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HINDRANCES OF GEOGRAPHY TEACHERS ICT COMPETENCE IN PUBLIC SECONDARY SCHOOLS IN ZARIA METROPOLIS, KADUNA STATE NIGERIA

AMINU, JAMOH FATIMA
DEPARTMENT OF SCIENCE EDUCATION, FACULTY OF EDUCATION KADUNA STATE UNIVERSITY

Abstract

The study investigated the Hindrances of Geography teachers ICT Competence in Public Secondary Schools Zaria Metropolis, Kaduna State. The researcher deployed descriptive survey research using 40 Geography Teachers as study Sample and two questionnaires as research instruments. First Questionnaire: level of ICT competence among Geography Teachers (LOGTIC) with face validity index 72.2 Content validity index 0.74 and reliability coefficient 0.81. Second Questionnaire: Hindrances of Geography Teachers ICT Competence Questionnaire (HGTICQ) face validity index 83.6 content validity index 0.77 and reliability coefficient 0.71. Data collected analyzed using frequency and percentage. The study found out that: the percentage of male geography ICT competence teacher are more than the female and the factors that hider geography teachers both affects the male and female geography teachers ICT competence for teaching geography in public senior secondary schools. The researcher recommended among others: Government should create awareness of the danger of lack ICT knowledge and skills in schools to the entire public. Training and retraining of teachers to be good and update their ICT knowledge and skills, and Government should take the lead in eradicating all forms of factors hindering teachers ICT competence in public secondary schools, by among others providing good electricity power supply, basic infrastructures and good maintenance and management techniques.

Keywords: Hindrance, Geography Teacher, ICT Competence and Secondary Schools.

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Introduction

Information and Communication Technology (ICT) is an effective educational technology tool that substantially changed geography teaching and learning process and promoted new ways of instruction. The use of ICT in education has introduced other modes of education other than the traditional mode (Alemu, 2017).It has promoted among others, manual cartography to computer cartography, Geography Information Science (GIS), Remote Sensing (RS), face to face learning to distance learning, and slow traditional to technology oriented, easier, faster access method of learning. Secondary schools that are incorporating ICT in the teaching and learning process of geography most make sure competent ICT geography teachers are available to utilize the provided ICT facilities appropriately. Competent ICT geography teachers is as important as the ICT facilities itself when it comes to incorporating ICT in the teaching and learning process of geography education and for its provision in public secondary schools, the responsibility rest on the shoulder of the government like any other teaching and learning materials, as conforms with (Oyelekan, 2022)The government is the major financier of education. They build schools, recruit qualified teachers and other workers in the school community, (Akhihiero, 2011) government should ensure adequate provision of schools' facilities for all government schools in every state and local government areas. And ensure its good maintenance and management.

For geography teacher's to be fully ICT competent it is also not without its challenges especially since geography teachers have to update their ICT knowledge from time to time to keep up with new and updated technologies and these may require huge costs. There is also need for regular Training and retraining, electricity, good infrastructures, good network providers and Internet network, among other factors, which is in conformity with studies like: (Saha, 2022) there are major issues and challenges which our educational Institution are facing in the implementation of ICT in education. The issues and challenges are high cost of tools, poor infrastructure, language and culture, (Kennedy, 2023) the lack of ICT infrastructures and equipment, such as computers, institutional internet facility, projectors, etc., lack of support for teachers, inadequate experience in teaching with ICT, and inadequate ICT training, as major challenges hindering ICT incorporation in teachers, (Jegede, 2019) Inadequate funding of ICT programs, inadequate

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ICT infrastructural facilities, shortage of ICT manpower, unstable power supply, high cost of ICT facilities and poor network services, and poor implementation of ICT policies in basic schools lastly (Otse, 2019) limited infrastructures, inadequate ICT facilities, epileptic power supply and school administrators knowledge on the use of ICT are the factors that hinder the effective utilization of ICT facilities in the administration of public secondary schools.

The state government and the school managerial committee are responsible for properly ensuring and improving the competency level of geography teachers for teaching in the 20 public secondary schools in Zaria metropolis offering geography as a subject.

