



## Secondary School Teachers' Attitudes and Beliefs on the Integration of Information and Communication Technology in Teaching

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### ABSTRACT

*This study determined secondary school teachers' attitudes and beliefs on integrating information and communication technology (ICT) in teaching and its implications for the teaching profession in Nigeria. A descriptive survey design was adopted for this study with a population size of 1,098 secondary school teachers using a chosen sample size of 293 teachers across all the public secondary schools by using a stratified random sampling technique. Two research questions and six hypotheses guided the study. A "teachers' attitudes and beliefs towards ICT integration in teaching Questionnaire" was used for the data collection. It was validated by two experts with an established reliability coefficient of 0.830 obtained using a Cronbach Alpha statistic. The data collected was analyzed using a statistical package for social science (SPSS, IBM version 25). The data collected for the research questions was statistically examined using mean and standard deviation while Spearman's correlation coefficient was used to test hypotheses at 0.05 alpha value. The study shows that teachers' attitudes and beliefs were positive on the integration of ICT for teaching in secondary schools. In addition, the findings showed that there was a positive significant relationship between the teachers' attitudes and their qualifications, no significant relationship between teachers' attitudes based on their years of experience, no significant relationship in the teachers' beliefs based on their years of job experience, there was a positive significant relationship between the teachers' beliefs and their qualifications and finally, there was no significant difference between the male and the female teachers' attitude and their beliefs. Based on the findings the study recommended that workshops and seminars should be organized in secondary schools to improve the use of ICT in teaching.*

### ARTICLE INFO

#### Article History

Received: December, 2024

Received in revised form: January, 2025

Accepted: February, 2025

Published online: March, 2025

### KEYWORDS

Attitudes, Beliefs, Information and Communication Technology (ICT), Teacher and Integration

### INTRODUCTION

ICT is a fundamental tool in education especially at the secondary school level of education. It cannot be opposed that ICT have bring changes in education system. According to Chao, 2015 and Oduma & Ile (2014) ICT is an instrument that backs the school processes of learning and bring new solution to the educational problems. As the world is rapidly moving into the

world of information and digital media, the use of ICT is becoming more apparent in all educational fields (Tyner, 2014). Currently, ICT has becomes recognized as an important tool for teaching (Asubiojo & Ajayi, 2017). The application of ICT has strengthens the education quality in many part of the globe (Guma, Faruque & Khushi, 2013). Integration of ICT in education has revolutionized

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the methods of teaching and learning (Mabayoje, Isah, Bajeh & Oyekunle, 2016).

ICT is being integrated into the teaching-learning process in different educational institutions globally. The challenges for ICT integration in the teaching process might ensure that teachers are well prepared to integrate ICT tools for teaching. However, Successful insertion of ICT in the process teaching depends on the preparation of teachers (Singh, & Chan, 2014). According to Umar and Hassan (2015) addition of ICT in the school teaching is crucial to complement and support the presence teachers' professional development training. ICT integration is to ensure that teachers need to be well prepared to integrate ICT in teaching (Onwuabgoko & Ukegbu, 2010; Twining, Raffaghelli, Albion & Knezek, 2013).

For successful addition of ICT in the teaching, teachers need to take the potential of technology to help deliver their lesson in a better way. Therefore, teachers' attitudes as well as teachers' belief about ICT incorporation in the teaching has become critical to better up the quality of education. Teachers' attitude and belief about ICT incorporation have significant influence on teacher's classroom practices and have a significant positive association on the application of ICT (Karaca, Can & Yildirim, 2013).

Attitude is among the variable that is critical to ICT integration in teaching. Attitude can be positive, neutral or negative (Mai & Muruges, 2018). Teachers' attitude toward ICT significantly predicted their confidence for technology integration, teachers who possessed positive attitudes toward computers were more likely to show high confidence for technology and afford useful insight about the incorporation of ICT in teaching (Lee and Lee, 2014; Buabeng, 2012). Khlaif (2018) found that teachers' attitude is a related to their incorporation of ICT in the teaching. Hence, a successful integration of any technology in teaching depends mostly on the Attitude of the teachers (Hernández, Martínez, Peñalvo, García and Rodríguez 2014; Mwila, 2018). Kure, Hassan, and Hussaini, (2020) found that teachers have positive attitude toward ICT and it is an important sign of willingness and

effective ICT integration in teaching. Similarly, Semerci and Aydin, (2018) found that teachers have positive attitude toward ICT. However, they found that teachers' attitudes to ICT application in education is negative. Other studies such as Okorie and Agah (2014) found that teachers possess negative attitude to ICT. Mahajan (2016) found that teachers have negative attitude to ICT. Therefore, teachers' Attitude to ICT application in teaching is among the important factor to consider for successful ICT use in teaching because whatever teacher perceive or think might affect his classroom practices.

