based on the polar question asked. In analyzing the data, care was taken in identifying the socio-economic factors of respondents as these served as the predictor variable on the criterion variable (teachers'

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attitude towards information and communication technology). This is to measure the reliability of the instrument.

Data Analysis Techniques

The researcher employed both descriptive and inferential statistics for the data analysis. The data obtained were analyzed with the aid of the simple percentage and chi-square statistical tools.

Results

For the purpose of this study a total of four hundred teachers were used as the study samples. These consist of 126 Graduate teachers and 274 NCE holders from four subject disciplines, arts (130), science (86), social science (107), and vocational (77) the break down is presented in table 1.

Table 1: Distribution of Samples by Qualification

Qualification	Frequency	Percentage
Degree	126	31.5
NCE	274	68.5
Total	400	100

From table 1, it would be seen that majority, 274 (68.5%) of the respondents were holders of the Nigeria Certificate of Education.

Table 2: Distribution of Sample by Subject Discipline

Subject	Frequency	Percentage
Arts	130	32.5
Science	86	21.5
Social Science	107	26.7
Vocational	77	19.3
Total	400	100

The above table shows that 130 (32.5%) of the respondents were Arts subject teachers, 86 (21.5%) were Science teachers, 107 (26.7%) were Social Sciences teachers while 77 (19.3%) were teachers of vocational subject.

Table 3: Distribution of Responses ICT

Qualification	Agree	Percentage (%)	Disagree	Percentage (%)
Degree = 126	94	74.6	32	25.4
NCE = 274	86	31.4	188	68.6
Total = 400	180	45.00	220	55.0

Table 3 shows that 74.6% of the Graduate teacher accepted that they have had access to ICT while only 31.4% of the NCE holders had access to ICT on the exposure of teachers to ICT, size, level of exposure was indicated in the instruction. Teachers were requested to tick from the followings:

Table 3 show that 74% of the Graduate teachers accepted that they have had access to ICT, while only 31.4% of the NCE holders had access to ICT on the exposure of teachers to ICT, six levels of exposure were indicated in the instrument. Teachers were requested to tick from the following:

i.   Data processing
ii.   E-mail processing
iii.   Internet browsing
iv.   Graphic software
v.   Spread sheet
vi.   Data base software

Teacher's response are given below in table 4.

Table 4: Level of Exposure

Level	Frequency	Percentage
None	36	9.0
I	250	62.5
II	40	10.0
III	38	9.5
IV	22	5.5
V	12	3.0
VI	2	0.5
Total	400	100

Table 4 show that 62% of the respondents were familiar with the operation of all ICT gadgets. However, it could be seen that out of the total number of respondent 30(9%) had no exposure to ICT at all.

Hypothesis Testing

Hypothesis 1 stated that there is no significant difference in the attitude toward ICT between graduate and NCE holders of secondary schools teachers in Ondo State.

Hypothesis II-V stated that there is no significant difference in the attitude towards ICT by teacher of:

a. Difference by age groups.
b. Difference based subject disciplines.
c. Difference based on genders
d. Difference based on years of experience.

To be able to establish these, data sourced from the questionnaire were analyzed with the aid of chi-square (X^2) and the outcome is presented in table 5.

Table 5: Analysis of Secondary School Teachers' Attitude to ICT

S/N	Variables	Agree	Disagree	Total	df	Cal X^2	Table X^2	Decision
1	**Qualification** Degree NCE Total	94(74.4%) 86(31.4%) 180(45%)	32(25.4%) 188(68.6%) 220(55%)	126 274 400	1	66.89	1.84	Rejected
2.	**Age level** 20 – 24 Yrs 14Yrs Total	114(45%) 66(66%) 180(45%)	186(62%) 34(34%) 220(55%)	300 100 400	1	22.64	3.84	Rejected

3	**Subject Discipline** Arts Science Social science Vocational Total	40(26.92%) 62(72.19%) 45(42%) 25(32.5%) 180(45%)	82(34%) 24(27.9%) 62(67.5%) 52(67.5%) 220(55%)	122 86 107 77 400	3	34.2	7.815	Rejected
4	**Gender** Female Male Total	46(29.9%) 134(54.5%) 180(45%)	108(70.1%) 112(45.5%) 220(55%)	154 246 400	1	22.18	3.82	Rejected
5	**Year of experience** 0 – 10yrs 11-20yrs 21 – 30yrs Total	91(50.6%) 51(28.3%) 38(21.1%) 180(45%)	88(40%) 78(35.5%) 54(24.5%) 220(55%)	179 129 92 400	2	24.13	5.991	Rejected