Statement of the Problem

Considering the enormous benefits of ICT in teaching geography in secondary schools, Competent ICT teachers are part of the most important requirement, yet some factors are hindering the process, which affects the smooth incorporation of ICTs in the teaching process of geography. As supported by studies like, (Simin , Thanusha Kunjappan, Logeswary Ramasamy, & Annreetha , 2016) the key issues and challenges found to be significant in using ICT tools by teachers were: limited accessibility and network connection, limited technical support, lack of effective training, limited time and lack of teachers' competence and (Wadzani, Jatau, Bulus , Aliyu , & Maigana , 2016)The major challenges identified were absence of ICT infrastructures, incompetence, and low level of the technical know-how as well as lack of self-confidence. That is why this research work is being conducted to expose some of the inhibiting factors that are hindering Geography teachers ICT Competence in Public Senior Secondary Schools in Zaria Metropolis, Kaduna State

Research Objectives

1. To investigate the level of ICT competence among Geography Teachers in Public Secondary Schools Zaria Metropolis
2. To identify the factors that hinders Geography Teachers' ICT Competence in Public Secondary Schools Zaria Metropolis

Research Questions

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1. To what extent are geography teachers ICT competent Teachers in Public Secondary Schools in Zaria Metropolis?
2. What are the factors that hinder Geography Teacher's Competence in Public Secondary Schools in Zaria Metropolis?

Research Methodology

The researcher deployed descriptive survey research using 40 Geography Teachers as study population and Sample (because the population can be studied, there was no need of sampling) When the research population is small or easily accessible, it may be feasible to collect data from the entire population (Thomas, 2022). That is 33 Male and 7 Female geography teachers.

Two questionnaires as research instruments which were validated by some science and technology education lectures in Bayero University Kano and Kaduna State University, Kaduna and pilot tested in Government Secondary School Tudun Nupawa which was not part of the study population but possess the characteristics needed for the study. First Questionnaire: level of ICT competence among Geography Teachers (LOGTIC) face validity index 72.2, Content validity index 0.74, and reliability coefficient 0.81 Second Questionnaire: Hindrances of Geography Teachers ICT Competence Questionnaire (HGTICQ) face validity index 83.6 content validity index 0.77 and reliability coefficient 0.71

The instruments were self-administered by the researcher and had 39(97.5%) respondents due to loss of one research questionnaire. The collected data analyzed using frequency and percentage.

Results of Data Analysis

Research question 1: To what extent are geography teachers ICT competent Teachers in Public Secondary Schools in Zaria Metropolis?

Table 1: Analyses on male and female geography teachers ICT competence

ICT Competence	Sufficiently Competent				Somewhat Competent				Not Competent				Total			
	Freq		%		Freq		%		Freq		%		Freq		%	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

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Using computer to teach geography	10	0	30.3	0	18	2	54.5	33.3	5	4	15.2	66.6	33	6	100	100
Using computer to keep records of geography students	12	2	36.4	33.3	18	2	54.5	33.3	3	2	9.1	33.3	33	6	100	100
Creating text base document using word processor	06	0	18.2	0	18	2	54.5	33.3	9	4	27.3	66.6	33	6	100	100
Using Power point for making presentation slides	06	0	18.2	0	19	1	57.6	16.7	8	5	24.2	83.3	33	6	100	100
Using search engine such as Chrome & Opera to browse for teaching materials	17	2	51.5	33.3	14	3	42.4	50.0	2	1	6.1	16.7	33	6	100	100

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Using e-mail to communicate with students	12	0	36.4	0	16	3	49	49	5	3	15.2	50.0	33	6	100	100
Installing and using geography software like Arc GIS to teach	4	0	12.1	0	10	1	30.3	16.7	19	5	57.6	83.3	33	6	100	100
Using Scanners to copy document into the computer	06	0	18.2	0	14	0	42.4	0	13	6	39.4	100	33	6	100	100
Using printer to print out document from computer	09	0	27.3	0	17	0	51.5	0	7	6	21.2	100	33	6	100	100
Using projector to support geography	0	0	0	0	15	0	35.5	0	18	6	54.5	100	33	6	100	100

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teaching process																
Using Audio, Videos, CDs, DVDs, to convey geography lessons	04	0	12.2	0	20	4	60.6	66.7	9	2	27.3	33.3	33	6	100	100

Source: Field data 2023

Table 1: the result shows that out of thirty three (33) male respondents half or more are either sufficiently or somewhat competent in using ICTs to do the following ICT tasks: Use search engine such as Chrome & Opera to browse for teaching materials (31), Use computer to keep records of geography students (30), Use computer to teach geography (28) Use e-mail to communicate with students (28), Use printer to print out document from computer (26), Use power point for making presentation slides (25), Creating text base document using word processor (24), Use Audio, Videos, CDs, DVDs, to convey geography lessons (24), Use Scanners to copy document into the computer (20), and less than half can Use projector to support geography teaching process (15), and Install and use geography software like Arc GIS to teach(14). Out of six (6) female respondents half or more are sufficiently or somewhat competent to use ICTs to do the following task: Use computer to keep records of geography students (4), Use Audio, Videos, CDs, DVDs, to convey geography lessons (4), Use search engine such as Chrome & Opera to browse for teaching materials(3), Use e-mail to communicate with students (3), and lees than half can Use computer to teach geography (2), Create text base document using word processor (2), Use Power point for making presentation slides (1), Install and use geography software like Arc GIS to teach (1), Use Scanners to copy document into the computer (0), Use printer to print out document from computer (0), Use projector to support geography teaching process (0).

