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Effect of Teachers' Gender on Teachers' Perceptions Towards Information and Communication Technology (ICT) Facilities in Secondary Schools in Bayelsa State, Nigeria

NIZOLOMAN NABHEL ODUAL (PhD)
Department of Science Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.
Corresponding author email id: oduniz@yahoo.com ; + 2347031134872

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***Abstract* – This research employed a mixed method approach to explore teachers' perception towards ICT use in the classroom in Secondary Schools in Bayelsa State in Nigeria and the implications of teachers' gender on teachers' perceptions. Twenty participants participated in the FGDs held in 3 groups and 442 teachers from schools with and without ICT facilities responded to questionnaires. The Mann-Whitney U test was performed on the teachers' responses and the results showed that there was a gender difference between male and female teachers' perceptions about ICT in schools in favour of male teachers having more positive perceptions in all the 16 items. This implied that teachers' perception of ICT use in schools was influenced by teachers' gender.**

***Keywords* – Gender; ICT Use in Schools; Teachers' Perceptions; Bayelsa State.**

I. INTRODUCTION

Education in Nigeria:

There are two fundamentally distinct education systems in Nigeria: the indigenous system or informal characterized by apprenticeship and the formal European-style education system that is now the predominant education system in Nigeria which came to Nigeria with the missionaries in the mid-nineteenth century.

Consequently, for the formal education system, the Nigerian National Policy on Education first published in 1977articulated five main national educational goals:

1) A free and democratic society;
2) A just and equalitarian society;
3) A united, strong, and self-reliant nation;
4) A great and dynamic economy; and
5) A land full of bright opportunities for all citizens. [1]

However, the attainment of these objectives is challenged with the problems one of such is poor implementation of various government policies and programs that are geared towards the realization of these objectives at the different levels of implementation. The poor implementation is unrelated to the challenge of lack of finance since the success of any educational program heavily depends on the availability of funds to those charged with the responsibility of carrying out or implementing such educational policies and programs. The implication of these shortcomings is that educational policies and programs are not sufficiently providing the needs of the education system in Nigeria.

In Nigeria, primary and secondary education are both six years, and tertiary education may take two to five y-

-ears depending on the qualification sought. There is a nine-year compulsory education which is a combination of the primary education of six years and three years of junior secondary school education which is a scheme under the Universal Basic Education (UBE) system, a replacement of the Universal Primary Education (UPE) system [2], [3].

Teachers' Perception of ICT use in Schools:

Teachers' perception of the effectiveness of technology is an important predictor of the frequent classroom use of ICT. Hence, if properly used in the classroom as perceived, could provide a rich learning environment that supports students' learning and makes learning interesting. There is also the strong belief that if teachers' perceived technology programmes are neither fulfilling their needs nor their students' needs, then there is a likelihood that the teachers will not integrate the technology into their teaching and learning. Again, the association between teachers' perceptions towards ICT and successful integration into schools cannot only be reliant on the quality or sophistication of the technology but somehow on the teachers' readiness and positive disposition [4].

More so, teachers' supportive attitude acts as a strong determinant for the successful initiation and implementation of educational technology programs in schools. Similarly, teachers' positive attitudes towards the use of educational technology enable the teachers to be able to easily provide useful insight into the adoption and integration of ICT into teaching and learning processes. Similarly, as a measure that determines the effectiveness of any technology in the classroom is teachers' preparedness to integrate ICT into the classroom teaching and learning process. Additionally, teachers' adoption of a technology is inspired by teachers' personal characteristics such as educational level, gender, age, attitude towards the computer, educational experience and experience using the computer for educational purpose and these can inspire teachers' adoption of a technology [5], [6].

Gender and ICT use in Schools:

Gender differences and the use of ICT have been reported in several studies and documents which showed on one hand that female teachers' low levels of computer use were due to their limited technology access, skill, and interest. On the other hand, is that male teachers make use of ICT in their teaching and learning processes more than their female counterparts. Likewise, studies have shown that girls are more likely to use computers for word processing, while boys use computers for programming more often. Also, that boys have considerably more positive attitudes toward computers than girls, finding computers more enjoyable, special, important, and friendly than girls do [7], [8], [9].

In Nigeria, as in many other African countries, several factors such as psychological, attitudinal, social, and environmental factors contribute to the existing conditions of gender difference in the use of ICT. These gender issues are raising concern not merely because girls and young women have less access to ICTs, but because of how the lack of access to ICT facilities itself impacts on the future educational opportunities as well as career options and choices. That notwithstanding, the general impression is that there is a significant difference in gender access and use of ICT in schools in Nigeria 10].

II. Statement of Problem

In most of the secondary schools in Bayelsa State, there is a wide gap between investment in ICT infrastructure for teachers' use versus the allocation of resources to meet the immediate basic needs of teachers and learners.