Teachers' belief is another variable that is critical to ICT use in teaching. beliefs are the convictions held in the mind of individual it is either positively or negatively assessed (Brown, 2014). Anderson (2015) teachers' beliefs pass through knowledge and experiences and transform into practices. Belief also influences teachers' decision and actions relating to ICT application in the ways they teach their students (Busia, 2019). Teachers hold various beliefs regarding their teaching, there are interaction in the teachers' beliefs and teaching practices which is reflected in their practices (Kordaki, 2013; De Aldama & Pozo, 2016). Bobis, Anderson and Martin (2016) found that teachers hold different beliefs regarding their practices.

Liu, Lin and Zhang (2017) suggest that it is prominence to understand teachers' belief as they are responsible for the use of the technology in the teaching practices. Ertmer, Ottenbreit, Sadik, Sendurur and Sendurur (2012) found that teachers' belief is not a blockade to technology integratio in teaching. Al-Awidi and Alghazo (2012) found teachers' beliefs that technology integration improved their teaching experiences. Prestridge (2012) found that teachers' beliefs the ICT tools enhance their practices. Although numerous researches were carried out on the teachers' attitude and belief toward ICT integration in teaching, to the best of this research knowledge, little study was conducted on secondary school teachers' attitude and belief towards ICT integration. It is in view of this that this presence study proposes to fill in this literature gap.

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## STATEMENT OF THE PROBLEM

Teachers' Attitude and belief towards integration of ICT for teaching are among the important factor to consider for successful integration of ICT in teaching (Singh & Chan, 2014). It is also found that teachers' attitude is related to their application of ICT in the schools' teaching. Hence, a successful integration of any technology in teaching depends mostly on the Attitude of the teachers (Hernández, Martínez, Peñalvo, García and Rodríguez 2014; Mwila, 2018).

For instance, a Studies by Okorie and Agah (2014) found that majority of the school teachers displayed negative attitude of ICT integration. Teachers hold various beliefs regarding their teaching, there are interaction in the teachers' beliefs and their school instructional practices which is reflected in their practices (Kordaki, 2013). And Busia (2019) found that beliefs influence teachers' decision and actions relating to ICT in their teaching. Therefore, this study investigated the teachers' attitude and belief in integration of ICT and many studies looked into the attitude and belief of teachers toward ICT integration (Kaur & Singh, 2018; Busia, 2019; Mwila, 2018; Kim, Kim, Lee, Spector & DeMeester, 2013). However, little study was found that look into attitude and belief of teachers Gombe State secondary school. Therefore, this research proposes to fill this gap.

## Aim and Objectives of the Study

The aim of this study is to determine teachers' attitudes and beliefs towards integration of ICT in teaching by teachers in senior secondary school. Specifically, specifically, the research proposes to attain these objectives as follows:

1. To examine the teachers' attitudes toward ICT integration in teaching in secondary schools.
2. To examine the teachers' beliefs on integration of ICT in teaching in secondary schools.

## Research Questions

The following research questions guided in conducting this study:

1. What are the attitudes of teachers toward integration of ICT in teaching in secondary schools?
2. What are the beliefs of teachers on integration of ICT in teaching in secondary schools?

## Research Hypotheses

The hypotheses formulated was;

1. There is no significant relationship between teachers' attitudes and their qualifications in integration of ICT in teaching in secondary school.
2. There is no significant relationship between teachers' beliefs and their qualifications on integration of ICT in teaching in secondary school.
3. There is no significant relationship in teachers' attitudes with their years of teaching experience in integration of ICT in their teaching in secondary school.
4. There is no significant relationship in teachers' beliefs with their years of teaching experience on ICT integration during teaching in secondary school.
5. There is no significant difference in teachers' attitudes based on their gender toward integration of ICT in teaching in secondary school.
6. There is no significant difference in teachers' beliefs with their gender on integration of ICT for teaching in secondary school.

