

Teachers' Preference and Use of Educational Technology in Low-Resource Social Studies Classrooms: An Exploratory Study

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In the 21st century, synchronous and asynchronous communications in every sector of human endeavour century is mostly driven and enhanced by varying emerging technologies. This study investigates social studies teachers' preference and use of technology. Two hundred and ninety-five (295) teachers from one State in the Southwest geopolitical zone in Nigeria constituted the sample for the study. The data for this study were collected through the use of Social Studies Teachers' Technology Awareness, Motivation and Preference Questionnaire. Using the descriptive statistics, Pearson Product Moment Correlation Coefficient, Analysis of Variance, and Multiple-regression, the data for the study was analyzed at 0.05 significance. Findings from the study reveal that most social studies teachers use more of visual media than electronic/digital media in the classrooms. Moreover, the study shows that social studies teachers' preference and use of educational technology are influenced by their highest academic qualification while their level of awareness about the value of technology in education is not gender based. All the predictive variables combined significantly to predict teachers' preference and use of technology in education.

Keywords: Social studies; Low resource classrooms; Educational digital media; Technology integration

Introduction

Technology integration into social studies classrooms is a veritable way of making teaching and learning more meaningful and impactful (Berson, Lee & Stuckart, 2001; Helmes, 2011; Zao, 2007). Technology integration enhances the learning environment for learners; supplements teachers' instruction in classrooms; provides administrative tools for teachers and administrators; increases access to education and inclusive education in schools; creates a communication platform; and provides a passport to gaining competitive edge in the global economy (Jhurree, 2005). Despite the promise of technology integration, however, the evidence suggests that social studies teachers are among the least likely to use technology in the classroom (Acikalin, 2010; Zhao, 2007). Yet, "Without teachers who can integrate technology, students' exposure to technology remains limited and inequitable" (Gorder, 2008, p. 65).

In relative terms, substantial advancement has been achieved on technology integration in resource-rich classroom environments of Europe and America. For instance, the rate of Internet connectivity in American elementary schools is almost 100% with student to computer ratio put

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at 5:1 (Zhao, 2007). Similarly, most Western countries have vigorously pursued the one-to-one laptop policy in the last two decades (Larkin & Finger, 2011). The story in low-resource countries is however different; progress in technology integration has been slow and teachers operate in classroom environments which make the deployment of modern technology very difficult (Fong, 2009; Jhurree, 2005). As Underwood, Garg, Tseng, Findlater, Anderson and Pal (2010) observed, “computer use in low-resource learning environments typically consists of a many-to-one scenario, in which multiple children share a single computer” (p. 1). Also, Murray, Wenger, Downes and Terrazas (2011) instructively reported that “low-resource countries face many challenges in providing education” (p. 6). As they further noted, ill-prepared teachers and gross shortage of teaching resources, computers, and other modern technological devices characterise educational systems of low-resource countries.

In view of the problems of technology access and use, Khan, Hassan and Clement (2012) recently concluded that schools in developing countries are far from reaping the benefits of technology integration. This lag has been attributed, among others, to poor infrastructure that supports technology integration, lack of resources for technology procurement, misplacement of priority by political leadership, inadequate knowledge and skills for technology deployment, and teachers’ poor attitude and beliefs about technology integration (Khan, et al, 2012). Consequently, school success is largely measured by learners’ performance in pen-and-paper tests and teachers are under pressure to cover topics of the overly packed curriculum, rather than give attention to technology use to promote learners’ understanding. Research findings suggest that teachers in these climes focus less on interactive teaching-learning activities that enhance learners’ ability to transfer knowledge gained in the classroom to solving out-of-class problems as demanded by social studies education (Capper, 2003; Taiwo, 2009).

In Nigerian schools, like in many other low-resource environments, the mode of instructional delivery in social studies classrooms is yet far from being technology-driven. About 70% of social studies teachers rely on the traditional methods of teaching (Meziobi, 2004 cited in Okobia, 2012; Okobia, 2012). The traditional social studies teachers ‘talk’ and ‘chalk’ while students listen, read and answer questions from the textbooks and regurgitate facts. At best, most of the teachers employ visual media such as textbooks, newspapers, graphs, and chalkboard which do not fully promote learners’ active participation and interaction in the social studies classroom (Adomi & Kpanghan, 2010; Okobia, 2011).

The Federal Government of Nigeria recognises the benefits of integrating modern technology into education; hence the *National Policy on Education* emphasises the use of Information and Communication Technology (ICT) to facilitate learning at all levels of education. In particular, the policy stresses that primary school pupils should be introduced to the basic computer skills (FGN, 2004). The Federal and States’ Ministries of Education in Nigeria have funded training programmes targeted at improving social studies teachers’ technology skills (Obakhume, 2011; Okobia, 2012). However, only a few social studies teachers use educational technology for classroom instruction. Most of the teachers who have access to computers use them for personal and administrative purposes, rather than for instructional or pedagogical activities (Okobia, 2011, 2012). In order to achieve the basic objectives of social studies teaching, researchers and educators have argued that teachers should adopt and integrate appropriate technology to facilitate student-centred pedagogy (Obakhume, 2011; Okobia, 2012; Whitworth & Berson, 2003).

The use of technology has had an immense impact on the educational systems worldwide. However, the extent to which the potential of educational technology is being maximised by

primary school teachers in social studies classrooms has not been sufficiently examined especially in the low-resource countries (Fong, 2009; Khan, Hasan & Clement, 2012). Thus, this study was designed to provide further empirical evidence on technology use for instruction in social studies classrooms and the motives underlying technology integration among primary school teachers in Nigeria. The study explored the gap in the literature by investigating the adoption and infusion of educational technology in the classroom among Nigerian social studies teachers borrowing from the technology acceptance model and self-determination theory.

