

ASSESSMENT OF TEACHER FACTORS IN THE APPLICATION OF COMPUTER-ASSISTED INSTRUCTION IN PUBLIC SECONDARY SCHOOLS IN ZANGO KATAF LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

YAKUBU Iliya

Educational Administration and Planning
Federal University of Education, Zaria
iliyayakubu033@gmail.com

ABDULKAREEM Shamsudeen

Education Foundations
Federal University of Education, Zaria
mallamshams@yahoo.com

Abstract

The study assessed teacher factors in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. Survey research design was used in the study. The target population of the study was made up of 409 respondents, which consist of 43 principals, 361 Teachers and 5 Ministry of education officials in Zango Kataf Local Government Area, Kaduna State. A sample size of 217 respondents, which comprised 202 teachers, 12 principals, and 3 Ministry of Education officials. The instrument titled “Teacher Factors in the Application of Computer-Assisted Instruction Questionnaire (TFACAIQ)” was used for data collection. The validated instrument was pilot tested and reliability co-efficient was determined using Cronbach Alpha statistic and a reliability coefficient of 0.78 was obtained. The data collected was analysed using descriptive statistics; frequency counts, mean and standard deviation to answer the research questions. Kruskal-Wallis was used to test the two null hypotheses at 0.05 level of significance. Findings of the study revealed that teacher’s gender and Teacher’s attitudes have significant influence on the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. Recommendations were made in the study that, Kaduna State Ministry of Education Science and Technology should encourage both male and female teachers to develop ICT literacy through workshops and training enable them integrate ICT for teaching thus enhancing the students’ academic performance in schools.

Keywords: Teacher Factors, Application of Computer-Assisted Instruction, Public Secondary School

Introduction

There is a growing demand on educational institutions to use computer-assisted instruction (CAI) to teach the skills and knowledge students need for the 21st century. Computer-assisted instruction (CAI) is an example of the use of information and communication technology (ICT)

supported teaching and learning processes. Realizing the impact of computer on the workplace and everyday life, today's educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing teaching and learning environment in order to provide learners with knowledge and information of specific subject areas, to promote meaningful learning and to enhance professional productivity. Therefore, with the emerging new technologies, the teaching profession is evolving from an emphasis on teacher-centred, lecture-based instruction to student-centred, interactive learning environments (UNESCO, in Alasoluyi, 2015).

Importantly, the application of CAI into the educational process offers numerous advantages. In this sense, the application of CAI in classes to complement conventional teaching methods is associated with greater student motivation through the use of more attractive, entertaining, and fun tools (Bullock in Gomez-Fernandez & Mediavilla, 2022; Tüzün et al., 2009). Sequel to say that, CAI enables greater interactivity in learning, with more opportunities for cooperation and an improvement in communication between teachers and students (Schulz-Zander, Büchter & Dalmer, 2012). CAI also stimulates initiative and creativity (Allegra, Chifari & Ottaviano, 2011; Wheeler, Waite & Bromfield, 2012) and facilitates the individualization and flexibilization of education (Abell, 2006). These advantages, among others, can improve students' acquisition of knowledge and have a positive influence on students' academic performance.

Despite all the potential advantages of using CAI for educational purposes in classes, there is still a low usage rate of CAI for educational purposes in Zango Kataf Local Government Area, Kaduna State. Teachers may find it impossible to incorporate CAI into their work without support and encouragement from colleagues, parents, and leaders. To bring this about, these community members may also need professional development, along with the teachers. In this regard, considering that the application of CAI for educational purposes in classes is ultimately decided by the teacher of each subject, it is of great interest to analyse what factors determine whether a teacher is more or less conducive to the use of these tools. Numerous studies consider teachers and their attitudes, training, concepts, or practices to be factors in the application of CAI into the classroom that possess much greater weight than other factors (Akbulut, Kesim & Odabasi (2009).

Regarding teachers, the factors that are associated with the application of CAI include experience, age, gender and academic department (Akbulut, 2007). Application of CAI appears to be greater among male teachers who are relatively young (Scherer, Siddiq & Teo, 2015) and who teach the senior classes, although the effect of these variables is small and only statistically significant in the cases of age (Scherer et al., 2015) and gender (Anderson & Maninger, 2007; Suárez et al., 2012; Van Braak, 2001). Gender is one of the attributes which affects the attitude towards computers. Jamieson-Proctor, Burnett, Finger and Watson (2006) also found that female teachers are less likely to use CAI in classrooms compared to their male counterparts on account of a lower level of confidence.

