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Teachers Perceptions and Demographics on Technology Integration in Ibadan Metropolis Secondary Schools

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Abstract
In the educational sector, technology cannot stand alone without the involvement of teachers. The competency of any teacher, in technology integration makes technology itself a valuable tool in the educational setting. Teacher is the main actor in the success of technology use and integration. Many factors connected to the use of technology generally. However, until these factors were fulfilled technology integration in education will be meaningless. If technology is not used rightly in advancing teaching and learning, its impact cannot be felt. Now that technology has gained attention in all spheres of life, especially in education, using technology positively will always make a difference in both teachers and learners. In this study, Nigeria secondary school teachers' technology integration perception was the main focus, and how they perceived the use in a classroom setting. A correlational design method was used in analyzing data collected to determined the relationship between the variables used in the study.
Keywords: Competency, technology, integration, perception, teachers' involvement.

1. Introduction

There are many factors that connected to the use of technology generally. In the educational sector, technology cannot stand alone without the involvement of teachers. The competency of any teacher in technology integration makes technology itself a valuable tool in the educational setting. Holland and Piper (2014) mentioned that the most important factors that surround technology integration is being a competent teacher. It is the responsibility of a competent teacher to modulate and re-shape the curriculum to accommodate the use of technology that makes better learning activities for students. The necessity of having technology fully integrated into Nigeria education system should now be a paramount desire of all the stakeholders. It has always been a re-occurring statement that technology in education has to do with computer use and other hardware or networking, especially involvement of television and radio station in streaming educational programs. The truth of it was that the use of technology can be traced back to the era of "Abacus" invention in 3000BC (U.S. Department of Education, 2010). Technology integration and its uses in curriculum design, instructional delivery, or media was just a merely innovation, and it does not make it a new concept in education (Zheng & Ferries, 2008; U.S Department of Education, 2014).

It is not gain saying that teachers understand the concepts and contents of their subject matter. As a matter of fact they do understand the delivery protocol of the subject they teach as well, the technology integration is the problem they are facing, and this has been the issues with many Nigeria teachers. Non able to integrate technology is not absolutely the fault of the teachers, but of the system they work with that do not encourage and facilitate technology usage in an appropriate way. These make technology use time consuming to teachers as well as other stakeholders (Kim, Kim, Lee, Spector, & DeMeester, 2013).

There is a view that teachers learning technology integration as learning alongside with their students (Holland & Piper, 2014) whereas is not but to help the learners break down into smaller units, the learning activities for them to comprehend and applied to life issues. The use of technology is now growing faster than anyone can think of and this has been introduced in many developed nations' classrooms. Although the technology use globally has gone far its use in the educational sector is still lagging in Nigeria. Almefkhafi & Almeqdadi (2010) retorted that despite the slowness in many developing countries in using technology, it has become an important aspect that contributes to the teacher's success.

2. Background and Literature Review

It is not a surprise that records has shown that technology use in a classroom has been a tool for impactful teaching and learning (Andrew, 2014) and its existence started from the time of instructional technology and educational technology; today, technology is now popular in all areas of life (Nikian, Nor, & Aziz, 2013). Technology integration has been accepted worldwide by the educationist, researchers, and many stakeholders that technology has impacted one way of the other.

Despite reports of technology use all the globe, the aspiration for teachers in Nigeria was low compared to other nations of the world (Educational World, 2016). The ability to desire the use make the work of the facilitators easier; to have a competent teacher it required preparedness, readiness, desire, and willingness to integrate it for positive outcome. According to the Federal Republic of Nigeria (2013), it stated that all colleges

of education are required to offer educational course which educational technology was included because of its uniqueness in educational development and promotion of creativities among the learners. It is not strange that monies were budgeted for education yearly in Nigeria and emphasis on educational technology has been a top on the list (Kiper & Tercan, 2012; Taiwo, 2009); but the system set up by government are not doing what is right regarding disbursement of such fund rightly. Many training and workshops have been organized by government officials, but such have not benefitted the teachers on the field as required, and this always constitute to lack of true stewardship and commitment towards technology use in schools (Galvis, 2012).

It is heart breaking that despite the training, conferences, and sensitizing stakeholder about technology integration in education, teachers still face issues of accessing computers and internet to teach students the contents of their subject areas (Galvis, 2012). Although the most popular technology in Nigeria by teachers are the computer and internet, whereas technology use is not limited to graphing, calculating, and using other computer software and other technology paraphernalia alone, but include others like social platforms, gamification, and other interactive applications. All these bring about meaningful learning and develop learners' creativities and critical thinking (Mundy, Kupczynski, & Kee, 2012). Social media concept has gained entrance into the educational system worldwide (Kelm, 2011). These are happening just to get the attention of the learners to learn and apply their learning to their real world situation (Burns, 2014). Despite all the availability of resources, it is glaring that not many of the teachers show interest in self-development regarding technology use and integration because of the misconception of integrating technology to with computer usage (Hsu, 2010).