Literature Review

The review of literature for this study consists of its theoretical framework and the empirical background. The theoretical framework which served as the foundation for the study was drawn from two theories: the self-determination theory (SDT) and the technology acceptance model (TAM). The two theories provided guides for empirical investigation of study variables. The theoretical framework also provides a perspective for making meaningful link between the independent variables of the study and social studies teachers' use of educational technology.

Self-Determination Theory

The self-determination theory (SDT) developed by Deci and Ryan (1985, 2000) is a theory of human motivation which processes the environmental and interpersonal factors that affect motivated behaviour. Such behaviour could be motivated either intrinsically or extrinsically (Hagger & Chatzisarantis, 2012; Sorebo, Halvari, Gulli & Kristiansen, 2009). Intrinsic or self-determined motivation illustrates individual's engagement in behaviours because of inherent personal interest or enjoyment in the behaviour. Similarly, an individual may be self-determined to engage in behaviour for the purpose of accomplishing individual's personal valued outcomes without being under pressure by external contingencies (Brown & Ryan, 2004; Deci & Ryan, 1985; Hagger & Chatzisarantis, 2012). The extrinsic motivation is attached to external sources (Deci & Ryan, 1985; Sorebo, Halvari, Gulli & Kristiansen, 2009). When an individual is intrinsically motivated, behaviours are likely to be persistent, whereas persistence in behaviour would be sustained in controlled behaviour in as much the external sources continue to act (Hagger & Chatzisarantis, 2012).

SDT proposes that the satisfaction of three innate psychological needs - autonomy, competence and relatedness - motivates the adoption of autonomous motivation (Bachman & Stewart, 2011; Sorebo, Halvari, Gulli & Kristiansen, 2009). Autonomy implies an individual's desire to exercise self-initiatives and self-regulate behaviour while competence refers to the desire to have effect on the environment and as well achieve valued outcomes. Relatedness is the desire to feel connected to other people (Bachman & Stewart, 2011; Ryan & Deci, 2000, 2002). The more SDT needs are met, the greater one's self-determination and motivation. This implies that when individuals are intrinsically motivated, external incentives become irrelevant by the satisfaction (Bachman & Stewart, 2011; Ryan & Deci, 2000). By implication, self-determined social studies teachers would be more motivated to adopt and integrate educational technology into the classroom instruction.

Technology Acceptance Model

The technology acceptance model (TAM), which was adapted from the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), was developed by Davis (1986) and Davis, Bagozzi and Warshaw (1989). TAM is a theoretical framework that explains

technology behaviour and other variables related to acceptance of technology. The model posits that an individual's intention to use technology based on self-determination influences the actual use of the technology (Chang, Yan, & Tseng, 2012; Shroff, Deneen & Ng, 2011). TAM also proposes that perceived usefulness and perceived ease of use are key elements that determine a user's attitude towards technology use. Moreover, perceived usefulness (PU), perceived ease of use (PEOU) and attitude (ATT) are three basic attributes of the system that determine a user's behavioural intention (BI) whether to use or not to use the system (Davis, 1989; McKinnon & Igonor, 2008).

Perceived usefulness (PU) refers to the degree to which a person believes that the use of a technology can improve his or her performance. Perceived ease of use (PEOU) is the extent to which an individual believes that using a technological device would be easy (Sanchez & Hueros, 2010). TAM suggests that behavioural intention (BI) is determined by PU and PEOU. Similarly, BI is assumed to control a user's beliefs about the technology and their behavioural intention and the actual use of the system (Ajzen & Fishbein, 2000; Vankatesh, Morris, Davis & Davis, 2003). Technology acceptance model has been widely used to predict a user's and use of technology based on perceived usefulness and perceived ease of use. Available findings show TAM's high level of validity in investigating user's behaviour towards the use of technology (Park, 2009; Shroff, Deneen & Ng, 2011). This model implies that social studies teacher's intention to use technology may be motivated by some intrinsic and/or extrinsic variables.

Empirical Background

The wind of technology shift is blowing rapidly, and the education sector is striving to keep up with the pace (Diem, 2000; Whitworth & Berson, 2003). Developments within this process have created new opportunities for social studies teaching assisted by various emerging interactive technologies (Lei & Zhao, 2007; Rose & Fernlund, 1997). Until the last two decades, the context of education generally, and social studies education in particular, was structured towards drill-and-practice; but the arrival of modern technologies in schools has provided for interactive and engaging instructional process (Rose & Fernlund, 1997). Nevertheless, technology integration among teachers is just gaining roots. For instance, about a third of public school teachers who reported to having had access to computers, Internet and computer labs in their schools in the United States of America were not prepared to use computers for classroom instruction (U.S. Department of Education, 2000). In particular, social studies teachers were found to be lesser users of technology in the classroom as compared to teachers of other disciplines (Becker, 1986; Ehman & Bonk, 2002).

Effective use of technology has the potential of improving students' learning in social studies. Social studies teachers should therefore strive to develop students' technology literacy in order to prepare them for the challenges of citizens of the 21st global society (Friedman, Bolick, Berson, & Porfeli, 2009). The present crop of students is a generation immersed in a digital age because they comfortably depend on technology in their daily lives. If social studies teachers would prepare students for the responsibility of citizenship, the learners must be able to critically explore their world by interacting with emerging technologies (Cogan, Grossman, & Lei, 2000; Hicks, Tlou, Lee, Parry & Doolittle, 2002).

Deim (2000) and Doolittle and Hicks (2003) agree that the use of technology has positive effects on the learning of social studies. The evidence indicates that integrating technology into social studies classrooms promotes active students' inquiry (Whitworth & Berson, 2003), students' active participation and engagement, and involvement in critical thinking (Lei & Zhao,

2007). Technology-based learning facilitates the development of students' problem-solving skills and communication capabilities. Through technology integration, students also have the opportunity to gain access to expansive knowledge as they actively engage in the instructional process. The influence of technology on the education system underscores the relevance and importance of emerging technologies in the teaching and learning of social studies. If teachers are to maximise the potential these technologies, they must be infused into the instructional process (Whitworth & Berson, 2003).