Computer-assisted instruction is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place (Alasoluyi,

Shaibu & Garba, 2016). CAI learning uses a combination of text, graphics, sound and video in learning process. Computer-assisted instruction (CAI) is the process by which written and visual information is presented in a logical sequence to a learner through a computer (Alasoluyi, 2021). The student learns by reading the text material presented or by observing the graphic information displayed. Some of the programmes provide audio-visual presentation with an option to the student to select audio presentation in addition to the visual media. Each segment of text is followed by questions, for student's response. Feedback on response is indicated immediately (Locatis & Atkinson; Wang & Sleeman in Alasoluyi, 2015).

Computer-assisted instruction (CAI) can be characterized as interactive and individualized learning as it usually involves a dialogue between one student and a computer programme, and a student can learn at his own pace and time frame (Curtis & Howard, 2010). According to Alasoluyi (2015), there may be one student or several in a class, the students can be young or old, bright or below average intelligence, "normal" or physically challenged, highly motivated or "turned off," rich or poor, male or female. The subject can be easy and straightforward or difficult and complex. The teacher may not be physically present, as with televised or computer-assisted instruction (CAI). Therefore, CAI provides rich opportunities for helping students to move beyond being problem-set smart toward problem-solver. The actual use of computer technology in instructional practice is still limited due to obstacles related to teaching staff members and students, technical potentials and available financial resources.

Personal factors of a teacher such as gender, educational experience, training, attitudes and perceptions can influence the adoption of a technology. Jones (2011) asserts that teachers' training and preparedness to integrate CAI into teaching determines the effectiveness of technology. Graduating in a degree of teaching is not that much tough as getting mastery in experience. Experience holds an important place when you are teaching students. Some aspirants acquire high qualifications which can make them qualified for teaching but lacking in experience hamper their progress. With high qualifications, teachers can get a better understanding of the different topics or complex formulas but experience helps teachers to deal with the students and prepare them for how to teach students.

Gender difference and the application of CAI has been reported in several studies. Research studies reveal that male teachers use more CAI in teaching and learning process than their female counterparts (Kay, 2006). Research conducted on teachers' application of CAI in schools in Queensland state from 925 teachers also revealed that female teachers were integrating technology into their teaching less than the male (Watson, 2006). Wozney et al. (2006) agrees with this that male teachers used CAI more than female, citing female teachers' low levels use of CAI due to their limited technology access, skill and interest.

Additionally, Markauskaitie (2006) investigated gender difference on ICT literacy amongst first year graduate trainee teachers. The study revealed significant differences between males and females in technical ICT capabilities, and situational and longitudinal sustainability. Male scores were higher compared to females. Furthermore, Bowser-Brown (2004) argues that female students are more likely to enter programmes with few technology skills due to lack of access. However, in a research conducted by Kay (2006) on teacher's attitudes on ICT, findings

were that male teachers had relatively higher levels of ICT attitude and ability before implementation, but there was no difference between males and females regarding ICT attitude and ability after the implementation of the technology.

Attitude is an organized and consistent way of thinking, feeling and reacting to objects, issues, situations and events. Literature is replete with the concept of attitude conceived from different perspectives and laying emphasis on different aspects (Ifamuyiwa, 2004; Emeke, 1999). According to Day (2004), teacher attitude is a predictor of teachers' work performance, absenteeism, burn out, and turnover, and is found to exert important influence on students' achievement and attitudes toward school. In another study by Falaye and Okwilagwe (2007) on some teacher and locational variables as correlates of attitudes to teaching at the basic education level in Southern Nigeria, these scholars observed that teachers seem to be negatively disposed to instructional practice and that gender and geographical zones had strong influence on the attitudes held by these practising primary school teachers to teaching. This finding seems disturbing as positive attitudes are necessary for effective learning, and teacher attitude tends to influence students' attitude.

