

# **SOCIO-CULTURAL FACTORS INFLUENCING GENDER DIFFERENCES IN ICT ADOPTION IN PUBLIC SECONDARY SCHOOLS IN OGUN STATE, NIGERIA**

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## **Abstract**

Information and Communications Technology (ICT) is recognized globally as the bedrock for national development in a fast changing global environment. Increasingly, the adoption of ICT for different purposes including teaching and learning has become widespread among Secondary School Students (SSS) in Nigeria. However, there exists a gap in ICT adoption between male and female students. Wrong perceptions of ICT, choice of ICT platforms, Power outage and lack of internet facilities have been identified as obstacles to optimal ICT adoption. This paper examines the influence of socio-cultural factors on the gender differences observed in ICT adoption among students of Public Secondary Schools (PSS) in Ota, an urban settlement in Ogun State, southwest Nigeria. Engaging primary data from a sample of 287 secondary school students (SSS), the study found the absence of positive and supportive ICT culture as major a hindrance to ICT adoption among female students of Public secondary schools (PSS). It suggest the need for enabling social-cultural environment to increase the participation of both male and female students in ICT for relevant opportunities and employment in the sector. The study concludes on the need to remove sociocultural barriers promoting gender differences in ICT and the need for more awareness efforts on Science, Technology, Engineering and Mathematics (STEM) and related ICT fields required for human and societal transformation.

Keywords: Social, Cultural, Gender, Information, Communication, Technology, Public, Secondary, Schools, Development, Nigeria.

## **1 INTRODUCTION**

Over the years, it has become clear that ICT application, adoption and use will be valuable for improving Nigeria's educational systems in addition to offering students a better education (George, Ahmadu and Chukwuedozie, 2013). Unfortunately, Goshit (2006) noted that most schools, including government owned and private ones do not offer ICT training programmes. This perhaps account for why NEPAD scored students from African continent very low in ICT experience and proficiency. Of the 55percent students that participated in the NEPAD e-School initiative training programme including Nigeria, Algeria, Burkina Faso, Cameroon, Egypt, Gabon, Lesotho, Mali, Mauritius, Mozambique, Ruwanda, Senegal, South Africa, Uganda and Nigeria, had no experience at all in suing computers. According to Okwudishu (2005), the unavailability of certain ICT components in schools prevent the teachers from using ICT.

George & Barnabas (2015) opined that ICT is a vital tool for gender development. Women need the required exposure to the complex and often technical tools of ICT to access information and data needed for quality research output. Research has shown that both male are female's self-concept are shaped by their immediate social environment, peers, school, family and mass media and as well the value they attach to different subject and academic realms (Eccles, 1994). Support enjoyed from relations, peers, school environments and other significant individuals play significant part in adolescent's decision and choice of pursuing career in technology-related studies (Sáinz et al., 2009; Zarrett, Malanchuk, Davis-Kean, & Eccles, 2006). Generally studies have shown that sports, physical science and mathematics are considered male biased domains and boys have higher prospects and ability such areas compare to girls, while girls have higher prospects and ability in verbal skills compare to boys (Skaalvik & Skaalvik, 2004; Wigfield & Eccles, 2002).

Few girls may likely choose technology related and physical science as careers owing to the fact that girls assume that they are not too good at technology skills and physical science but their areas of strengths are verbal skills and biological science skills, they agreed that their mathematical skills are inferior to that of boys. Findings have shown that female assumed that in the area computers and

technological related fields they are less competent than their male counterparts (Sáinz et al., 2009; Zarrett & Malanchuk, 2005), Owing to these, the study of gender differences in computer attitudes has drawn the attention of most studies investigated within the computer science field domains, confirming that female are more pessimistic about computers compare to their male counterparts (Sáinz, 2007). These pessimistic dispositions towards computers prevent female from pursuing careers in computer and technology related studies (Sáinz & López-Sáez, 2010). Adolescent male are more likely than adolescent female to receive more support from major individuals such as teachers, school advisors, peers and parents to pursue computer and technology related studies (Cussó, 2007). Parental supports are not the only predictors or determinants that direct young people of how to use ICT, but it has also been found to be very essential in the decision-making process in deciding studies, career choice and in molding mind-sets, habits and uses (Vekiri and Chronaki, 2008).