Teachers' willingness to infuse technology into teaching and learning is largely a product of beliefs and attitude which motivate or discourage their actual use (Sorebo, Halvari, Gulli, Kristansen & Wang, 2008). Motivation is the process whereby an individual's goal-directed activity is instigated and sustained (Schunk, Pintrich & Meece, 2004). Teachers are sometimes self-motivated to integrate technology into the education system. On the other hand, they may be discouraged from adopting technology in teaching and learning by factors beyond their control as in the case of low-resource countries (Khan et al, 2012). This is because technology integration into the classroom involves a radical decision and determination to shift from the didactic ways of teaching to an engaging and participatory teaching style. Previous studies have shown that many teachers do not maximise the potential of technology in teaching and learning (Capper, 2003; Park, 2009; Teo, 2009).

Educational researchers have also investigated variables that encourage teachers' technology adoption and integration (Wozney, Venkatesh & Abrami, 2006). Although schools may be equipped with modern technological devices in order to provide 21st century learners with the appropriate skills and knowledge, teachers' positive attitude towards such transformation is very significant. Teachers' attitude to technology use also influences students' use of technology for learning (Albirini, 2006; Gulbahar & Guven, 2008). Readiness and willingness to change the role in the classroom from that of a dispenser of knowledge to becoming a facilitator of instructional activities and a co-constructor of knowledge with students prompt teacher's utilisation of technology in education (Norton, McRobbie & Copper, 2000; Windschitl & Sahl, 2002).

Gulbahar and Guven (2008) investigated the use of ICT among social studies teachers in Turkey. Some of the contributory factors to technology adoption for instruction as identified by the teachers include rewarding technology usage, investment of institutions on in-service programme for instructional technology, development of policies and plans for diffusion of the instructional technology, reducing workload to provide opportunities to teachers for developing instructional materials. Other factors that affect teachers' readiness to integrate technology in classrooms include teacher's access to technology (Norris, Sullivan & Poirot, 2003), quality of pre-service and in-service training as well as follow-up support (Norris, Sullivan, Poirot, & Soloway, 2003), administrators, parents, employers and students (Sugar, Crawley & Fine, 2004). Therefore, it could be assumed that teachers' negative pedagogical philosophy and poor attitude towards technology and its use for instruction may lead to ineffective teaching and underachievement in social studies classes.

Statement of the Problem

Research findings on the positive roles of technology integration in effective teaching and learning of many school subjects are well documented (Wright & Wilson, 2005). However, the literature on technology acceptance and use by social studies teachers in low-resource environments like Nigeria is yet scanty (Berson & Balyta, 2004; Fong, 2009; Jhurree, 2005;

Underwood, et al 2010). Indeed, Shaver (1999) opines that empirical research capable of connecting emerging digital educational technology and social studies is expedient. Therefore, this study was designed to examine the teachers' values and preferences about technology integration and the extent to which teachers adopt and use educational technology to promote the teaching of social studies in Nigerian primary school classes.

Purpose of the Study

The main purpose of this research was to explore teachers' preference and use of technology in primary social studies classrooms. Based on its theoretical background, the research attempted to answer the following questions:

- 1 What is the general pattern of teachers' preference and use of technology in primary social studies classrooms?
- 2 To what extent do academic qualifications influence social studies teachers' preference and use of technology in the classroom?
- 3 Would gender influence teachers' level of awareness about the value of technology in social studies classrooms?
- 4 To what extent does academic qualification influence teachers' level of awareness about the value of technology in social studies classrooms?
- 5 What are the relative and joint contributions of awareness of the value of technology in education, discouraging factors from, and motivators for, the use of technology to the prediction of teachers' preference and use of technology in social studies classrooms?

Methodology

Participants

The population of this study was all primary school teachers in Ogun State, Nigeria. The sample for this study was 295 primary school teachers who were selected through simple random sampling technique from four geographical locations (Ijebu-Ode, Sagamu, Ilaro and Abeokuta) in Ogun State, Nigeria. Among the participants, 221 (74.9%) of them were females, while 73 (25.1%) of them were males. The mean age of all participants involved in this study was 23.76 years ($SD = 7.72$). There were 2 (0.7%) PhD degree holders, 3 (1.0%) Masters' degree holders, 72 (24.4%) first degree holders, 143 (48.5%) National Certificate in Education degree holders and 75 (25.4%) Teacher Grade II certificate holders involved in this study. All participants involved in this study taught social studies as a school subject, but the teachers' specific areas of subject specialisation included social studies, agricultural science, mathematics, economics, business studies, fine-arts, religious studies, health education, languages and elementary science.

Instrument

The data analysed for this study were gathered through an instrument developed by the researchers. We developed the instrument named Social Studies Teachers' Technology Awareness, Motivation and Preference Questionnaire (SSTAMPQ) after a review of literature on social studies teachers and the use of technology in education (Afshari, Bakar, Luan, Samah, & Fooi, 2009; Bingimlas, 2009; Baytak, Tarman, & Ayas, 2011). The instrument had four sections. The first section contained six items that elicited demographic information of the participants. The second section contained 24 different educational technology items. Participants expressed their preference and use of each technology by indicating how frequently they use each of the technologies listed.

The third section of the survey contained five multiple choice questions which assessed participants' level of awareness and knowledge about the value of educational technology in education. The fourth section of the questionnaire contained twenty items. Ten of the items were generated to determine how some motivating factors encouraged participants' use of educational technology in social studies classroom. The other ten items of the section related to some factors which discourage teachers' use of technology in the classroom. Besides the items which elicited the demographic information of the participants, each item in the other sections were rated based on a three-point Likert- scale ranging from 3 = frequently, 2 = sometimes and 1 = never. The Cronbach's alpha reliability of the instrument was 0.78.