Recently, it was observed by the researcher of this research that some public secondary schools in Bayelsa State, have been equipped with ICT facilities to enhance teaching and learning. However, the deployment of these facilities into the teaching and learning process is unacceptably limited by individual and situational factors for teachers' integrating these ICTs into the teaching and learning process Not much serious evaluation was carried out on the effects of teachers' gender on teachers' perceptions towards ICT use in the teaching and learning process in secondary schools in Bayelsa State, Nigeria. This is the gap in knowledge that this research will fill as it sets out to establish the effects of teachers' gender on teachers' perceptions of ICT in public secondary schools in Bayelsa State, Nigeria.

III. Research Questions

To fill the above gap, the following question is posed for the study; what is the effect of teachers' gender on teachers' perceptions towards ICT Facilities and use in schools?

IV. Research Design

To answer the above research question, the researcher of this research deployed a mixed method design (Focus Group Discussions (FGDs) and questionnaires) to find out teachers' perceptions about ICT use in secondary schools. The use of this method was to reflect the detailed and rich descriptive data collected during this research. The quantitative design was used to count the effect of gender on teachers' perception towards ICTs in schools, while the qualitative design was adopted to correctly analyse the general perceptions of teachers towards ICT use in the classroom.

V. Data Collection

A total of 20 participants participated in the FGDs held in 3 groups and a teachers' questionnaire was administered on 442 teacher's secondary school teachers in Bayelsa State, Nigeria. Out of 442 teachers, 258 (58.4%) were male teachers and 184 (41.6%) were female teachers.

VI. Results

Teachers' comments and reactions during the FGDs showed positive attitudes towards ICT integration into the classroom teaching and learning process. Without exception, most teachers recognized the importance of technology as a means of enhancing self-confidence and commitment in the teaching process. They were very excited to state that knowledge is endless and that using the internet helps them to access more knowledge, exchange ideas among teachers and become more confident:

"And at the same time, it also gives a kind of exchange of knowledge and ideas between teachers, not students alone. A teacher who finds it difficult on a particular topic can easily send it across to his colleague and both of them would discuss that particular topic". [FGDG2-T1; male].

"I also use internet in browsing when I am preparing for my topic, for my lesson. Before I get into the class, I browse the topic especially when I am making notes for my students and going to be in a meeting with the student, I browse to get more points from them". [FGDG1-T4; female].

Most teachers believed that ICTs in schools are very important in every educational sector, because the information they get from the use of technology through the internet, or networks and sources, exposes them to more knowledge than they would ordinarily rely on textbooks:

"This one, you have the opportunity to select which one is best for you to discuss with your students and also give the students the knowledge to also go and search for more information and that is knowledge. Knowledge does not have ending. The more you search using the internet the more you might have more knowledge about a particular thing". [FGDG3-T3; male].

The majority of teachers argued that there are more students than expected in their classrooms, claiming that ICT makes it easy for teachers to teach greater numbers, so to speak:

"So, when this ICT was introduced, it was introduced that we have to use ICT to teach so many students. Maybe when you connect probably up to about five classes, you can stay in one particular place to teach, that was actually the one or two most benefit of it". [FGDG2-T1; male].

"Or let's say, we don't have the projectors that we can use in the big classrooms system because our classes are normally big, the students are big". [FGDG3-T2; female].

It was very interesting to know how enthusiastically teachers responded to the effect of ICT on students' academic performance. The majority of teachers concurred that the use of ICT can enhance students' academic performance:

"Yes, because they have more time like I said reading books. Most of these children don't have books. But if this software is created and it is in the computer, they've got all the books and all the lessons there. And because it is computer, they will be willing to open to it more often than the textbooks". [Principal; male].

"When you come to the classroom, you don't need talking so much…as you are saying, the students are explaining. So, it will make work for teachers very, very easy and students learn faster. So, the ICT I think is very good". [Vice Principal; female].

The Mann-Whitney U analysis was performed on the responses of teachers on the teachers' questionnaire to identify for any significant differences between teachers' gender in response to items relating to teachers' perceptions about ICT facilities in schools. If there should be any difference between teachers' gender, then most of the high ranks will belong to one type of gender and the lower ranks will belong to the other type, and the sum of ranks will be different. On the other hand, if there is no difference between the two types of gender, then the ranks (high and low) between the two gender types will be evenly distributed.

Teachers responses to items on the teachers' questionnaire were used to examine the effect of teachers' gender on teachers' perceptions about ICT facilities in school at 95% confidence interval (CI) significance level. The Z-Score arranged in descending order was used to determine how the responses deviated to the mean and the results were presented per secondary schools with and without ICT facilities. (Please see Table 1).