## RELATED EMPIRICAL WORKS

Study conducted by Daramola (2022) on teachers' attitude to ICT facilities for instruction. Four research objectives, four research questions and three research hypotheses were used to guide the study. The study adopted descriptive research of the survey type. The population of the study comprised all teachers in senior Secondary Schools in the study area. A Census of 317 teachers in three schools was used as the sample size of the study. Further to this, the study adapted the stratified random sampling technique in which the teachers were classified based on gender,



their teaching qualifications, and years of teaching job experience. The instrument used is a researcher-designed questionnaire entitled; Command Secondary School Teachers' Attitude to ICT for Instruction in the study area. The instrument was validated for face and content validity. This was achieved by giving the research instrument to experts to peruse the instrument and three Educational Technology lecturers in the Department of Educational Technology to validate the instrument.

The pilot test was done at different School, outside the study area on twenty teachers to see how the respondent would react to the research instrument to ascertain reliability. The result of the reliability was computed at a 0.05 significance level using Cronbach's Alpha. The result was 0.84 on teachers' attitude to the use of ICT facilities for instruction. The data collected through the use of survey questionnaire were statistically examined using mean and standard deviation. The findings of the study revealed that the teachers had a confident indicating a positive attitude towards the utilization of ICTs for school instruction and there wasn't a significant difference that exists in the attitude of teachers towards the utilization of ICT tools for instruction based on gender, years of their job experience, and presence teaching qualifications. The study is similar to the present study in terms of teachers' attitude towards use of ICT but differs but differs in some variables. However, this study will fill the gap by focusing on investigating the secondary school teachers' attitudes and beliefs towards ICT integration in Gombe metropolis.

Agyei, Darko Agyei and Benning (2022) conducted a study on In-service mathematics teachers' preparedness, knowledge, skills, and self-efficacy beliefs of using technology in lesson delivery. Two research objectives and two research questions were used in the study. The study employed the explanatory sequential mixed-methods design involving questionnaire, lesson observation and interviews. Quantitative data was collected that commenced by the use of a questionnaire. Further to this a qualitative collection followed by using semi-structured interviews and observational guides. A population

of 325 mathematics teachers Kumasi Metropolis in Ghana was used. The study used stratified sampling method to draw a sample of mathematics teachers in the Metropolitan public schools. While on the qualitative part, the mathematics teachers were purposively selected based on their school teaching experience, awareness to integrate technology in lesson and willingness to partake in the study. The sample size of the qualitative study was ascertained when a saturation point was reached during the data collection.

The results showed that mathematics teachers have high technology awareness and self-efficacy belief, but have relatively little readiness and ICT skills in applying technology in their classroom lessons. Furthermore, ICT skills and teacher readiness occurred as the best judges for ICT usage in the teaching of mathematics lesson delivery. This study have one variable similar to the present study which is belief. Present study will fill the gap by focusing on investigating teachers' attitudes and beliefs on ICT integration in the secondary school in metropolitan city of Gombe.

Aderibigbe, Abang and James (2021) study on Teachers' Attitude toward the use of ICT for Secondary School Students with Special Needs in Southwest Nigeria. Two research objectives and two research questions guided the study. The research design of the study was a descriptive survey design. 250 secondary school teachers from selected public special schools for students with special needs were selected by simple random sampling technique from the three states within the southwest zone of Nigeria. Also, the attitude towards technology deployment questionnaire and the teachers' technology competency level questionnaire were the main instruments employed for the data collection in the study.

The content validity of the instrument was carried out by three experts in the field of test and measurement and special education. The test-retest of the instrument revealed a reliability coefficient of 0.82; these has confirmed it reliability. The researchers with the helped of three research assistants effectively administered



instruments. Data collected were analyzed by using percentage statistics done manual. The study indicated that most of the teachers showed a adverse attitude on the use of ICT in the classroom. Moreover, it was found that teachers' propensity not to exploit ICT for classroom was dogged on their proficiency in ICTs. Hence, the study recommends among others that teacher should develop a good attitude on the use of ICT in knowledge impartment and participation in short courses on how to boost their ICT skills and it application on the education of learners with exceptional learning desires. The two similar studies were focused on teachers' attitudes which are one of the variables that relate the two studies but differs in the other variables.