Procedure

The researchers involved five research assistants in the data collection process. At the initial stage of the research, the principal researchers briefed the research assistants on the purpose of the study, and how to administer the questionnaires effectively. A research assistant monitored the administration of the instruments in four of the five geographical locations involved in this study. Two research assistants administered copies of the questionnaire at Abeokuta (in view of its size and being the state capital of Ogun State). In each school, after receiving due permission from the head of the school, each research assistant briefly introduced the study to the participants. Moreover, prior to distributing and completing the questionnaire, all participants were informed of their rights not to participate in the study. The teachers involved in the study were also assured that any information gathered from them would be treated with utmost confidentiality by the research team. In all locations, the research assistants administered copies of the questionnaire onsite to participants in their various schools.

Results

The results from the analysis of the data gathered for this study are presented below in relation to the research questions for this study.

Research Question 1: What is the pattern of primary school teachers' preference and use of technology in social studies classrooms?

In order to provide an answer to the first research question, Table 1 displays the frequency and percentage of social studies teachers' use of some of the educational technology resources for teaching and learning process.

Table 1
Teachers' Preference and Use of Technology in Social Studies Classrooms

Item	Never		Sometimes		Frequently	
	freq	%	freq	%	freq	%
1. Television	131	44.4	121	41.0	43	14.6
2. Videocassette player	95	32.2	155	52.5	45	15.3
3. Computers	150	51.0	122	41.5	22	7.5
4. Textbooks	14	4.8	93	31.5	188	63.7
5. Multimedia projector	253	85.76	37	12.54	5	1.7
6. Charts	13	4.4	127	43.1	155	52.5
7. Internet	268	90.85	26	8.81	1	0.34
8. Magazines/Newspapers	17	5.8	125	42.5	152	51.7
9. Pictures	5	1.7	162	55.1	127	43.2
10. Video Games	90	30.5	147	49.8	58	19.7
11. Radio	118	40.0	142	48.1	35	11.9
12. VCD/DVD	210	71.19	83	28.1	2	0.71
13. Bulletin board	107	36.3	145	49.2	43	14.6
14. Chalkboard	9	3.1	44	14.92	242	54.08
15. Interactive video	265	89.83	22	7.46	8	2.71
16. Digital Cameras	83	28.1	139	47.1	73	24.7
17. Slides	282	95.59	13	4.41	-	-
18. Concrete Manipulative models (photographs, puppets, etc.)	31	10.5	141	47.8	123	41.7
19. Calculators	136	46.1	129	43.7	30	10.2
20. Overhead projector	289	97.97	6	2.03	-	-
21. MP3 / iPod	275	93.22	19	6.44	1	0.34
22. Mobile phones	122	41.6	145	49.5	26	8.9
23. Real objects within environment	14	4.8	106	36.2	173	59.0
24. Public address system	106	36.1	151	51.4	37	12.6

Table 1 presents a profile of social studies teachers' preference and use of technology in social studies classrooms. The results indicate that textbooks, charts, magazines/newspapers and chalkboard were the most frequently used technology among social studies teachers in Nigerian primary schools. Moreover, video cassette players, pictures, video games, radio, bulletin board, digital camera, concrete manipulative models, mobile phones and public address system were indicated to be fairly used by social studies teachers for instructional purposes. Meanwhile, the social studies teachers claimed never to have integrated television, computers, multimedia projector, Internet, VCD/DVD, interactive video, slides, overhead projector, and MP3/iPod into the classroom instructional process. The results suggest that Nigerian primary school teachers integrated visual media more than they adopted electronic and digital technology into the classroom to enhance the teaching of social studies.

Research Question 2: *To what extent does academic qualification influence social studies teachers' preference and use of technology in the classroom?*

The descriptive of the distribution of the total number of social studies teachers, as well as the mean and standard deviation of the distribution based on teachers' academic qualification is presented in Table 2:

Table 2

Descriptive Statistics of Teachers by Academic Qualification

	N	Mean	SD
TC II	75	68.14	10.19
NCE	143	71.52	10.37
Bachelor Degree	72	78.08	9.57
Masters Degree	3	78.00	6.25
PhD	2	80.00	12.73
Total	295	72.38	10.70

Table 2 presents the mean and standard deviation statistics of the social studies teachers' based on their academic qualifications. With respect to social studies teachers' academic qualification mean score, the results revealed that the PhD holders had the highest mean, followed by the Bachelor degree graduates. The academic qualification mean score for the masters' degree holders was lower than that of the Bachelor degree holders, but higher when compared with those of the NCE and TC II certificates holders. Meanwhile the TC II certificate holders had the lowest mean.

To find out how academic qualification significantly influenced social studies teachers' preference and use of technology in classrooms, Analysis of Variance (ANOVA) analysis was performed, and the results are presented in Table 3.

Table 3

Analysis of Variance Statistics of Social Studies Teachers' Preference and Use of Technology based on Academic Qualifications

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3846.654	3	961.663	9.386	.000
Within Groups	28892.454	291	102.456		
Total	32739.108	294			

The analysis of variance in Table 3 presents social studies teachers' preference and use of technology in teaching and learning based on their academic qualifications. The results indicates a statistically significant difference in social studies teachers' preference and use of educational technology in teaching and learning ($F(3,291) = 9.386, p < .05$). The results thus suggest that social studies teachers' preference and use of technology in the classrooms is dependent upon on their highest academic qualification. In order to determine further patterns of differences in social studies teachers' preference and use of technology in education according to the varying academic qualifications, Turkey HSD pairwise comparison was performed. The results of the comparison are as presented in Table 4.

Table 4

Pairwise Comparisons of the Differences in Teachers' Preference and Use of Technology in Education.