The U.S. Department of Education posited that technology integration has the power of transforming teachers' teaching method into a new dynamic system where both the teacher and learner have a take away from the learning environment. In agreement with this Ede and Ariyo (2015) presumed that using technology for integration requires knowledge and skill acquisition. The skill and knowledge is not that embedded in educational courses at the college level (Oviewe & Ojo, 2010), instead, it is full of theories and abstract teaching without any serious hand-on projects. In Nigeria government impact is felt in the budget regarding education, provision for computer training and selecting few teachers to facilitate teaching the skill in their local area while consideration is not given to how to integrate such learning into classroom teaching (Ede & Ariyo, 2015).

Without missing words, the era of struggling with choices of instructional technologies and materials has ended, and the time of adapting technology into teaching concepts is now (U.S. Department of Education, n.d.). At the same time, the fact that not all teachers have the capacity for using technology in their classroom cannot be denied (Moruf, 2015). The reason for the assertion was that the only thing seen by some teachers is the negative aspects of technology use and not the good side (Kelm, 2011). And this is not only reflecting Nigeria teachers but also teachers from advanced nations where the use of technology has already being established (Kelm, 2011). The diversity in technology use and integration has encouraged the use of personal devices in many nations and the terms being used was bring your own devices (BYOD).

The term BYOD has now gained ground simply because it has been discovered that if students' uses technologies or applications fond of using in classroom, there is better chance for them to concentrate and learn better since they are using their devices. Fakeye (2010) and Moruf (2015) agreed that learning can be better achieved when a tool for interaction exists. The use and involvement of some teachers has diminished the increase of technology use due to their perceptions (Galvis, 2012) which ranges from phobia to technology, boredom, lack of interest, fear of being replaced by technology and more. The success of technology integration is in the hand of the teachers who can drive the instinct of technology into curriculum and classroom teaching.

It is necessary that teaching process in Nigeria and other developing nations changed completely (Aslan & Reigeluth, 2013). Integrating technology into teaching must take place in a true learning process where traditional learning system will give way to twentieth century approach of teaching and learning (Andrew, 2014; Taiwo, 2009). A very good formative technological methods needs to adopt where the teacher facilitate students learning and not dominating them with theories alone. Teachers need to be collaborator with their students in learning which help learners to build confidence in themselves and become expert in their decision making. Teachers' technology use depends on motives and perceptions (Truel, 2014), this help teacher to dutifully facilitate learning that will challenge learner's curiosity to be creative and develop critical thinking. Technology use and integration is a complex act which needs diligence and gradual execution for its success (Menard, 2010). The facts still remains that unregulated and unmonitored technology use in the classroom often leads to abuse (Kelm, 2011). That is the reason why teachers' perceptions of technology integration need to be altered for positivity and success of technology integration in our classrooms.

3. Rationale

This study is to determine the relationship between teachers' perception of technology integration and their personal demographics (age, gender, educational level, and years of teaching) in some senior- secondary schools in Ibadan Metropolis of Oyo State Nigeria. In this study, researcher examined how secondary school teachers in Ibadan Oyo State Nigeria perceived technology integration and how such affects educational development in the

state. The study explores the use of survey to examined and analyzed teachers' perceptions of technology integration. Marwan (2010) postulated that integrating technology in the classroom is not that new, but teachers' have various reasons why they believed its use might not be successful. It is important to understand why some teachers' use technology and some did not use it.

4. Theoretical Framework

Theory behind this research was perception theory, Theory of Knowledge (2015) explain perception as the way individuals perceive things based on thought and imagination. Identifying and interpreting of sensory information help one to understand their environment (Kranzt, 2012). The term perception is dismissive and it is common sense realism (naïve), it claims the direct awareness between the perceiver and the object; It shows awareness of external world. Relating to this, the reaction and attitude of teachers toward technology integration has to do with their instinct that also gives feedback about their feelings.

5. Methods

In this research was quantitative in nature and correlational design was adopted since the research focused on relationship and not the cause and effect. The following research questions were used to find the relationships that exist between all the identified variables.

1. What are the teachers' perceptions of technology integration?
2. What are the current levels of teachers' technology integration in the classroom?
3. What is the relationship between teachers' gender and their technology integration?
4. What is the relationship between teachers' age and their technology integration?
5. What is the relationship between years of teaching experience and teachers' technology integration?

5.1. Hypotheses

Null Hypothesis: There will be no relationship between teachers' perceptions of technology integration on their age, gender, educational level, and years of teaching.

Alternate Hypothesis: There is a significant relationship between teachers' perceptions of technology integration on their age, gender, educational level, and years of teaching.

Although, technology integration is making fast way all over the globe but desired result has not been felt in Nigeria as in other part of the world. This has even created an issue, and there is need to identify why this is so. In addition, this research is looking for a way of bridging the gap between using and integrating technology in classroom and not using and integrating it at all. The survey used for this research has been validated for the purpose and focused on teachers' perception of technology integration, level of technology integration in classroom and teachers' demographics.