Specifically, Lee and Lee (2014) speak of encouraging the self-efficacy beliefs of teachers with respect to technology integration, teacher attitudes towards computers, computer use, lesson-planning skills, knowledge for effective technology integration, and instructional media development skills. The real challenge for educationists is, therefore, how to harness the potential of CAI to complement the role of a teacher in the teaching and learning process. There is an understandable apprehension, even fear, as to the role of a teacher in CAI-equipped classroom. Teachers who lack the chance to develop professionally in the use of modern technologies feel under threat. The relevance of a teacher in the 21st century is determined by their willingness to develop in this way. However, despite the policies directed at incorporating technology into teaching, this paradoxical situation makes the case of Zango Kataf Local Government Area particularly interesting. In an effort to increase understanding of this issue, this study sought to assess teacher factors associated with the application of computer-assisted instruction (CAI) in public secondary schools in ZangoKataf Local Government Area, Kaduna State, Nigeria.

Statement of the Research Problem

There have been concerns raised by the Education stakeholders about the ways in which CAI could be integrated in teaching and learning to enhance the acquisition of knowledge and skills in secondary schools. One general concern is that in Kaduna State, the application of CAI in learning and teaching has been less than was originally anticipated. The reality in the classroom today falls short of the aspirations of those promoting the use of CAI in teaching and learning in schools, especially in public secondary schools in Zango Kataf Local Government Area. Generally, the learning and teaching strategy used in the majority of public secondary schools in Kaduna State tends towards being largely examination-oriented, involving mainly "chalk and talk" methodology.

Teachers feel reluctant to apply CAI in their instructional practices. Fear of failure and lack of CAI knowledge have been cited (Balanskat, Blamire & Kafal, 2007) as some of the reasons for teachers' lack of confidence for adopting and applying CAI into their teaching. Research

conducted by Gil-Flores, Rodríguez-Santero and Torres-Gordill (2017) identified a number of practical and teacher psychological factors that impede application of CAI in the classroom. One of these factors is doubts held by teachers over the value of CAI in promoting learning, clear rationale for the inclusion of CAI skills in teaching, lack of adequate training for teachers in CAI skills and its pedagogy and lack of time for teachers to plan for effective use of CAI in their lessons.

Studies concerning teachers' gender in the application of CAI have cited female teachers' low levels of computer use due to their limited technology access, skill, and interest (Volman & van Eck, 2001). Research also revealed that male teachers used more CAI in their teaching and learning processes than their female counterparts (Kay, 2006; Wozney, Venkatesh & Abrami, 2006). Lack of in-service training is cited as one of the major barriers for applying CAI in the classroom by many teachers (Basargekar & Singhavi, 2017). More so, the attitudes of teachers towards technology greatly influence their adoption and integration of CAI into their teaching. However, lack of confidence and competence and fear often implies CAI takes a back seat to conventional learning mechanisms.

To the best knowledge of the researchers, no previous research has been carried out on teacher factors in the application of CAI in teaching and learning in the public secondary schools within Zango Kataf Local Government Area, Kaduna State. The need for research in this area became apparent to the researcher because of the conventional learning style attributed to public secondary schools in Zango Kataf Local Government Area. The investigation therefore sought to assess teacher factors in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State, Nigeria.

Objectives of the Study

The main objective of this study is to assess teacher factors in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State, Nigeria. Specifically, the study sought to:

- i. Examine teacher's gender in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State; and
- ii. Find out teacher's attitudes in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State.

Research Questions

The following questions guided the study:

- i. To what extent does teacher's gender influence the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State?
- ii. What is the influence of teacher's attitudes on the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State?

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 probability level:

- Ho¹:** There is no significant difference in the response of teachers, principals and ministry of education officials on teacher's gender in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State.
- Ho²:** There is no significant difference in the response of teachers, principals and ministry of education officials on teacher's attitudes in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State.