Makhlouf and Bensafi (2021) study on an exploration of factors influencing teachers' attitudes toward the use of information and communication technology (ICT) in Classroom Practice in Algeria. Three research questions and three objectives were used in the study. A sequential mixed method research design was used to combine both quantitative and qualitative research methods in the study. Only Teachers of English as a Foreign Language (EFL) from twenty-three secondary schools with the study area in Algeria sampled and use in the study. A sample of 50 EFL teachers working in Western District of Chief were purposely selected (20 male and 30 female) for the quantitative phase of the study, while for the interview 6 participants were selected on the basis of their character; hence reputational sampling method was used to select only those teachers that zealous interest in ICT for classrooms purpose. Therefore, a questionnaire and semi structured interview were the instrument for collect the data in the study. The instruments were validated.

Descriptive and inferential statistics were the instrument used for analyses in the quantitative phase while a manual content analysis was used to analyze data in the qualitative phase. It was revealed that EFL teachers have positive attitudes on ICT adoption in education. Tin addition, there were statistically substantial positive correlations between EFL

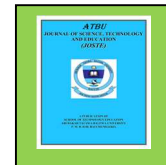
teachers' attitudes on ICT and the five aforesaid independent variables.

The study is similar to the present study in terms of teachers' attitude towards use of ICT but differs in the area of the study, population/sample and other variables. However, this study will fill the gap by focusing on investigating the EFL teachers' attitudes in secondary school and beliefs towards ICT integration in Gombe metropolis.

Alberola-Mulet, Iglesias-Martínez and Lozano-Cabezas (2021) conducted a study on Teachers' Beliefs about the Role of Digital Educational Resources in Educational Practice. Four objectives and four research questions guided the study. An open-ended interview was used in the study. The participants were a total of 31 teachers (23% men and 77% women) in an Early Childhood and Primary School. A non-probabilistic sampling was deliberately used for convenience sake in order to hasting the research process. This is in line inclusion criterion procedures adopted. The sampling was only restricted to service teachers of Early Childhood/Primary Education teachers. A concise average age 40 year maximum was considered ( $SD = 10.99$ ), the smallest was 28 years old teacher, while only a 40 years old participant was involved in the interview. Concerning the period teaching experience, the least was 5 years and the highest was 39, with an average number of 21 years as the teaching experience.

Qualitative data collected using interview were transcribed and coded by the researcher in a team grounded through triangulation method to further ensure the reliability of the results obtained. The interview session was carried out in two phases: the initial phase focused on the sociodemographic data of the participants (gender, age, experience, specialization, educational qualification, subject matter teaching, and teaching load) while in the second phase; it consisted of open- ended interview questions that was directly guided by 4 interview questions set for the study.

It was revealed in the study that secondary school teachers appreciate the integration of technology resources for classroom



purposes, although there was no consensus reached on suitability of the integration of the technology in teaching. Also, the study ascertained that there was a user satisfaction related to secondary school students' motivation as a result of the technology integration. The study is similar to the present study because both the two studies focused on teachers' beliefs but the former was conducted in primary school while the present study conducted on the secondary school teachers. This present study will fill the existing gap by investigating the teachers' attitudes and beliefs on the integration of ICT in teaching in secondary schools in Gombe metropolis.

Descriptive survey research design was adopted for this study. The choice of the design is appropriate for the study because the researcher gather data on the attitude and belief of secondary school teachers towards integration of ICT in teaching in Gombe metropolis. The study was carried out in all the 19 public senior secondary schools located in Gombe metropolis. Gombe state is among the six states of Nigeria located at the North-East on latitude 10.330N and Longitude 9.850E. The state shares borders 14 with Yobe state to the North, Borno and Adamawa states to the East, Bauchi state to the West and Taraba State to the South. There are nineteen (19) public secondary schools in Gombe metropolis as at 2023.

#### Population, Sample and Sampling Procedure

The population of the study was One thousand and Ninety-Eight (1098) teachers drawn from all the 19 public secondary schools located in Gombe metropolis as at march 2023. The data on the population of the teachers was obtained from the Ministry of Education, Gombe State. Multistage proportionate stratified random Sampling technique was used to draw the sample from each school, involved in the study.

#### Instrument for Data Collection

A questionnaire titled Teachers' Attitude and Belief towards ICT Integration Questionnaire (TABTIQ) was used as instrument for data collection. The items used in the questionnaire were adapted from the work of Sánchez, Marcos,

González & GuanLin (2012), Jimoyiannis & Komis (2006) and Busia (2019). The instrument was modified based on the present research objectives.