This table establishes the significant difference between secondary school teachers' attitude to ICT by respondent in respective of qualification, age levels, subject disciplines, gender and years of teaching experience. Moreover, the strength of relationship between the variable and attitude to ICT by the various groups are generally weak as indicated by Pearson's contingency co-efficient, two main hypotheses were formulated for the study, after analysis of all data collected for the study, it was revealed that 94 (74.4%) Graduate teachers showed positive attitude towards ICT while 86 (31.4%) of NCE teachers showed positive attitude towards ICT.

The study also discovered that age difference could significantly influence teacher's attitude towards ICT. This is because it was found that 14 of the 300 (38%) teachers of ages (20-40) years showed positive attitude. While 66% of those of 41 years and above had positive attitude toward the influence of subject discipline it was revealed that 62 (72.1%) of science teachers showed positive attitude towards ICT with (26.9%). However, there is an inverse relationship between years of teaching experience toward ICT by these teachers. This could be seen as those with fewer years fostered higher positive attitude while lower years fostered higher attitude towards ICT, from these findings, it could be seen that most teachers have not been exposed to ICT and there in the need for teachers to be involved in ICT.

Summary of findings

The following are the major summaries of findings
1. There is no significant difference in the attitudes of graduate and NCE teachers to ICT.
2. There is no significant difference in the attitude of teachers to ICT based on age groups.
3. There is no significant difference in the attitude of teachers to ICT based on subject discipline.
4. There is no significant difference in the attitude of teachers to ICT based on gender.
5. There is no significant difference in the attitude of teachers to ICT based on years of experience.

Discussions

The discussion of this study was derived from the findings of the study. Firstly, the study revealed that teachers' qualification has a significant influence on teachers attitude towards information and communication technology, this is because the result revealed that teachers with higher qualifications fosters higher attitude this

could be related to the views of Becta (2002) who recognize exposure and literacy as determinant of attitude toward ICT.

Secondly, the study discovered that age has a significant influence on teacher's attitude toward ICT in the outcome. It was shown that there is an inverse relationship between age and attitude towards ICT. Those whose ages are between 41-60 had higher number (60%) showing positive attitudes, only (38%) of those within ages (20–60) showed positive attitudes towards ICT, the reasons this could be related to experience who (71%) were positively inclined towards ICT. Again, gender was shown to have a significant influence on the attitude of teachers towards ICT. This finding corroborate with those of Bradley and Russell (1997), the report of the European community (2003) and Vitehez (2002). However, of significant is the influence of subject specialization. In this area, science teacher were seen to have shown the highest positive attitude towards information and communication technology. This ought not to surprise anybody as ICT is related to science disciplines and knowledge in science would be beneficial to understanding the concepts in ICT, thus influencing a positive attitude towards the concepts.

With the above, it would be seen that the demographic indices such as qualification, age level, subject specialization, gender and years of experience among the teacher respondents were tested and the outcome was that all these indices could significantly influence attitude towards information and communication technology.

Conclusion

The study therefore generated these conclusions that there is no significant difference in the attitudes of graduate and NCE teachers to ICT; there is no significant difference in the attitude of teachers to ICT based on age groups; there is no significant difference in the attitude of teachers to ICT based on subject discipline; there is no significant difference in the attitude of teachers to ICT based on gender and there is no significant difference in the attitude of teachers to ICT based on years of experience.

Recommendations

In view of the finding of the study, the following recommendations were made:
i.   Government should encourage the use of modern technology in form of computer services providing funds to schools or through the ministry of education purchase computer machine, and make them available to all public schools as operating in some private schools.
ii. Government should also employ computer teachers who will not only teach the students but need to be computer literate
iii. There is the need for a maintenance culture and thorough supervision with these concepts, information and communication technology ought to be given priority among teachers and students.
iv. Parents, old students association and other stake holders in our educational system could also contribute to the application and orientation of information and communication technology services; they can do this by donating ICT hardware and software to schools. This will help in motivating the teachers and encourage the school authority.

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