Methodology

Survey research design was adopted in the study. The population of the study was made up of 409 respondents, which consist of 43 principals, 361 teachers and 5 ministry of education officials in Zango Kataf Local Government, Kaduna State, Nigeria. A sample size of 217 respondents which comprised 202 teachers, 12 principals, and 3 MOE officials. The instrument titled "Teacher Factors in the Application of Computer-Assisted Instruction Questionnaire (TFACAIQ)" was used for data collection in the study. The validated instrument was pilot tested, the reliability co-efficient was determined using Cronbach Alpha statistic and a reliability coefficient of 0.78 was obtained. The data collected in the study was analysed using descriptive statistics; frequency counts, mean and standard deviation to answer the research questions. Kruskal-Wallis was used to test the two null hypotheses at 0.05 level of significance.

Results

Research Question One: To what extent does teacher's gender influence the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State?

The data collected through the administration of questionnaire was analysed using frequency counts, mean and standard deviation. The summary of analysis made on this research question is presented in table 1.

Table 1: Teachers' gender influence in the application of CAI in public secondary schools in ZangoKataf Local Government Area, Kaduna State

Schools in Ekiti State Government Primary, Ondo State									
SN	Item Statements	Respondents	SA	A	U	D	SD	Mean	SD
1.	Male teachers generally display greater skill endowments in the application of CAI than the female teachers.	MOE	-	2	1	-	-	3.666	0.577
		Principals	2	6	2	1	1	4.583	1.164
		Teachers	44	64	17	60	17	3.712	1.322
2.	Female teachers integrate technology to create a learning environment which promotes engagement among students.	MOE	-	1	1	-	1	2.999	1.732
		Principals	3	5	4	-	-	3.083	1.240
		Teachers	12	61	27	24	78	2.529	1.411
3.	Female and male teachers have equal skills to apply CAI for all subjects.	MOE	-	-	1	2	-	2.800	0.000
		Principals	1	1	2	8	-	2.750	0.753
		Teachers	27	21	27	60	67	2.410	1.387
4.	Female teachers are more endowed with technological skills to apply CAI to stimulate new knowledge among students than their male counterparts.	MOE	-	2	1	-	-	2.966	0.577
		Principals	1	4	2	4	1	2.975	1.288
		Teachers	7	81	39	56	19	3.005	1.094
5.	Female teachers are more endowed with technology skills that are responsive to the needs and interests of individual learners than their male counterparts.	MOE	2	-	-	-	1	3.000	2.309
		Principals	6	2	3	1	-	3.083	1.083
		Teachers	15	84	44	34	25	3.148	1.166
6.	Male teachers used CAI more than female teachers due to their limited technology access, skill and interest.	MOE	-	2	1	-	-	3.333	0.577
		Principals	5	4	-	3	-	3.916	1.240
		Teachers	8	56	56	57	25	2.926	1.090
7.	Because of disparities in self-confidence, male teachers tend to use CAI better than the female teachers.	MOE	-	2	-	-	1	3.000	1.732
		Principals	2	5	-	4	1	3.750	1.544
		Teachers	21	75	33	68	5	3.876	1.101
8.	Female teachers are more endowed with pedagogy skills to use CAI for lessons preparation than their male counterparts.	MOE	2	-	-	1	-	3.000	1.732
		Principals	6	4	-	1	1	3.750	1.422
		Teachers	26	41	23	82	30	2.757	1.291
9.	Shortages of soft skills in technology are prevalent with female teachers than their male counterparts.	MOE	-	3	-	-	-	4.000	0.000
		Principals	6	3	3	-	-	4.250	0.866
		Teachers	47	76	30	43	6	3.757	1.260
10.	Female teachers were integrating technology into their teaching less than the male teachers.	MOE	-	2	1	-	-	3.666	0.577
		Principals	6	6	-	-	-	3.500	0.522
		Teachers	9	51	20	69	53	2.752	1.246
Average Mean								3.29	1.11

Table 1 revealed the extent to which teacher's gender influence the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. The table presents the average response mean of 3.29 which is higher than the rating mean of 3.0. By implication, teacher's gender influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. Most of the items stated on this research question recorded a response means higher than the rating mean of 3.0, which indicated agreement on the part of the participants. This is evident with item number 9 on the table which divulged that, shortages of soft skills in technology are prevalent with female teachers than their male counterparts.

Research Question Two: What is the influence of teacher's attitudes on the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State?

The data collected through the administration of questionnaire was analysed using frequency counts, mean and standard deviation. The summary of analysis made on this research question is presented in table 2.