Sample for the research was drawn from teachers in selected secondary school in Ibadan, Oyo State, Nigeria. Although the schools used was selected purposively to have judgmental sample. Ibadan has proximity to technology like other capital cities in the world. Creswell (2012) postulated that at least 30 or more participants in research study is required but to generalized the results of the study to represent other states in Nigeria, 700 questionnaires were distributed and 374 were returned. This represents 53.4 % according to Creswell (2012).

The results collected was analyzed via SPSS where descriptive analysis was used to obtain a summary of the data gathered from the survey questions, also to make a good correlation in determining the relationship Spearman's Rank was used. The validity of the instrument used in gathering the data was 100% valid and reliable. The instrument is an existing one that just went through minor corrections on demographics which has no negative impact on the instrument itself.

6. Data Analysis and Results

Analysis was done sequentially based on the research questions. Data were collected using a 5-point Likert scale, and analyzed using the mean, descriptive analysis, and analytical correlation.

Table 1 shows that 53.2% were female while 46.8% was male. The age range shows that 31-49 years was 56.7%,; followed by 32.9% which accounted for ≥ 30 years of age; while the least (age 50 and above) recorded 10.4%. As for the years of working experience, in the education field for the respondents, it can be seen that 47.9% fell within ≤ 10 years, 46.3% of the respondents were within 11–25 years, while 5.9 have been working for over 26 years.

Table 1: Demographic Information of the Respondents

Background information	Frequency	Percentage	Cumulative percentage
Gender			
Male	175	46.8	46.8
Female	199	53.2	100.0
Total	374	100.0	
Age range			
≤ 30	123	32.9	32.9
31–49	212	56.7	86.9
50 and above	39	10.4	100.0
Total	374	100.0	
Years of experience			
≤ 10	179	47.9	47.9
11–25	173	46.3	94.1
26 and above	22	5.9	100.0
Total	374	100.0	
Educational level			
*NCE	88	23.5	23.5
Bachelor's degree	226	60.4	84.0
Master's degree	48	12.8	96.8
Doctoral degree	12	3.2	100.0
Total	374	100.0	
Grade level taught			
Junior secondary school (JSS) 1–3	140	37.4	37.4
Senior secondary school (SSS) 1–3	234	62.6	100.0
Total	374	100.0	
Content areas			
Business or computers	58	15.5	15.5
English or foreign language	86	23.0	38.5
Fine arts	14	3.7	42.2
Math or science	111	29.7	71.9
Social sciences	72	19.3	91.2
Others	33	8.8	100.0
Total	374	100.0	

Note. Age range mean = 37.8; Years of experience mean = 15.8. *NCE: Nigerian certificate in education.

Table 2 shows teachers' perception of technology integration and the statements were rated in descending order of means with the most highly rated being teachers' confidence that they could motivate students to participate in technology-based projects (MS = 3.775), followed by confidence of teachers regularly incorporating technology into their lessons for student learning (MS = 3.729). None of the statements were found to be below 3.488 mean score.

Table 2: Teachers' Perceptions of Technology Integration

Questionnaire statement	Mean	Rank	Std. deviation
I feel confident that I can motivate my students to participate in technology-based projects.	3.775	1	0.935
I feel confident I can regularly incorporate technology into my lessons, for student learning.	3.729	2	1.031
I feel confident about selecting appropriate technology for instruction based on curriculum standards.	3.720	3	1.013
I feel confident I can consistently use educational technology in effective ways.	3.718	4	1.014
I feel confident I can mentor students in appropriate uses of technology.	3.695	5	1.025
I feel confident I can provide individual feedback to students during technology use.	3.666	6	0.993
I feel confident that I can successfully teach relevant subject content with appropriate use of technology.	3.615	7	1.070
I feel confident that I can help students when they have difficulty with the computer.	3.606	8	1.071
I feel confident about assigning and grading technology-based projects.	3.590	9	1.032
I feel confident that I understand computer capabilities well enough to maximize them in my classroom.	3.580	10	1.112
I feel confident about using technology resources such as spreadsheets or electronic portfolios to collect and analyze data from student tests and projects to improve instructional practices.	3.561	11	1.113
I feel confident that I have skills necessary to use the computer for instruction.	3.552	12	1.143
I feel confident that I can use correct computer terminology when directing students' computer use.	3.539	13	1.066
I feel confident I can effectively monitor students' computer use for project development in my classroom.	3.501	14	1.044
I feel confident in my ability to evaluate software for teaching and learning.	3.488	15	1.111

Table 3 shows that there is no significant difference in both male and female teachers technology use and integration. The results shows that each of the gender has different level of operating technology to collaborate their teaching. Male teacher are more proficient in the internet searching than their female counterpart; whereas female teachers has proficiency in course management and bloging than that of male teachers. However the overall results still shows that there is no significant difference because male teachers has 2.970 while female has 2.861.