(I) Qualification	(J) Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
TC II	NCE	-3.38	1.47	.146	-7.40	.65
	Bachelor Degree	-9.93*	1.71	.000	-14.62	-5.25
	Masters Degree	-9.86	5.97	.465	-26.24	6.51
	PhD	-11.86	7.26	.477	-31.78	8.06
NCE	TC II	3.38	1.47	.146	-.65	7.40
	Bachelor Degree	-6.56*	1.49	.000	-10.64	-2.47
	Masters Degree	-6.48	5.91	.808	-22.70	9.73
	PhD	-8.48	7.21	.765	-28.27	11.31
Bachelor Degree	TC II	9.93*	1.71	.000	5.25	14.62
	NCE	6.56*	1.49	.000	2.47	10.64
	Masters Degree	.07	5.97	1.000	-16.32	16.46
	PhD	-1.93	7.26	.999	-21.86	18.01
Masters Degree	TC II	9.86	5.97	.465	-6.51	26.24
	NCE	6.48	5.91	.808	-9.73	22.70
	Bachelor Degree	-.07	5.97	1.000	-16.46	16.32
	PhD	-2.00	9.24	1.000	-27.37	23.37
PhD	TC II	11.86	7.26	.477	-8.06	31.78
	NCE	8.48	7.21	.765	-11.31	28.27
	First Degree	1.92	7.26	.999	-18.01	21.86
	Masters Degree	2.00	9.24	1.000	-23.37	27.37

*. The mean difference is significant at the 0.05 level.

Table 4 presents the results of the Turkey pairwise comparison of differences in teachers' preference and use of technology in social studies classes. The results indicate that there was a statistically significant difference in the preference and the use technology in the classroom between social studies teachers who were TC II certificate holders and those who were Bachelor degree certificate holders (-9.93, $p < .05$). In the same vein, there existed a statistically significant difference in preference and the use of technology in teaching and learning between the social studies teachers who were N.C.E holders and Bachelor degree holders (-6.56, $p < .05$).

However, the results further showed that there was no statistically significant difference in the preference and use of technology in the classroom between social studies teachers who were TC II certificate holders and their counterparts who were N.C.E., masters' degree, and PhD

certificates' holders. Furthermore, no significant differences were found between teachers with N.C.E certificate holders as compared with those with masters' degree and PhD certificates regarding their preference and use of technology in social studies classes. The results also revealed that, there existed no significant difference between social studies teachers who were Bachelor degree certificate holders when compared with their counterparts who were PhD certificate holders with respect to the use of technological devices in the classroom. The preference and use of technology in teaching and learning between the groups of teachers who were masters' degree certificate holders and PhD holders was statistically insignificant.

Table 5

Tukey Post-hoc Analysis of Teachers' Preference and Use of Technology in Education

Tukey HSD ^{a,b}		
Qualification	N	Subset for alpha = 0.05
TC II	72	68.1389
NCE	141	71.5177
Masters Degree	3	78.0000
Bachelors Degree	69	78.0725
PhD	2	80.0000
Sig.		.275

The results of Turkey post-hoc analysis in Table 5 showed that, on the overall, there was a subset of teachers regarding preference and use of technology in social studies classrooms based on their academic qualifications. In other words, teachers' preference and use of technology in classrooms were not clearly based on their highest attained academic qualifications.

Research Question 3: Does gender influence teachers' level of awareness about the value of technology in social studies classrooms?

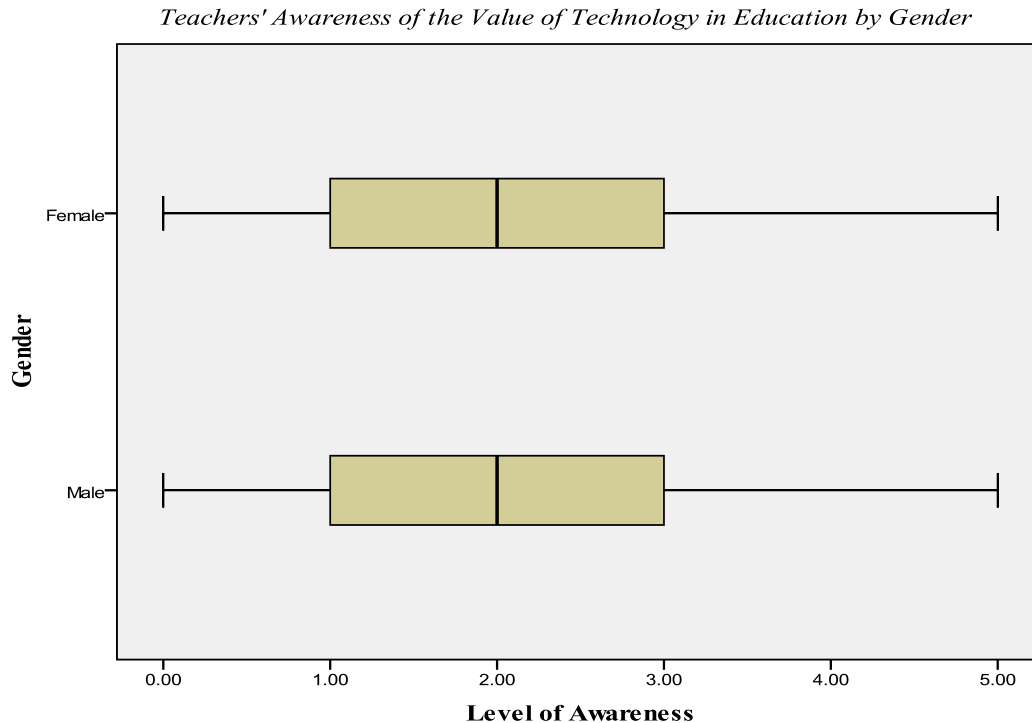


Figure 1. Teachers' Awareness of the Value of Technology in Education by Gender

Figure 1 is the box plot comparing male and female social studies teachers' levels of awareness about the value of technology in teaching and learning. The figure shows that the median of female and male social studies teachers' regarding their level of awareness about the value of technology in education was similar. The interquartile and the overall range of the distribution of opinions for male and female social studies teachers regarding their knowledge of the value of technology in education were both similar. The distributions of male and female social studies teachers' opinions about their level of awareness regarding the value of technology in education were normally distributed. Similarly, neither of the data for groups of teachers showed any conspicuous far out values (outliers) which may require a closer look or further analysis. The results thus suggest that female and male social studies teachers had a similar level of awareness and knowledge about the value of technology in education.