Table 2: Teachers' attitudes in the application of CAI in public secondary schools in ZangoKataf Local Government Area, Kaduna State

Lungu Rural Local Government Area, Kaduna State									
SN	Item Statements	Respondents	SA	A	U	D	SD	Mean	SD
1.	Anxiety, lack of confidence and fear often prevent teachers from CAI application in their instructional practice.	MOE	-	3	-	-	-	4.000	0.000
		Principals	1	8	2	1	-	4.333	0.753
		Teachers	11	65	37	59	30	3.841	1.186
2.	Positive computer attitudes are expected to foster teacher CAI application in the classroom.	MOE	-	1	2	-	-	3.333	0.577
		Principals	1	8	3	-	-	3.833	0.348
		Teachers	11	49	24	46	72	2.410	1.332
3.	The more experience teachers have with computers, the more likely that they will show positive attitudes towards CAI application.	MOE	-	1	2	-	-	3.333	0.577
		Principals	1	7	3	1	-	3.666	0.778
		Teachers	-	94	50	26	32	3.019	1.110
4.	Some teachers are not applying computer because they are afraid not to damage it.	MOE	-	2	1	-	-	3.667	0.577
		Principals	1	7	1	2	1	3.416	1.164
		Teachers	8	79	23	61	31	2.861	1.205
5.	Positive motivation from the school management have a direct positive influence on the innovative use of CAI by the teacher.	MOE	1	2	-	-	-	4.333	0.577
		Principals	1	3	8	-	-	3.416	0.668
		Teachers	1	78	53	34	36	2.871	1.129
6.	The perception that technology changes teachers' role to be more of an instructor than a mediator discourages teachers' utilization of CAI.	MOE	-	2	-	1	-	3.333	1.154
		Principals	3	7	1	-	1	3.916	1.083
		Teachers	66	36	38	61	1	3.480	1.242
7.	Some teachers would rather avoid work that involves the use of CAI because they have negative perception towards technology.	MOE	2	1	-	-	-	3.877	1.732
		Principals	5	4	2	1	-	3.083	0.996
		Teachers	51	50	42	53	6	3.569	1.208
8.	More work/responsibility without additional pay discourage teachers from CAI application.	MOE	-	3	-	-	-	4.000	0.000
		Principals	1	6	3	1	1	3.867	1.083
		Teachers	2	101	46	26	27	3.123	1.092
9.	If teacher's perception towards technology is positive, then CAI integration in teaching process would be enhanced.	MOE	-	3	-	-	-	3.880	0.000
		Principals	1	5	6	-	-	3.583	0.668
		Teachers	8	90	46	34	24	3.118	1.113
10.	Teachers who will not update their skills and knowledge often frustrate the use of CAI in schools.	MOE	2	-	1	-	-	3.750	1.333
		Principals	4	3	2	2	1	3.583	1.378
		Teachers	97	25	21	13	46	3.163	1.434
Average Mean								3.52	0.91

Table 2 revealed the extent to which teacher's attitudes influence the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. The table presents the average response mean of 3.52 which is higher than the rating mean of 3.0. By implication, teacher's attitudes influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. Most of the items stated on this research question recorded a response means higher than the rating mean of 3.0, which indicated agreement on the part of the participants. This is evident with item number 1 on the table which divulged that anxiety, lack of confidence and fear often prevents teachers from CAI application in their instructional practice.

Hypothesis One: There is no significant difference in the response of teachers, principals and ministry of education officials on teacher's gender in the application of computer-assisted instruction (CAI) in public secondary schools in ZangoKataf Local Government Area, Kaduna State.

The response of MOE, principals, and teachers regarding hypothesis one was analysed using Kruskal-Wallis. The summary of the hypothesis tested is presented in table 3:

Table 3: Summary of Kruskal-Wallis Statistics on the Influence of Teacher's Gender in the Application of Computer-Assisted Instruction (CAI) in Public Secondary Schools in ZangoKataf Local Government Area, Kaduna State

Group	N	Mean Rank	df	α	P-value	Decision
MOE	3	20.020				
Principal	12	18.001	2	0.05	.000	Rejected
Teacher	202	24.304				

Table 3 revealed that teacher's gender significantly influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. The table showed the p-value of .000 at 2 degrees of freedom. Since the p-value (.000) is lesser than the alpha level (0.05), the hypothesis which says that there was no significant difference in the response of ministry of education officials, principals, and teachers on teacher's gender in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State was rejected.