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Research Question 2: What are the factors that hinder Geography Teacher's Competence in Public Secondary Schools in Zaria Metropolis?

Table 2: Teachers' Responses on the technological factors that hinder geography teachers' ICT competence in senior secondary schools in Zaria Metropolis Kaduna State Nigeria.

	Technological Hindrance	**YES**						**NO**						**Grand Total**	
		Freq		%		Total		Freq		%		Total		Freq	%
						Freq	%					Freq	%		
		M	F	M	F			M	F	M	F				
1	Inadequate Power Supply	27	5	83.3	71.4	32	82.2	06	01	18.2	16.6	07	17.9	39	100
2	Inadequate ICT Facilities	29	5	87.8	71.4	34	87.2	04	01	12.1	16.6	05	12.8	39	100
3	Inadequate Geography Software	33	6	100	100	39	100	00	00	00	00	00	00	39	100
4	Unreliable Network Providers	02	0	6.1	00	2	5.1	31	06	93.9	100	37	94.9	39	100
5	Unaffordable Data Bundle	18	4	54.5	66.7	22	56.4	15	02	45.5	33.3	17	43.6	39	100
6	Poor Internet Connectivity	07	01	21.2	16.7	8	20.5	26	05	78.8	15.2	31	79.5	39	100

Source: Field data 2023

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Table 2 analyses shows the analyses of technological factors that hinders male and female geography teachers ICT competence starting the most to the least are. Male: Inadequate Geography Software 33(100), followed by Inadequate ICT Facilities 29(87.8), Inadequate Power Supply 27 (81.8), Unaffordable Data Bundle 18(54.5), Poor Internet Connectivity 7(21.2), and Unreliable Network Providers (6.1). While female geography teachers are: Inadequate Geography Software 6 (100), followed by Inadequate ICT Facilities 5(83.3), Inadequate Power Supply 5(83.3), Unaffordable Data Bundle 4(66.7), Poor Internet Connectivity 1(16.7), and Unreliable Network Providers 0 (0).

Table 3: Teachers' Responses on the managerial factors that hinder geography teachers' ICT competence in senior secondary schools in Zaria Metropolis Kaduna State Nigeria.

	Managerial Hindrance	Yes						No						Grand Total	
		Freq		%		TOTAL		Freq		%		Total		Freq	%
		M	F	M	F	Freq	%	M	F	M	F	Freq	%		
1	Inadequate Training	33	6	100	100	39	100	00	00	00.0	00.0	00	00.0	39	100
2	Inadequate Practice time	30	5	90.9	83.3	35	89.7	3	1	9.1	16.7	4	10.3	39	100
3	Lack of Access to ICT facilities	27	4	81.8	66.7	31	79.5	6	2	18.2	33.3	8	22.2	39	100
4	Poor ICT Management	30	4	90.9	66.7	34	87.2	3	2	9.1	33.3	5	13.9	39	100
5	Lack of Interest to learn ICT	07	2	21.1	33.3	09	23.1	26	4	78.8	66.7	32	82.1	39	100

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6	Lack of Encouragement	27	1	81.8	16.7	28	74.4	6	5	18.2	83.3	28.2	28.2	39	100
7	Lack of Expertise	22	4	66.7	66.7	26	66.7	11	2	33.3	33.3	17.9	17.9	39	100
8	I don't believe ICT will enhance my confidence in the classroom	4	5	12.1	83.3	9	23.1	29	1	87.9	16.7	74.4	74.4	39	100

Source: Field data 2023

Table 3 analyses shows that the most managerial factor that hinders male and female geography teachers ICT competence starting from most to least. Male geography teachers: Inadequate Training 33 (100), Poor ICT Management 30 (90.9), Inadequate Practice time 30 (90.9), Lack of Encouragement 27 (81.8), Lack of Access to ICT facilities 27 (81.8), Lack of Expertise 22(66.7), Lack of Interest to learn ICT 7 (21.2), I don't believe ICT will enhance my confidence in the classroom 4 (12.1). While the female teachers: Inadequate Training 6(100), Inadequate Practice time 5 (90.9), Poor ICT Management 4 (90.9), Lack of Encouragement 27 (81.8), Lack of Access to ICT facilities 27 (81.8), Lack of Expertise 22(66.7), Lack of Interest to learn ICT 7 (21.2), I don't believe ICT will enhance my confidence in the classroom 4 (12.1). While female