Research Question 4: To what extent does academic qualification influences teachers' level of awareness about the value of technology in social studies classrooms?

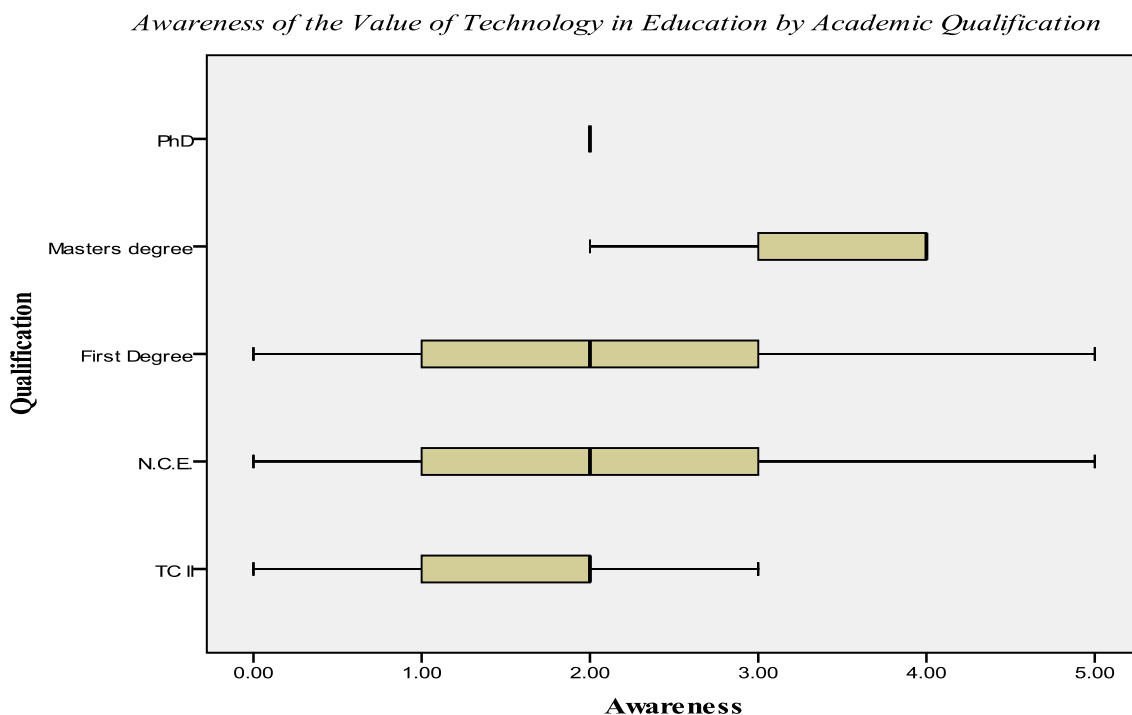


Figure 2. Teachers' Awareness of the value of technology in education by academic qualification

Figure 2 shows the box plot comparing social studies teachers' levels of awareness regarding the value of technology in education. The results indicate that teachers' levels of knowledge about the value of technology in education were drastically different based on their academic qualifications. Figure 2 further shows that the median for the social studies teachers with masters' degree was higher than those of other teachers with different academic qualifications but had similar median. While the interquartile range of teachers who were masters degree and TC II certificate holders were similar, those of teachers who were Bachelor degree and NCE holders were almost the same and higher than those of the masters degree and TC II certificate holders. The overall range of the PhD holders was the least while those of the Bachelor degree and NCE holders were the highest.

The data for the first degree and NCE holders were normally distributed while those of the masters' degree and TC II certificate holders were positively skewed. The results thus indicate that the level of awareness about the value of technology in education was higher among the Bachelor degree and NCE certificate holders when compared with that of other groups of teachers who were PhD, masters' degree and TC II certificate holders. In each of the data sets, there were no outliers in the distribution. Overall, the results imply that Nigerian social studies teachers of different academic qualifications differed regarding their levels of awareness and knowledge about the relevance of technology in teaching and learning.

Research Question 5: *What are the relative and joint contributions of awareness of the value of technology in education, discouraging factors from, and motivators for the use of technology to the prediction of teachers' preference and use of technology in social studies classrooms?*

In order to find out the strength and direction of the association that exist between the predictor and the outcome variables, a Pearson product-moment correlation coefficient analysis was performed, and the results are contained in Table 6.

Table 6

Descriptive Statistics and Correlations Matrix for Teachers' Preference and Use of Technology in Education and the Independent Variables

	A	B	C	D
A. Preference and use			.223*	
B. Awareness / Knowledge	.355*			-.363*
C. Motivating factors				
D. Discouraging factors	-.522*		-.124*	
Mean	72.37	2.01	15.58	17.63
SD	10.55	1.30	2.34	3.57

The results in Table 6 show the mean and standard deviation statistics of the variables which relate to social studies teachers' integration of technology in the classroom. The results indicated that teachers' preference for and use of technology in education had the highest mean while teachers' awareness of the value of technology in education recorded the lowest mean score. Motivating factors towards the use of technology as a variable recorded a lower average mean score as compared to discouraging factors from using technology in education recorded. The two variables: motivating factors and discouraging factors recorded higher average mean scores when compared to teachers' awareness of the value of technology in education.