The questionnaire made up of four sections; Section 6 that were appended as A, B, C and D. Section A was on demographic variables which elicited information from the respondents on their (School, Highest Qualification and Years of Teaching Experience). Section B was adapted from the work of Sánchez, Marcos, González & GuanLin (2012) which sought to answer research question one on teachers' attitudes towards the integration of ICT in teaching in the secondary schools in Gombe metropolis with 15 closed ended items. Section C was adapted from the work of Jimoyiannis & Komis (2006) which also comprised 15 closed ended items that sought answer research question two on teachers' beliefs towards the integration of ICT in teaching in secondary school in Gombe metropolis. Section B was adapted from the work of Ghavifekr & Rosdy (2015) and that of Busia (2019) with 15 closed ended items.

#### Validation and Reliability of Research Instrument

The instrument as subjected to both face and content validation. The Teachers' Attitude and Belief towards ICT Integration Questionnaire together with the research objectives was validated by two experts from different fields; one from Department of Science Education and one from Department of Vocational and Technology Education all in Abubakar Tafawa Balewa University, ATBU Bauchi. The experts examined the relevance of content clarity, and appropriateness of the language used of the items and response patterns as they relate to the study. The criticisms, observations, suggestions, and corrections were used to modify the instruments and produced the final copies that was used for the data collection of this study. The reliability coefficient was obtained as 0.80 using Cronbach alpha for the instrument of the study. This is within the acceptable range of 0.7 recommended by Pallant (2011).

### Data Collection and Analysis

The questionnaires was administered on all the 293 respondents by the researcher within two (2) weeks with the help of research assistants. And recovered 97.6% return. Table 2 above showed that out of the 293 questionnaires administered to the respondents, 286 were retrieved making up 97.6% of the total questionnaire that were administered. 97.6% percent of success achieved in the sampling is good for the study. Mean and standard deviation were used to analyze the data obtained from the research instrument. The result of the analyses were further interpreted based on a criterion mean (X) for real limit numbers on a five point Likert

scale as follows. In addition, a t-test was used for testing the hypothesis at 0.01 level of significance with the help of SPSS to compare the mean.

### RESULTS AND DISCUSSION

Results of this study were reported on the basis of the two research questions and the six hypotheses as earlier presented.

#### Answering of Research Question 1

**Research Question 1:** What is the attitude of teachers' toward ICT integration in teaching in secondary schools?

**Table 1:** Mean and Standard Deviation Response on Teachers' Attitudes toward ICT Integration in Teaching in Secondary Schools

S/N	Item	N	Mean	Std. Deviation
1	Teaching become easier when using ICT	286	4.37	.809
2	I am willing to receive training on ICT	286	4.29	.764
3	I am keen to collaborate ICT school educational programs	286	4.27	.886
4	ICT provides me access to new sources for my teaching subject	286	4.07	.835
5	ICT help me to obtain more resources for my students	286	3.99	1.019
6	The use of ICT increases my motivation as a teacher	286	3.91	.902
7	The teaching is enhanced by the use of ICT	286	3.87	.971
8	The use of ICT is unstoppable	286	3.85	1.101
9	ICT help to improve the academic performance of my students	286	3.84	1.084
10	Using ICT helps me in developing my lesson note	286	3.74	1.110
11	ICT resources are really necessary in my classroom	286	3.73	1.067
12	It is stress-free to control my class while using ICT	286	3.68	1.016
13	Use of ICT in the school is something that overwhelms me	286	3.37	1.269
14	School has clearly articulated the vision/mission of using ICT	286	2.80	1.182
15	As a teacher, the use of ICT is still difficult	286	2.76	1.179
<b>Grand Mean</b>		<b>286</b>	<b>3.77</b>	<b>1.102</b>

Source: Field Survey, 2023

The result from table 1 shows the level of the attitude of the teachers on ICT. The result shows that four (4) items out of all the fifteen (15) items fall within the mean rating of strongly agreed, i.e., ranging from 4.00-5.00; nine (9) items out of all the fifteen (15) items fall within the mean rating of agreed, i.e., ranging from 3.00-3.99. The remaining two (2) items fall under the mean rating of Neutral, i.e., ranging from 2.00-2.99 and the

grand mean of respondents on the competency level of ICT is 3.77, which falls within the mean rating of agreed. In general, this has described Teacher's attitude level toward the use of ICT as agreed as evidenced by the grand mean value of 3.77.