Table 1: Differences between teachers' gender and their perceptions towards ICT facilities in secondary schools in Bayelsa State, Nigeria

ITEM AS PRESENTED IN SECTION B OF THE TEACHERS' QUESTIONNAIRE		GENDER	Mean Rank	Mann-Whitney U	Z-Score in descending order (for schools with ICT facilities)	Asymp. Sig. (2-tailed)
1	I have the support from administrators to use ICT in the classroom	Male	258.95	116.000	-17.447	0.0001
		Female	77.76			
		Male	53.96	25.000	-7.505	0.0001
		Female	16.81			
2	Using ICT makes me effective in teaching	Male	259.30	42.000	-17.316	0.0001
		Female	77.27			
		Male	54.16	15.500	-7.631	0.0001
		Female	16.50			
3	I need longer blocks of time for instruction using ICT	Male	259.08	90.000	-17.009	0.0001
		Female	77.59			
		Male	53.71	36.500	-7.415	0.0001
		Female	17.18			
4	I have free access to technology in my school	Male	258.77	155.000	-16.900	0.0001
		Female	78.01			
		Male	49.11	248.000	-5.555	0.0001
		Female	24.00			
5	ICT facilities are very easy to use in the classroom for teaching	Male	255.21	910.000	-16.784	0.0001
		Female	82.95			
		Male	53.97	24.500	-7.473	0.0001
		Female	16.79			
6	There is professional development on how to integrate technology in my school	Male	258.66	136.000	-16.765	0.0001
		Female	77.89			
		Male	50.79	170.500	-6.208	0.0001
		Female	21.50			
7	I know how to use technology	Male	257.09	510.000	-16.616	0.0001
		Female	80.33			
		Male	52.24	104.000	-6.591	0.0001
		Female	19.35			
8	ICT helps me to organise my work	Male	258.10	287.000	-16.442	0.0001
		Female	78.94			
		Male	53.95	25.500	-7.348	0.0001

		Female	16.82			
9	I have control managing the classroom when students are working on computers	Male	256.61	612.500	-16.149	0.0001
		Female	81.00			
		Male	50.46	186.000	-6.064	0.0001
		Female	22.00			
10	I understand how to integrate technology in my teaching	Male	255.54	840.000	-16.088	0.0001
		Female	82.49			
		Male	53.15	62.000	-7.181	0.0001
		Female	18.00			
11	I rely less upon textbooks as a result of the internet	Male	255.40	869.000	-16.057	0.0001
		Female	82.68			
		Male	54.16	15.500	-7.587	0.0001
		Female	16.50			
12	I have changed the way I organise classroom activities using ICT	Male	253.15	1345.500	-15.515	0.0001
		Female	85.79			
		Male	54.16 16.50	15.500	-7.636	0.0001
		Female	255.40			
13	Lesson plans are richer when I use the internet	Male	248.43	2346.000	-14.584	0.0001
		Female	92.33			
		Male	53.89	28.000	-7.312	0.0001
		Female	16.90			
14	I would like to integrate ICT into my teaching	Male	243.39	3416.000	-13.797	0.0001
		Female	99.33			
		Male	50.39	189.000	-5.968	0.0001
		Female	22.10			
15	ICT facilities are very useful to the contemporary teaching and learning process	Male	238.96	4355.000	-13.123	0.0001
		Female	105.46			
		Male	53.91	27.000	-7.416	0.0001
		Female	16.87			
16	I think technology is reliable	Male	231.76	5880.000	-11.888	0.0001
		Female	115.43			
		Male	51.73	127.500	-6.507	0.0001
		Female	20.11			

When statistically tested using Mann-Whitney U test, the results from Table 1 revealed that there was a gender difference between male and female teachers' perceptions about ICT in schools in favour of male teachers having more positive perceptions in all the 16 items. This implied that teachers' perception of ICT use in schools was influenced by teachers' gender.

VII. DISCUSSION

Traditional African Societies (Nigeria inclusive) seemed to create certain barriers for female's best achievements by giving more responsibilities in terms of household duties and reproductive tasks to women. The consequential effects are women's low social status and positions in public institutions, access to education, political power, income, and economic sources compared with their male counterparts. The gender divide is also apparent in digital fields, which tend to favour men over women with regards to access to, and use of, technologies in school settings [11], [12], 13].

From Table 1, the results, on one hand, revealed that there was a gender difference between male and female teachers' perceptions of ICT in schools with ICT facilities, where male teachers had positive perceptions compared to their female counterparts with negative perceptions. This result supported the findings of other researchers who reported that there was a difference between male and female teachers' perceived readiness to use technology when teaching and that male teachers have more positive attitude towards technology and higher levels of perceived self-confidence in the use of technology in the classroom than female teachers [4], [15], [16], [17].