Table 3: Differences Between Teachers' Gender and Their Technology Integration

	Male		Female				
Technology integration	Mean	Rank	Mean	Rank	t	df	Sig (2-tailed)
Internet research or searches in the classroom	3.237	1	3.061	1	1.225	369	0.221
Email in course delivery (e.g., to/from students to complete assignments)	3.058	2	2.934	5	0.823	367	0.411
Database software	3.052	3	2.854	11	1.390	368	0.166
Spreadsheet software	3.040	4	2.869	9	1.250	370	0.212
Draw/paint/graphics software	3.035	5	3.005	3	0.207	368	0.836
Digital camera, scanner	3.034	6	3.030	2	0.027	368	0.836
Word processing software	3.023	7	2.980	4	0.313	369	0.754
Presentation software (e.g. Power Point, smart board)	3.023	8	2.924	6	0.701	369	0.484
Student web page and/or multimedia authoring (e.g Hyperstudio or FrontPage)	2.988	9	2.722	14	1.876	368	0.061
Internet and/or video conferencing for teaching online courses	2.954	10	2.777	13	1.233	369	0.218
Web-based programs, on-line discussion boards, on-line chat programs, online bulletin boards to support collaboration among students	2.920	11	2.685	15	1.631	369	0.104
Specialized, discipline specific software (e.g., Mathematica, MS Producer, Toolbook)	2.891	12	2.848	12	0.296	369	0.767
Blog, weblog, podcast, Wikipedia, or other special software to encourage collaboration among students	2.891	13	2.893	8	-0.008	368	0.994
Concept mapping (e.g., Inspiration)	2.884	14	2.904	7	-0.131	368	0.896
Computer-based digital presentation technology (Destination system, SmartBoards, video projectors (wired/wireless)	2.864	15	2.670	16	1.367	364	0.172
Electronic portfolios	2.851	16	2.619	17	1.714	369	0.087
Course management software (WebCT, Web Course in a Box, Black Board)	2.753	17	2.863	10	-0.748	369	0.172
Total	**2.970**		**2.861**				

From Table 4, it is evident that there is a weak positive linear relationship consequent upon teachers' gender

and their perception of technology integration. This is in consonance with the scatter plot shown in Figure 1. The correlation coefficient of 0.492 is significant at 0.05 level. Therefore, the relationship is not just by a mere chance.

Table 4: Relationship Between Teachers' Gender and Their Technology Integration

			Male	Female
Spearman's rho	Male	Correlation coefficient	1.000	.492*
		Sig. (2-tailed)		.038
		N	18	18
	Female	Correlation coefficient	.492*	1.000
		Sig. (2-tailed)	.038	
		N	18	18

Note. *Correlation is significant at the 0.05 level (2-tailed).

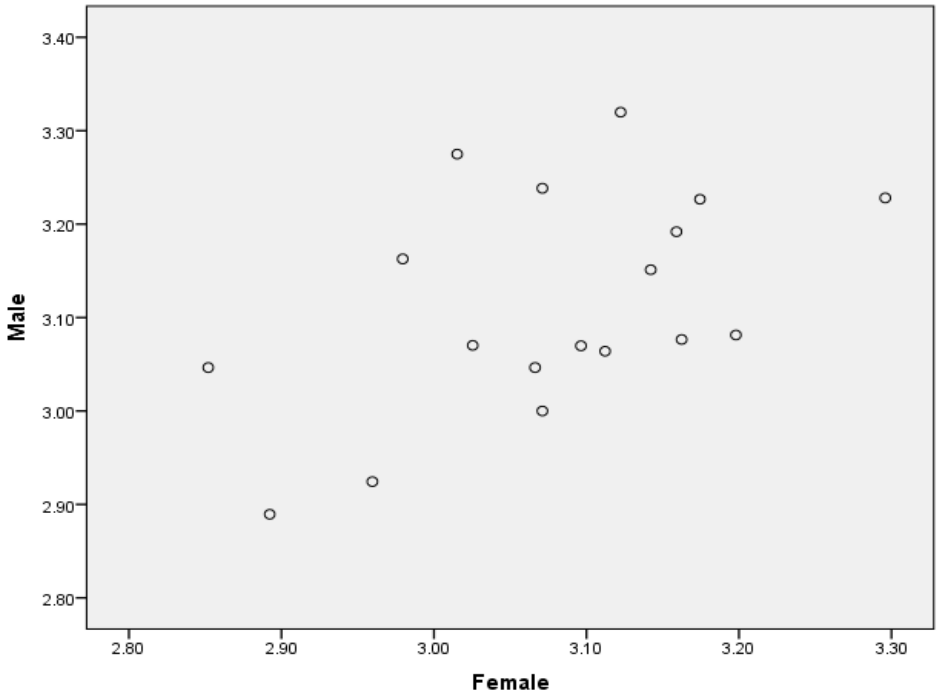

Figure 1. Relationship between teachers' gender and their technology integration.

Table 5 shows that there exists a weak positive linear relationship in teachers' technology integration between the age groups of 30 or under and 31–49. The relationship between these teachers' age groups is significant at 0.05 level with a correlation coefficient of 0.495. The corresponding scatter plot is shown Figure 4. There is also a weak positive linear relationship of 0.291 between the age groups of 30 or under and 50 and above. The relationship is not significant (see Figure 4 for the scatter plot of the relationship).