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## Answering of Research Question 2

Research Question 2: What are the teachers' beliefs on integration of ICT in teaching in secondary schools?

**Table 2:** Mean and Standard Deviation Response on their Beliefs on Integration of ICT in Teaching in Secondary Schools

S/N	Item	N	Mean	Std. Deviation
1	I belief that the use of ICT makes teaching easier	286	4.23	.756
2	I belief ICT for teaching makes teachers more confident	286	4.07	.851
3	I use ICT for my teaching because it is interesting	286	4.06	.869
4	Working with ICT for teaching is really make me happy	286	4.03	.870
5	I belief using ICT is making teaching more effective	286	3.99	.984
6	I belief that ICT support in complementing teachers work	286	3.96	.917
7	I belief ICT in teaching enhances the quality of my teaching	286	3.94	.961
8	I belief ICT helps students understand concepts more	286	3.85	1.000
9	I belief that ICT is a valuable tool for my teaching	286	3.71	1.064
10	I feel comfortable using ICT as a tool in teaching.	286	3.68	1.102
11	I belief teachers' lessons presentation require to use ICTs	286	3.61	.948
12	I belief that use of ICT in teaching is needed in every subject	286	3.45	.960
13	I lose track of time when I work with the ICT in teaching	286	3.11	1.243
14	I belief that ICT is not a replacing tool for teaching	286	3.00	1.340
15	I belief the use of ICT for my teaching stress me	286	2.50	1.242
<b>Grand Mean</b>		<b>286</b>	<b>3.68</b>	<b>1.007</b>

Source: Field Survey, 2023

The result from table 2 showed that four (4) items out of all the fifteen (15) items fall within the mean rating of strongly agreed, i.e., ranging from 4.00-5.00; ten (10) items out of all the fifteen (15) items fall within the mean rating of agreed, i.e., ranging from 3.00-3.99. The remaining one (1) items fall under the mean rating of Neutral, i.e., ranging from 2.00-2.99 and the grand mean of respondents on the competency level of ICT is 3.68, which falls within the mean rating of agreed. In general, Teachers describe their belief level toward the use of ICT as agreed as evidenced by the grand mean value of 3.68.

## Testing of Hypotheses

The analysis and presentation of the data collected for the hypotheses are resented as follows:

**Ho1:** There is no significant relationship between teachers' attitudes toward integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications.

The result indicates that there is a positive significant relationship between the teacher's attitudes and their qualifications as  $r = 0.31$  with a corresponding  $p < .001$ . Since the  $p < 0.05$ , the null hypothesis that there is no significant relationship between teachers' attitudes toward integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected.

**Ho2:** There is no significant relationship between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications.

The result indicates that there is a positive significant relationship between the



teacher's beliefs and their qualification as  $r = 0.27$  with a corresponding  $p < .001$ . Since the  $p < 0.05$ , the null hypothesis that there is no significant relationship between teachers' belief on integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected.

**Ho3:** There is no significant relationship between teachers' attitudes toward integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience.

The result indicates that there is a negative insignificant relationship between the teacher's attitudes and their years of experience as  $r = -0.07$  with a corresponding  $p = .242$ . Since the  $p > 0.05$ , the null hypothesis that there is no significant relationship between teachers' attitude towards integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted.

**Ho4:** There is no significant relationship between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience.

The result indicates that there is a negative insignificant relationship between the teachers and their years of experience as  $r = -0.07$  with a corresponding  $p = .268$ . Since the  $p > 0.05$ , the null hypothesis that there is no significant relationship between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted.

**Ho5:** There is no significant difference between teachers' attitudes and their gender toward integration of ICT for teaching in secondary school in Gombe metropolis.

The result shows that  $p > 0.05$  therefore the null hypothesis is accepted. This indicate that was no statistically significant difference between the mean attitude scores of male and female teachers in the study area.

**Ho6:** There is no significant difference between teachers' beliefs and their gender on integration of ICT for teaching in secondary school.

The result shows that  $p > 0.05$  therefore the null hypothesis is accepted. This indicate that there was no statistically significant difference between the Mean belief scores of male and female teachers in the study area.