Similarly, the results of this research are consistent with several other researchers such as [18] who found that there are significant differences between male and female teachers' perceptions of ICT use in classrooms as male teachers are more receptive to ICTs than female teachers. Even though [19] found out that a significant difference exists between male and female teachers, it was in favour of female teachers' perceptions of barriers towards the use of ICTs in the classroom. They argued that women report more barriers to ICT use in the classroom than men. This result added credence to the findings of this research.

On the other hand, the results of this research suggested that there was no gender difference between male and female teachers' perceptions of ICTs in schools without ICT facilities. These results are supported by [20], who revealed that there was no gender difference between male and female teachers' perceptions towards the use of ICT facilities in schools, as both male and female teachers have the same positive perceptions towards the use of e-learning when they do not already have access to ICTs in school.

In this research, teacher's perceptions about ICTs in the classroom were found to be influenced by the gender of the teachers in schools with ICT facilities. A simple explanation of this is that the mainstream of the male teachers succinctly said that they have the support of administrators to use ICTs in the classroom. They argued that: their use of ICTs makes them effective in their teaching, they needed longer blocks of time for their instruction using ICT, and that they have free access to technology in their schools. This contrasts with their female counterparts. Additionally, the opinion of the majority of male teachers highlighted that: they found ICT facilities very easy to use in the classroom for teaching; they have taken advantage of professional development regarding the integration of technology in their schools; they knew how to use technology, and that ICTs helps them to organise their work. However, their female counterparts did not report having the same knowledge of

ICTs and ICT training. A good number of the male teachers also said that they: are able to manage the classroom when their students are working on computers; understood how to use technology for their teaching; relied less upon textbooks because of the internet, and that they have also changed the way they organise classroom activities using ICTs. The same was not reported by female teachers. Finally, the bulk of the male teachers said that: lessons are richer when they use the internet; they would like to integrate ICT into their teaching; ICT facilities are very useful to the contemporary teaching and learning processes, and that they also thought that technology is reliable. However, the majority of female teachers did not express these perceptions towards ICTs in schools.

VIII. CONCLUSION

This research found a gender difference between male and female teachers' perceptions about ICT in secondary schools with male teachers reporting positive perceptions more often than female teachers. The implication of this finding was that teachers' perceptions of ICT use in schools were governed by teachers' gender.

Possibly, an enduring cause of gender digital divide in Nigeria (Bayelsa State inclusive) is that a majority of women, are living in the rural areas where there is a high level of a shortage of ICT facilities such as low quality of telecommunication infrastructure, socio-economic amenities and ICT devices (light, computers and internet). Additional factors responsible for the imbalance in female against male's access to and use of technologies in Nigeria include: lack of government gender-sensitive policies at National and Regional levels to drive women to use technologies, women's lack of ICT skills, women appeared to have less time to learn new technologies and related programmes in ICTs due to other domestic engagements and pressures.

Also, women in Nigeria seemed to be unenthusiastic compared to their male counterparts to access public ICT centres due to male's interaction behaviors towards women such as prevalent watching of unacceptable sites (pornography), harassments and the belittlement of women ICT abilities. Religious and socio-cultural beliefs, as well as perceptions about the mental abilities of women to comprehend and manipulate new technologies, also contributes to the digital gender divide in Nigeria [21], [22].

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AUTHOR'S PROFILE

Dr Nizoloman Nabhel Odual

I was born in Okodi-Ogbia, Bayelsa State, Nigeria on 5th September 1967.
My educational background
1) PhD in Education; Aberystwyth University; Ceredigion, Aberystwyth, SY23 3UX, 2018; ICT in education.
2) Master of Education; University of Ibadan, Ibadan, Nigeria; 2010; educational measurement and evaluation.
3) Bachelor of Education; University of Ibadan, Ibadan, Nigeria; 1991; mathematics education.
I am a lecturer for over 25 years teaching undergraduate level in Department of Science Education, Faculty of Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria. My publication: Relationship between Mathematical Ability and Achievement in Mathematics among Female Secondary Students in Bayelsa State of Nigeria. *Procedia-Social and Behavioural Sciences.* Volume 106, 10 December 2013, pp 2230-2240.

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2. Aberystwyth University Learning and Teaching Conference, Aberystwyth University, Penglais Campus, SY23 3UX, 10-12th July 2017.
3. The 7th Early Career Research Meeting organised by the British Ecological Group, Tropical Ecology Group, University of York, Derwent College, YO10 5DD, York, held between 14-15th August 2014.
4. A Child's World International Conference organized and hosted by the School of Education and Lifelong Learning, Aberystwyth University at Penglais Campus, Aberystwyth, Wales, United Kingdom, held between 25-27th June 2014.
5. The 4th International Conference on New Horizon in Education (INTE) organised by Sakarya University and University of Mala at Mercure West Rome Hotel held between 25-27th June 2013. Paper presented: Relationship between Mathematical Ability and Achievement in Mathematic among Female Secondary School Students in Bayelsa State, Nigeria.