The results in Table 3 also revealed the Pearson product moment correlation of the dependent variable (teachers' preference and use of educational technology in the classroom) and the independent variables (awareness of the value of technology in education, motivating factors and discouraging factors to the use of technology in education. Teachers' preference and use of educational technology correlated positively and significantly with teachers' awareness about the value of technology in education and with motivators towards the use of technology in education. There was a significant and negative correlation between discouraging factors from and motivating factors to the use of technology in education. Teachers' knowledge about the value of technology in education correlated negatively and significantly with the discouraging factors from the use of technology in teaching and learning.

The results thus suggest that the more teachers realise the value of technology in education, the more they are most likely to be motivated to prefer, adopt and integrate technology in teaching and learning processes. In other words, when teachers are less discouraged from using technology, they are most likely to utilise technology to facilitate effective teaching and learning.

Table 7

Model Summary, Coefficient and t-value of Multiple Regression Analysis of the predictor variables and the Dependent Variable

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	35.678	3.903		9.141	.000
Awareness / Knowledge	1.582	.419	.194	3.774	.000
Motivating factors	.711	.210	.164	3.391	.001
Discouraging factors	1.273	.153	.431	8.304	.000

Model Summary

Multiple $R^2 = .330$

Multiple R^2 (Adjusted) = .324

Standard Error Estimate = 8.67925

F = 47.871

Sig. = .000

a. Dependent Variable: Preference and Use

The results in Table 7 indicate that a combination of awareness of the value of technology in education, discouraging factors from and motivators for the use of technology contributed a coefficient of multiple regression of .330 and a multiple correlation square of .324 to the prediction of to the prediction of teachers' preference and use of technology in social studies classrooms. The implication of the result is that the independent variables accounted for 32.4% of the total variance of social studies teachers' preference and use of technology in classrooms.

In addition, the results above also indicate that the analysis of variance of the multiple regression data produced an F-ratio value significant at 0.05 level ($F(3,295) = 47.871$; $p < .05$). The results also show "discouraging factors from the use of technology" as the potent predictor of social studies teachers' preference and use of technology in the classroom ($\beta = .431$, $t = 8.304$, $p = .000$). Meanwhile, "motivators for the use of technology" made the least contribution to the prediction of teachers' preference and use of technology in social studies classrooms ($\beta = .164$, $t = 3.391$, $p = .001$).

Discussion

Findings of this study make significant contributions to research on educational technology use by examining social studies teachers' preference, and use of educational media in teaching and learning. This study suggests that social studies teachers prefer and utilise text and paper-based visual media as enhancements to the instructional process than the adoption of digital technologies. Similarly, earlier research findings reveal that, during teaching, many teachers rarely or never integrated digital educational tools (e-mails, Facebook, blogs, mailing lists, and chat rooms), subject-specific-software, compact discs, and digital video discs (Almekhlafi &

Almeqdadi, 2010; Peeraer & Petegem, 2010). However, Yeung, Lim, Tay and Lam-Chiang (2012) found that teachers often utilize digital media such as e-mails, cameras, scanners, online social networks, e-books, digital games, and online dictionary to catalyse improved learning outcomes.

The pattern of technology usage displayed by participants of this study might be a reflection of their exposure in and experience of the digital world, and technical “know-how” regarding digital technology innovations. Moreover, awareness and knowledge about best practices regarding technology integration in instruction might have influenced social studies teachers’ attitude towards infusing educational technology in classrooms. It is most likely that a low resource nature of the context of this study inhibited some teachers from adopting and infusing educational technology into an instructional process. Somehow, it seems paradoxical and more daunting when technology-literate teachers find themselves in schools where educational devices are either inadequate or unavailable than in schools that are “technologically-enriched.”

Perhaps, social studies teachers’ low preference and use of educational technology in the classroom is a fall-out of education not being a priority in the Nigeria’s budgetary allocation. When public schools are not well funded by government, providing essential infrastructure and technological facilities might become a herculean task. The multiplier effect is that where Information and Communication Technologies are not available or inadequate in schools, teachers have limited, or no access to them; hence they are less likely to expose students to hands-on learning experience. It is not impossible that social studies teachers’ non-utilisation of digital technology for teaching and learning is connected to how computer laboratories and technological devices in some schools are archived as untouchable “sacred god.”

The analysis of data collected for this study revealed a significant difference among social studies teachers with regards to the preference and the use technology in the classroom based on their academic qualification. The preference and the use of technology in the classrooms for teachers who possess the Teachers Certificate Grade Two certificate and the National Certificate in Education differ when compared with teachers who have a bachelor or postgraduate degree. However, earlier research reported no statistically significant relationship between teachers’ use of Internet, and their competency and professional development (Goos & Bennison, 2008; Loong, 2003). Meanwhile, the finding of Ndahi (1999) that there is an association between teachers’ academic qualification and the use of technology to deliver instruction lends credence to the outcome of this study.

It is worth noting that research findings regarding teachers’ use of technology based on their academic qualification has been inconclusive. For instance, some empirical researchers (Yeung, Lim, Tay, & Lam-Chang, 2012) found that students in the bachelor degree program used digital technologies more frequently than the postgraduate students who were older in age as compared to the former group. Prensky (2007) reported that younger educators are more of Information Communication Technology natives than the older ones. Ndahi (1999) and Bauer and Kenton (2005) concluded that teachers who are highly educated have a higher tendency to use technology for delivery of instruction as compared to those with lower academic qualifications.