Table 5 also shows that moderate positive linear relationship exists between the teachers within the age groups of 31–49 and 50 and above based on their technology integration. This is also shown in the scatter plot (Figure 4). The relationship is significant at 0.01 level, having a correlation coefficient of 0.755.

Table 5: Relationship Between Teachers' Age and Their Technology Integration

			30 or under	31–49	50 and above
Spearman's rho	30 or under	Correlation coefficient	1.000	.495*	.291
		Sig. (2-tailed)		.037	.241
		N	18	18	18
	31 – 49	Correlation coefficient	.495*	1.000	.755**
		Sig. (2-tailed)	.037		.000
		N	18	18	18
	50 and above	Correlation coefficient	.291	.755**	1.000
		Sig. (2-tailed)	.241	.000	
		N	18	18	18

Note. *Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed).

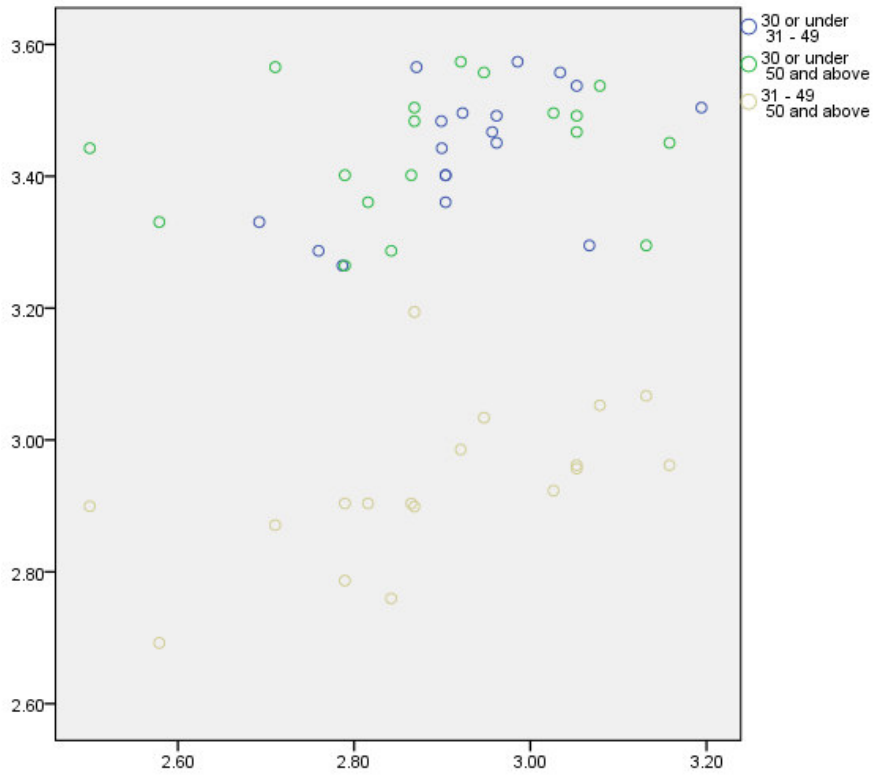

Figure 2. Relationship between teachers' age and their technology integration

Table 6 shows the existence of a moderate positive relationship between years of teaching experience of 10 or under and 11–25 in relation to teachers' technology integration. The relationship between these teachers' years of experience is significant at 0.05. The corresponding scatter plot is shown in Figure 3

There is a weak positive linear relationship of 0.497 in the technology integration of teachers' between the years of experience of 10 or under and 26 and above. The relationship is not by chance as it is significant at 0.05 level. Figure 6 shows the scatter plot for teachers having these years of teaching experience.

Lastly, Table 6 also shows that weak positive linear relationship exists between the teachers' having their years of teaching experience within 11–25 and 26 and above. This is also shown in the scatter plot (Figure 3). The correlation coefficient of 0.312 is not significant.

Table 6: Relationship Between Years of Teaching Experience and Teachers' Technology Integration

			10 or under	11–25	26 and above
Spearman's rho	10 or under	Correlation coefficient	1.000	.501*	.497*
		Sig. (2-tailed)		.034	.036
		N	18	18	18
	11–25	Correlation coefficient	.501*	1.000	.312
		Sig. (2-tailed)	.034		.207
		N	18	18	18
	26 and above	Correlation coefficient	.497*	.312	1.000
		Sig. (2-tailed)	.036	.207	
		N	18	18	18

Note. *Correlation is significant at the 0.05 level (2-tailed).