Discussion

This study aimed to discover the hindrance of geography teachers ICT competency in public senior secondary schools Zaria Metropolis. The outcomes from the two-questionnaire investigation conducted have facilitated in responding to the research questions. The analyses revealed more than 50% male geography teachers are either sufficiently ICT competent or somewhat competent of the analyzed geography ICT tasks but for the female geography teachers is vis visa more than

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are not ICT competent of the analyzed geography ICT competent task in the study, which shows that male geography teachers are more ICT competent than the female geography teachers in public secondary schools Zaria Metropolis, there will be high probability of male geography teachers incorporating ICT facilities in their classroom activities than the female geography teachers. Researchers like (Simin , Thanusha Kunjappan, Logeswary Ramasamy, & Annreetha , 2016) revealed that the use of ICT tools by male teachers (M =2.08, SD = .997) in the classroom is higher compared to female teachers (M = 2.04, SD = .992).

Thus the factors that hinder geography ICT competence in public secondary schools Zaria Metropolis both affects the male and female geography teachers which table two shows the analyses of the technological factors where by more than 50% of the geography teachers were affected by: Inadequate Geography Software 39 (100%) which topics like remote sensing and geography information system depends on, Inadequate ICT Facilities 34 (87.2%), Inadequate Power Supply 32 (82.1%), Unaffordable Data Bundle 22 (56.4) most of the ICT facilities need power. Less than 50% of the geography teachers affected by poor network connectivity 8 (20.5%) and unreliable network providers 2 (5.1) while the managerial factors that hinders more than 50% of geography ICT competence as analyzed in table 3 are: Inadequate Training 39 (100) without frequent ICT training teachers can hardly stay up to date since new and updates of ICT facilities happen almost constantly, Poor ICT Management 37 (94.9) management of both competent staff and available ICT facilities in school is necessary for proper adaptation and utilization of available ICT facilities, Lack of Encouragement 37(94.9) competent geography ICT teachers that utilize ICTs accordingly can work harder when encouraged by schools, Inadequate Practice time 35 (89.7) time has to be spared for practice in order to update the ICT skills and knowledge new technology takes time to learn of, know about, practice, implement, evaluate and reflect on. The increasing pressure on all teachers to integrate technology in the classroom against the strain of time makes it very difficult. Yet solutions to ICT problems in education like this exist.

, lack of Access to ICT facilities 30 (76.9) accessibility to available ICT facilities is very important, it is then they can train, practice and incorporate into their teaching activities, Lack of Expertise 8 (20.5) there is need of ICT experts in schools in order to train teachers and student on how to

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effectively utilize available ICT facilities, Lack of Interest to learn ICT 4 (10.1) when there is zeal to learn all the process can be endured, and the last but not the least managerial factor: I don't believe ICT will enhance my confidence in the classroom 3 (7.7) which ranked the lowest, this shows most of the geography teachers are willing to train more and incorporate ICTs in their classroom activities. Studies have shown strong links between a **teacher's skill level, confidence and competence** (Hilkemeijer, 2022). As a result of failing to undertake professional development training for teachers' other issues in ICT in education come forward such as the reluctance to try new ICT tools and teaching approaches. There are some teachers who **don't believe in using technology in the classroom** which comes down to once again attending ICT professional development because this is the only way that beliefs will be changed.

CONCLUSION

This research has greatly contributed to building a modem society by identifying the level of geography teachers ICT competence and factors that hinder geography teachers ICT competence in public secondary schools in Zaria Metropolis. It also empowers the national economy, improving the standard and quality of education of the citizens of a country especially Nigeria and all her environs, particularly Zaria Metropolis, Kaduna State. In conclusion, there more male geography ICT competent teachers than female and the factors hindering ICT competence both the technological and managerial factors affect more than 50% of geography teachers in public secondary schools in Zaria Metropolis.

RECOMMENDATION

1. Government should create awareness through media of the danger of lack ICT knowledge and skills in schools to the entire public.
2. Training and retraining of teachers to be good and update their ICT knowledge and skills
3. Government should take the lead in eradicating all forms of factors hindering teachers ICT competence in public secondary schools, by among others providing good electricity power supply, basic infrastructures and good maintenance and management techniques.

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4. Government should encourage parents, individuals and organizations to assist government or support government in provision of adequate facilities in schools for effective teaching and learning.
5. Encouragement by schools to teachers that are good in incorporation ICT facilities in their classroom activities should be provided.

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