We are of the view that an individual will offer to others what he or she possesses. Nigerian social studies teachers with minimum entry teaching qualification are more likely to have less exposure to the avalanche of emerging technologies when compared to teachers who have a bachelor or/and postgraduate degrees. Teachers with postgraduate education are more

likely to participate in government-sponsored ICT training as well as technology-oriented academic activities (seminars, workshops and conferences). Further or continuing education and career development program as a factor might contribute to determining whether or not teachers would desire to integrate educational technology into the classroom. In this study, the non-significant difference observed in the preference and use of technology between teachers with postgraduate degrees and those who have lesser academic qualifications might be connected to the proportion of the sampled teachers who had postgraduate degrees.

Contrary to our expectations, male social studies teachers' level of awareness regarding the value of technology in teaching and learning was not different from that of their female counterparts. Although previous research (Buabeng-Andoh, 2012; Peeraer & Petegen, 2010) revealed that females tend to be limited in the use of technology as compared to men, Almekhlafi & Almegdadi (2010) report that females are heavy users of technology when compared to males. Corroborating the outcome of this study, Yukselturk and Bulut (2009) also found a reduced gender gap between males and females regarding the use of the Internet and Web 2.0.

That male and female teachers are not different regarding their level of awareness about the value of technology in the instructional process could be interpreted that the two sets of teachers do not have "autonomous" access to available technological devices in their schools. In some schools, technology/computer laboratories are maintained as non-integral part of the instructional process or subject curriculum. In such ways, teachers, irrespective of their gender are not likely to maximize the potential of technology in the instructional process if they do not have access to technology tools in schools at their beck and call.

Analysis of data revealed academic qualification as a factor that influences social studies teachers' level of awareness about the value of technology in classroom teaching and learning process. Contradicting the outcome of this study, Sim and Theng (2007) reported no significant association between teachers' highest academic qualification and their perception of technology in instruction. Perhaps teachers' level of technology knowledge and skills presumably indicated by their levels of academic exposure and attainment influence their attitude towards integrating technology into the instructional process. It might not be out of place to assume that teachers who pursue further higher education are more likely to be exposed to emerging technologies and acquire additional technology skills. Teachers with additional higher education qualifications gain exposure to technologies in vogue through their participation in academic conferences, seminars, research and other professional development programs.

If Nigerian social studies teachers' level of awareness about the value of technology in teaching and learning was based on their academic qualifications, to what extent have the "informed" teachers utilized technology to offer students a variety of resource to discover, research, solve problems, collaborate and learn? Our expectation is that the "informed" Nigerian social studies teachers should be using the available digital resources in schools and free online media such as Facebook, Blogs, Skype, Wikis, Twitter, etc. to provoke students' active engagement and thoughtful discussions during instruction. Unfortunately, only a few integrate some digital resources into teaching social studies. Perhaps the scenario may change if the Nigerian government and the Ministries of Education intensify efforts to communicate teachers about emerging digital technologies that could be harnessed into the instructional process as enhancements.

Moreover, results from the regression analysis suggested that teachers' awareness of the value of technology, discouraging factors and the motivator for the use of technology were predictive of social studies teachers' use of technology in the classroom. There seems to a dearth

of studies that have investigated the combination of the independent variables to predict the outcome variable in this study. However, previous independent research revealed that discouraging factors (McManis & Gunnewig, 2012); teachers' understanding of how technology would enhance education (Jones 2004, Mahamad, Ibrahim & Taib, 2010), and motivating factors (Peeraer and Petegen, 2010) prompt teachers' determination to infuse technology into the classroom. Contradicting the outcome of this study, Yeung, Lim, Tay and Lam-Chiang (2012) reported that teachers seem to value technology in instruction, but their actual use of the technology in education was very low.

The use of technology in education is challenging and time consuming. Perhaps teachers non-use of digital media as revealed by the results of this study might be connected to the limited available for professional practice, learn more about technology and engage in career development programs required to enhance their status. It may not be out of place to posit that some of these teachers prefer to use emerging technology for personal purposes than integrate them as instructional enhancements. It is worth mentioning that there is a need for teachers to transform learning theories into practice. The essence of scaffolding in learning by assisting students at the zone of proximal development (ZPD) should not only be theoretical but also be implemented practically through technology-artefacts.

Social studies teachers in developing nations like Nigeria to an extent may sound justified for utilizing some digital technology probably because they may think the content of some technological devices does not match cultural context, the age and abilities of the learners. When teachers do not have significant influence on the quality of content embedded in digital media designed for instruction, massive adoption and effective integration of such technology may be daunting.

Conclusion and Recommendations

Social studies teachers in the 21st century should be innovative, creative and proactive in adopting technology to compliment their pedagogical inclinations. It is obvious that social studies classroom teaching has shifted from the teacher-centred to small-groups or collaborative and self-directed learning. Unfortunately, teachers who do not understand the value of technology in education integrate technologies in teaching and learning process for the sake of technology application per se. As a matter of fact, when schools fail to provide necessary technology skills students require to succeed in the labour market, national progress might be incremental without a majority of students acquiring the skills they need to sustain themselves. Therefore, besides having "good education policy", Ministries of Education might need to catalyze regular integration of technology in social studies class by developing guidelines for teachers on effective use of technology in teaching and learning.

Teacher education programs in the various Nigerian universities should be technology-oriented in order to provide opportunities for pre-service teachers to have a good experience with a variety of technology applications for instruction. We are of the view that such opportunities would provide teachers the needed pedagogical content knowledge as connected to technology, and develop teachers' competence and confidence in as well as a positive attitude towards technology integration in the classroom. Social studies instruction would be enhanced if curricular objectives are linked to technology-based activities while lesson plan development and assessment strategies are technology-driven. It is also imperative to note that when huge amount of funds is expended on procuring technology in schools without providing adequate training for teachers on how to effectively integrate technology, the goals of such investment might be an

illusion. Technology is not an alternative to teachers because technology is not self-transformative in education; hence training teacher is a paramount element to effective integration and application of digital media in social studies instruction.

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