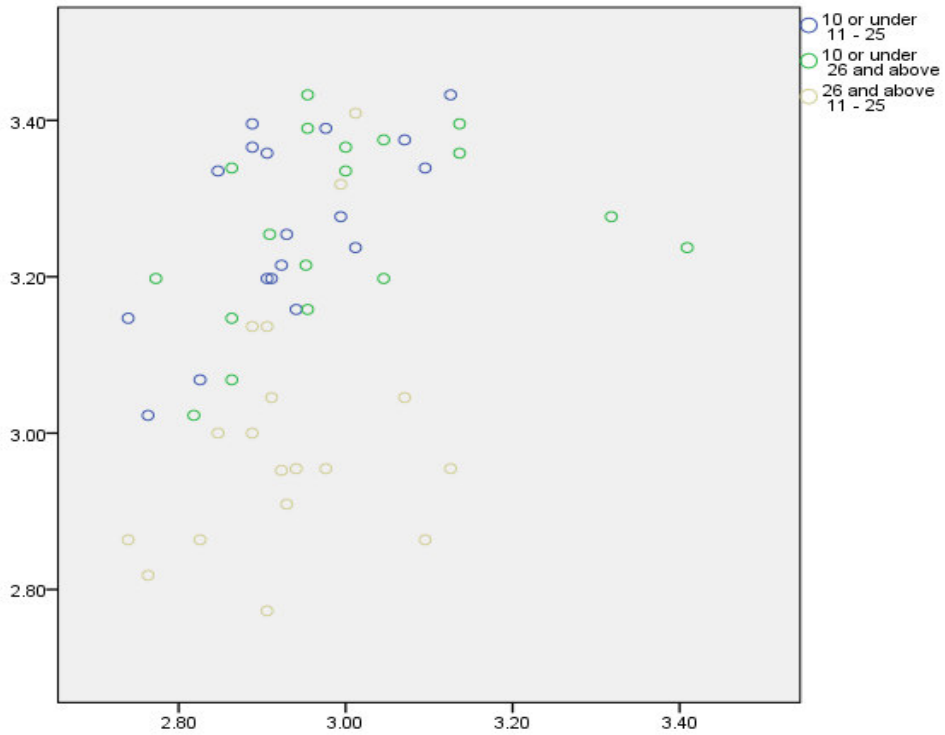

Figure 4. Relationship between years of teaching experience and teachers' technology integration

Table 7 shows the correlations between teachers' educational qualifications and their technology integration. Between teachers with NCE and each of others (bachelor's degree, master's degree and doctoral degree) are weak positive relationship (0.466), weak positive linear relationship (0.245), and also a weak negative linear relationship (-0.086), respectively. The scatter plots are evidenced in the overlay chart Figure 5.

The correlations according to Table 17 between holders of bachelor's degree and each of master's and doctoral degrees are significant moderate positive relationship (0.776**), and weak negative linear relationship (-0.139), respectively. The scatter plots for these relationships are shown in Figure 6.

In consideration of the relationship between holders of master's and doctoral degrees consequent upon their perceptions of technology, there is a weak negative relationship (-0.075). The scatter plot is shown in Figure 7.

Table 7: Relationship Between Teachers' Academic Qualifications and Their Technology Integration

			NCE	Bachelor's degree	Master's degree	Doctoral degree
Spearman's rho	NCE	Correlation coefficient	1.000	.466	.245	-.086
		Sig. (2-tailed)		.051	.327	.735
		N		18	18	18
	Bachelor's degree	Correlation coefficient		1.000	.776**	-.139
		Sig. (2-tailed)			.000	.581
		N			18	18
	Master's degree	Correlation coefficient			1.000	-.075
		Sig. (2-tailed)				.768
		N				18
	Doctoral degree	Correlation coefficient				1.000
		Sig. (2-tailed)				
		N				18

Note. **Correlation is significant at the 0.01 level (2-tailed).

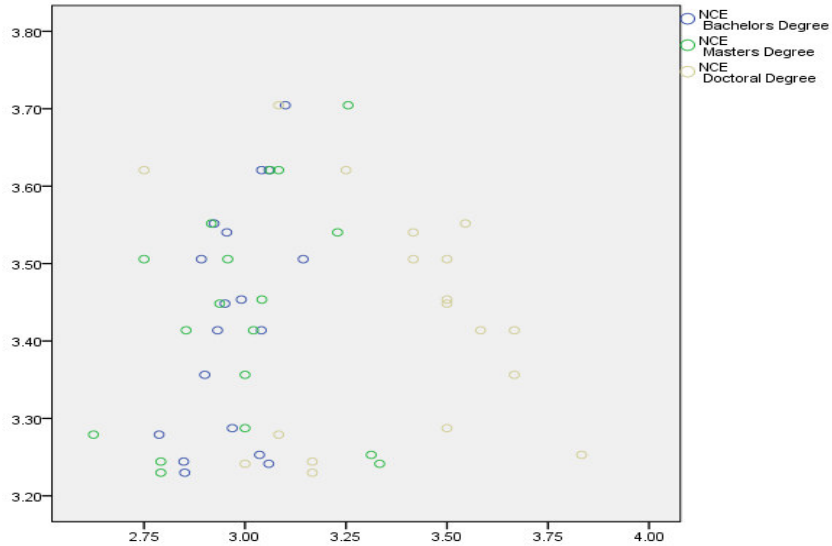

Figure 5. Relationship between teachers' academic qualifications (NCE, bachelor's degree, master's degree, doctorate degree) and their technology integration.