Hypothesis Two: There is no significant difference in the response of teachers, principals and ministry of education officials on teacher's attitudes in the application of computer-assisted instruction (CAI) in public secondary schools in ZangoKataf Local Government Area, Kaduna State. The response of MOE, principals, and teachers regarding hypothesis two was analysed using Kruskal-Wallis. The summary of the hypothesis tested is presented in table 4:

Table 4: Summary of Kruskal-Wallis Statistics on the Influence of Teacher's Attitudes in the Application of Computer-Assisted Instruction (CAI) in Public Secondary Schools in Zango Kataf Local Government Area, Kaduna State

Group	N	Mean Rank	df	α	P-value	Decision
MOE	3	20.111				
Principal	12	16.632	2	0.05	.020	Rejected
Teacher	202	21.935				

Table 4 revealed that teacher's attitudes significantly influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. The table showed the p-value of .020 at 2 degrees of freedom. Since the p-value (.020) is lesser than the alpha level (0.05), the hypothesis which says that there was no significant difference in the response of ministry of education officials, principals, and teachers on teacher's attitudes in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State was rejected.

Discussion of Findings

The first finding of the study revealed that, teacher's gender influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. This was evident as shortage of soft skills in technology are prevalent with female teachers than their male counterparts. Therefore, hypothesis one which states that there is no significant difference in the response of ministry of education officials, principals, and teachers on teacher's gender in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State was rejected. This finding is in agreement with the findings of Tenai (2017) which showed that there was a significant correlation between gender and technology literacy only. Regardless, the finding is at variance with the findings of Basargekar and Singhavi (2017) which reflected that female teachers have higher level of perceived proficiency in using ICT in the classroom than their male counterparts.

The second findings of the study revealed that, teacher's attitudes influenced the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State. This was evident in the study that anxiety, lack of confidence and fear often prevent teachers from CAI application in their instructional practice. Therefore, hypothesis two which states that there is no significant difference in the response of ministry of education officials, principals, and teachers on teacher's attitudes in the application of computer-assisted instruction (CAI) in public secondary schools in Zango Kataf Local Government Area, Kaduna State was rejected. This finding is in tandem with the findings of Tenai (2017) which revealed a significant relationship exists between attitude on ICT use and technology literacy. Further, Tenai (2017) revealed that positive attitudes related specifically to ICT as a useful tool for teaching and learning and a strong sense of self-efficacy in using computers in education seem to influence the use of ICT the most. It is also suggested that positive attitudes to ICT generally do not seem to contribute very much to teachers' use of ICT in classrooms. On the other hand, Adetayo (2016) revealed that teachers and full-time NCE teachers were high and positive on commitment to teaching, motivation to work, morale and attitude to teaching. Attitude to teaching, motivation to work and teachers' morale did not significantly influence professional competence. All the factors jointly accounted for 1.4% of the variance in the teachers' professional competence. Additionally, Player-Koro (2012) revealed that general attitudes predict behaviour poorly and that specific attitudes improve predictive accuracy as they are often more relevant and are developed from direct experience. More so, teachers who embrace ICT in their work with students/pupils have positive attitudes about using ICT in education and feel self-efficacious in using ICT.

Conclusion

In view of the findings from this study, it was concluded as follows that:

- Teacher's gender influenced the application of computer-assisted instruction (CAI) in public secondary schools in ZangoKataf Local Government Area, Kaduna State.
- Teacher's attitudes influenced the application of computer-assisted instruction (CAI) in public secondary schools in ZangoKataf Local Government Area, Kaduna State.

Recommendations

Recommendations were made in the study that:

- i. Kaduna State Ministry of Education Science and Technology should encourage both male and female teachers to develop ICT literacy through workshops and training to enable them integrate ICT for teaching thus enhancing the students' academic performance in schools.
- ii. Teachers' training in building technical competencies should also be complemented with training in changing the mind-set and develop a positive attitude for using ICT in the classrooms.

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