### Summary of the Findings

1. It was found that secondary school teachers have agreed attitude toward the integration of ICT in teaching.
2. It was established that secondary school teachers have agreed beliefs on the integration of ICT in teaching.
3. The finding indicated that there was positive statistically significant relationship between teachers' attitudes toward integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected as the result showed a positive significant relationship between the teachers' attitudes and their qualifications.
4. The finding showed that there was statistically significant relationship between teachers' belief on integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected as the result showed a positive significant relationship between the teachers' beliefs and their qualifications.
5. The finding disclosed that there was no statistically significant relationship between teachers' attitude towards integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted as the result indicates a negative insignificant relationship between teachers' attitude and years of experience.
6. The finding shown that there is no statistically significant relationship

- between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted as the result indicates a negative insignificant relationship between teachers' beliefs and years of experience.
7. The finding revealed that there is no statistically significant difference between teachers' attitude towards integration of ICT for teaching in secondary school in Gombe metropolis with their gender is rejected as the result point out that there is a negative insignificant relationship between teachers' attitude and their gender.
  8. The finding also unveiled that there is no statistically significant difference between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis with their gender is accepted as the result point out that there is a negative insignificant relationship between teachers' attitude and their gender.

## DISCUSSIONS OF THE FINDINGS

The finding of the research question one shows that teachers have agreed attitude toward the integration of ICT in teaching in Gombe metropolis. The test of the hypothesis five showed that there was no significant difference between the mean attitude scores of male and female teachers. The result was in line with that of Daramola (2022) who carried out study on Command secondary school teachers' attitude towards information and communication technology facilities for instruction and found that secondary school teachers had positive attitude and there is no significant difference in the attitude of command secondary school teachers towards the utilization of ICT tools for instruction based on gender. It also agrees with Agboola (2016) who study on teacher attitudes towards using ICT as an educational tool, found there were significant differences on their attitudes on using ICT as an educational tool based on ages. The result

disagrees with that of Mahajan (2016) found that teachers have negative attitude towards ICT.

The result of the research question two indicated that secondary school teachers have positive beliefs on the integration of ICT in teaching in Gombe metropolis. The test of the hypothesis six showed that there was no significant difference between the mean belief scores of male and female teachers. The result agrees with that of Kaur (2019) who studied on Role of teachers' attitude and beliefs regarding use of ICT in Indian found that teachers have positive beliefs for ICT use as teaching tools and there are no gender differences in the use of ICT by teachers.

The result of a hypothesis one indicated there is a positive significant relationship between the teacher's attitudes and their qualifications, the null hypothesis that there is no significant relationship between teachers' attitudes toward integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected.

The result of a hypothesis two indicates that there is a positive significant relationship between the teacher's beliefs and their qualification, the null hypothesis that there is no significant relationship between teachers' belief on integration of ICT for teaching in secondary school in Gombe metropolis and their qualifications is rejected.

The result of a hypothesis three indicates that there is a negative insignificant relationship between the teacher's attitudes and their years of experience, the null hypothesis that there is no significant relationship between teachers' attitude towards integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted.

The result of a hypothesis four indicates that there is a negative insignificant relationship between the teachers and their years of experience as the null hypothesis that there is no significant relationship between teachers' beliefs on integration of ICT for teaching in secondary school in Gombe metropolis with their years of experience is accepted. The result contradicted to



study conducted by Agboola (2016) on teacher attitudes towards using ICT as an educational tool there were significant differences on their beliefs based on experience level.

## CONCLUSION AND FUTURE SCOPE

The study has succeeded in answering the research questions and the result obtained in the study, it could be concluded that Teachers have a positive attitude towards integration of ICT in teaching in secondary schools in Gombe metropolis, and use of informational and communication technology is still difficult for the teachers. Teachers also have strong beliefs on the use of ICT for teaching in secondary schools in Gombe metropolis, and makes teaching more effective. The study also concludes that there is a positively significant relationship between the teachers' attitudes and their qualifications while there is no significant relationship between teachers' attitudes with their years of experience.

The study also concludes that there is no significant relationship between teachers' belief with their years of experience while there is a positively significant relationship between the teachers' beliefs and their qualifications. And finally conclude that there was no significant difference between the mean attitude scores of male and female teachers, and there was no significant difference between the mean belief scores of male and female teachers. Since the result indicated that teachers have positive attitude towards integration of ICT in teaching, workshops and seminars should be organize in schools to improve the use ICT in teaching also Incentives like Free Tablet or Laptops should be provided for teachers to enable them to be more in using ICT in the teaching.

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