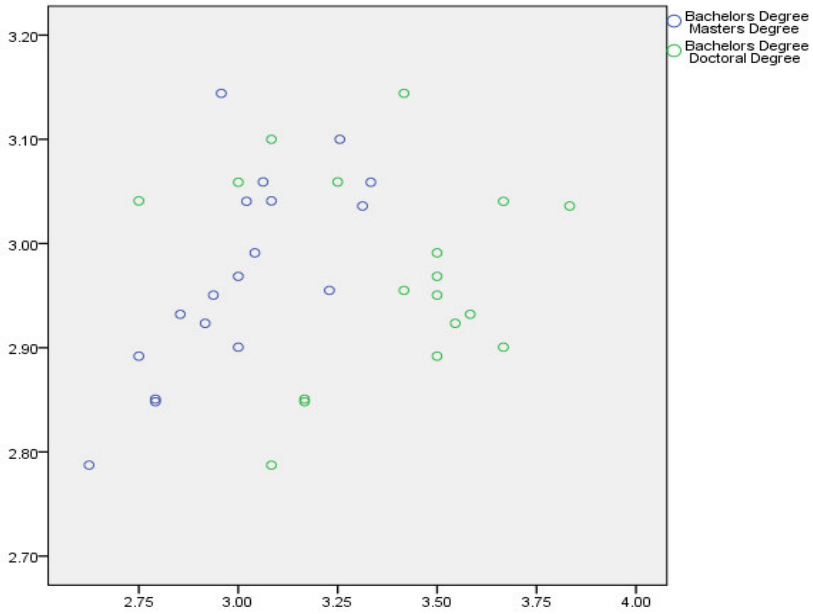

Figure 6. Relationship between teachers' academic qualifications (bachelor's degree, master's degree, doctoral degree) and their technology integration.

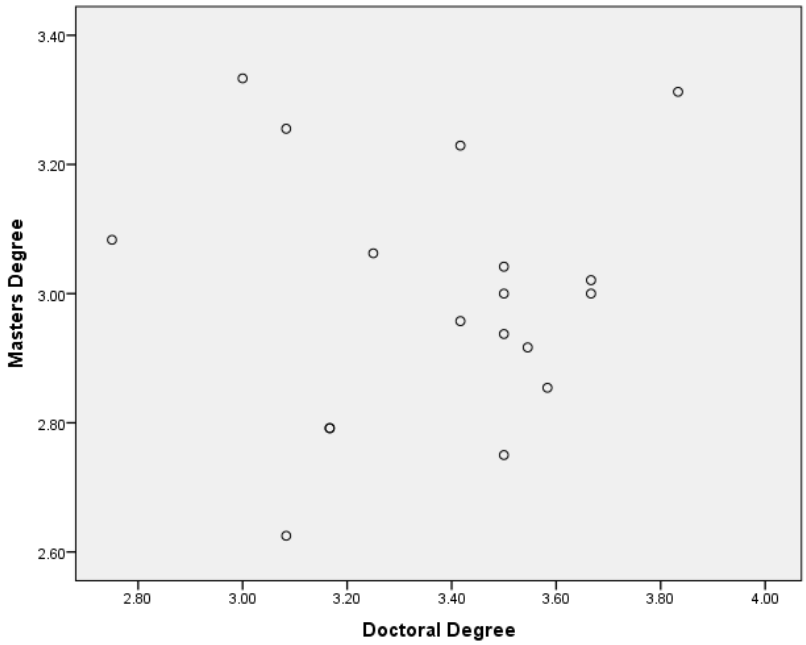

Figure 7. Relationship between teachers' academic qualifications (master's degree, doctoral degree) and their technology integration.

From Table 8, the mean scores of the extent of integrating technology support to students learning in the classroom. Out of the 17 technology supports, the first rated is via internet research or searches in the classroom (MS = 3.143). The second and third technology supports are digital camera, scanner, and draw/paint/graphics software with mean scores of 3.032 and 3.019, respectively. The least rated are Web-based programs, online discussion boards, online chat programs, online bulletin boards to support collaboration among students (MS = 2.795), computer-based digital presentation technology (Destination system, Smart Boards, video projectors (wired/wireless; MS = 2.760) and electronic portfolios (MS = 2.728). It is evident that all aforementioned technology support medium are well above the average of 2.5, but at varying order of integration.

Table 8: Extent of Integrating Technology Support to Student Learning in the Classroom

Technology integration	Mean	Rank
Internet research or searches in the classroom	3.143	1
Digital camera, scanner	3.032	2
Draw/paint/graphics software	3.019	3
Word processing software	3.000	4
Email in course delivery (e.g., to/from students to complete assignments)	2.992	5
Presentation software (e.g., Power Point, smart board)	2.970	6
Spreadsheet software	2.949	7
Database software	2.946	8
Concept mapping (e.g., Inspiration)	2.895	9
Blog, weblog, podcast, Wikipedia, or other special software to encourage collaboration among students	2.892	10
Specialized, discipline specific software (e.g., Mathematica, MS Producer, Toolbook)	2.868	11
Internet and/ or video conferencing for teaching online courses	2.860	12
Student web page &/ or multimedia authoring (e.g., Hyper studio or FrontPage)	2.846	13
Course management software (WebCT, Web Course in a Box, Black Board)	2.811	14
Web-based programs, online discussion boards, online chat programs, online bulletin boards to support collaboration among students	2.795	15
Computer-based digital presentation technology (Destination system, Smart Boards, video projectors (wired/wireless)	2.760	16
Electronic portfolios	2.728	17

Despite the various means through which technology supports are integrated into students' learning in the classroom, Table 9 shows that certain barriers that impacted integration of instructional technology cannot be overemphasized. Internet connectivity, professional development for teachers with rewards and incentives and software compatibility and availability were some of the high impact barriers (mean scores of 3.592, 3.558, and 3.521, respectively). Out of the listed 22 barriers, the least record of impact were found among job security

issues (teachers will be replaced by technology) (MS = 3.229), lack of technology resources (hardware, network, and/ or software; MS = 3.226), and no time (to develop, to implement, to communicate with students, etc.; MS = 2. 997).

Table 10 reveals that the respondents rated all the technology infrastructures to support integration of technology into the classroom well above average (2.5 on a 5-point Likert scale). The most highly rated infrastructures were student support for technology (mean score = 3.350), support and encouragement by colleagues (mean score = 3.324), and support for using technology by technical coordinator or technology department leaders (mean score = 3.207). The least-rated infrastructures based on the perceptions of the respondents were in the order of network and DDN support, funds to implement new technology from school district, and office and classroom computers and technology hardware and software (mean scores = 2.909; 2.972, and 2.973, respectively).

Table 9: Barriers That Impacted Integration of Instructional Technology

Barriers to technology integration	Mean	Rank
Internet connectivity	3.592	1
Professional development for teachers with rewards and incentives	3.558	2
Software compatibility and availability	3.521	3
Large class size	3.508	4
Time commitment to learning and implementing new technology	3.472	5
Scheduling when computer labs are available	3.468	6
Little or no knowledge and skills about technology and its use in the classroom	3.461	7
Funds to implement instructional technology	3.435	8
Commitment to technology	3.413	9
Lack of student competency and skills	3.390	10
Teacher reward structure including compensation, incentives, etc.	3.365	11
Not enough time for students to be at computers	3.339	12
Equipment difficulties	3.327	13
Unrealistic expectations by administrators	3.318	14
Funding to keep up with technological changes	3.309	15
Lack of recognition	3.295	16
Projection systems (wired or wireless)	3.287	17
Ability to teach and use technical content at a distance	3.267	18
Inadequate support (training or staff at the school)	3.267	19
Job security issues (teachers will be replaced by technology)	3.229	20
Lack of technology resources (hardware, network, and/ or software)	3.226	21
No time (to develop, to implement, to communicate with students, etc.)	2.997	22

Table 10: Infrastructures to Support Integration of Technology Into the Classroom

Infrastructures	Mean	Rank
Student support for technology	3.350	1
Support and encouragement by colleagues	3.324	2
Support for using technology by technical coordinator or technology department leaders	3.207	3
Community and parent support for new technology	3.204	4
Support through professional development training	3.191	5
Support for using technology by school administration	3.186	6
Rewards for implementing new technology	3.129	7
Library or multimedia support for technology	3.110	8
Support from higher education administration and faculty	3.105	9
Support from the state education board data centre	3.069	10
Funds to implement new technology from the state	3.003	11
Office and classroom computers and technology hardware and software	2.973	12
Funds to implement new technology from school district	2.972	13
Network and DDN support	2.909	14

7. Conclusion

Despite the clamoring for technology use and integration, many teachers in Oyo state are still finding it difficult to use and integrate technology during teaching because of nonavailability of these resources (Abdullahi, 2015; Fakeye, 2009; Moruf, 2015; Taiwo, 2009). With this said, professional development can help in building and developing technology skills, and also has the potential of impacting teachers' attitudes and perceptions toward using and integrating technology. There has been a tremendous change in teaching and learning due to

technology integration in most of the advanced countries as compared to many developing and underdeveloped nations (Jayson, 2013). This huge change has been attributed to the proper integration and use of technology in school to aid teaching and learning. Looking at Nigeria as one of the developing countries, although it has first class information about new technology and its use, especially in corporate sectors, the use of the technology has not rooted in many of the government schools all over the states.

It is evident that teachers are more capable of using technology to advance their teaching–learning process if adequate and necessary technology is provided for the effect. Moreover, the results show that there are significant relationships in teachers' demographics, and gender, except in the qualification of doctoral degree holder that did show a weak negative relationship. Although it would have been more interesting to know why this happens, this study was not focused on the cause and effect, but on the relationship between the variables.

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