Kiefer & Shih (2006) accounted that female to choose careers in health and biology-related careers and male are fascinated in pursue technological and scientific related studies and less involved in studies allied to the provision of care and nurturance. It has long been debated that boys are more probable to have mathematical talent compare girls whereas girls are more probable than boys to have verbal talent, leading boys to perform better in mathematics than girls, to develop high math ability self-concepts, and to be more likely to enter math related technical fields (Skaalvik & Skaalvik, 2004). Studies have shown copious proof that in spite of female high performance, they have judged themselves less competent in computer and scientific related domains, and that this belief can daunt them from partaking in computer and technology related studies (Creamer, Lee, & Meszaros, 2006; Eccles, 2007).

The study attempts an empirical investigation of the socio-cultural factors influencing gender differences in ICT adoption among secondary school students. It identifies socio cultural variables influencing adoption of ICT across gender lines among secondary school students. The study explains access to and uses of ICT especially computers by secondary school students with a view to determining the militating factors and differences between male and female students.

## **2 METHODOLOGY**

The survey method was adopted for the study. The population of the study comprised of 300 students selected across six (6) Public Secondary Schools in the study location. The simple random sampling was used to select 50 students in each of the six (6) Public Secondary School (PSS) sampled. The selected schools are located in in *Ofa* an urban and fast growing city located in Ogun State South west Nigeria. Due to time constraint and funding the sample size for the study was 300. Of the 300 questionnaire administered 287 representing 95.6 percent were adjudged useable for analyses The major data collection instrument was the semi-structured questionnaire which was administered to students using stratified random sampling technique. The research instrument - questionnaire containing mostly closed ended questions in a 5 with the assistance of three research assistants in all the Public Secondary School (PSS) for actual coverage. Results of the findings were subjected to statistical analysis and the data in the study were analyzed using Multiple Regression analysis to determine the composite (joint) and relative effect of independent variables on dependent variable in the study. The demographic information was analysed using descriptive statistics such as frequency counts and percentages.

## **3 DATA ANALYSES AND DISCUSSIONS**

Two (2) hypotheses stated in the null form were tested for the study:

$H_0$ : There is no relative contribution of Socio-cultural factors and Gender Differences to students' ICT adoption in Public Secondary Schools in Nigeria

**Table 1.** Relative contributions of Socio-cultural factors and Gender Differences to Students' ICT adoption in Public Secondary Schools in Nigeria

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	-2.836	1.421		-1.995	.047
	Gender Differences	-.002	.007	-.014	-.313	.754
	Sociocultural	.320	.021	.671	15.263	.000

Table 1, shows gender differences significant effect on students adoption of ICT ( $\beta = -.014$ ), also sociocultural factors have significant effect on students adoption of ICT ( $\beta = .671$ ). Of these both gender differences and sociocultural factors made significant contributions to students adoption of ICT ( $p < 0.05$ ) ( $< 0.05$ ). Therefore, the null hypothesis is rejected. This implies that if sociocultural practices and gender stereotype are eliminated, the level of ICT adoption among female students in Nigeria will be grossly increased. This corroborates the findings of Adepoju (2016) who revealed that the male gender utilizes ICTs more than the female gender; and gender plays a vital role in limiting the female participation on equal terms with their male folks. Contrarily, Maleka (2011) reported that no gender difference exists in adoption and usage of ICT's in South Africa, and there is an increasing interest in ICT's adoption among female than before, especially the younger generation.

$H_{01}$ : There is no significant effect of the sociocultural factors and gender differences on Students' ICT Adoption in Secondary schools.

**Table 2.** Composite Effect of Socio-cultural factors on Students' ICT Adoption

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
	.671 <sup>a</sup>	.451	.447	3.43263	.451	116.480	2

Table 2 shows that socio-cultural factors and gender differences have a multiple effects and relationship with students ICT adoption ( $R = .671$ ). The combined factors accounted for 45.1% total variance in students' ICT adoption ( $R \text{ Square} = 0.451$ ). The remaining 54.9% can be ascribed to other factors not included in the study. Ahmed (2016) citing Kelles-Viitanen (2003) Opined that despite the fact that ICT plays a major role in all facets of national life including cultural development, sociocultural factors still found among the impeding factors affecting ICT adoption globally. Aljeera (2016) noted that ICT adoption rest on a kind of socio-cultural factors. Depending on the society, or existing culture. This is with reference to the totality of the way of life of the people including norms, values and the socialization process. If perhaps males are socialized to engage and adopt ICT studies or tools and consequently the girls are encouraged towards non-ICT field, it will affect their engagement and adoption of same at whatever level. Importantly, socio-cultural factors play significant role in the overall adoption process of ICT..

#### 4 SUMMARY OF MAJOR FINDINGS

In spite of the crucial role of ICT in national and other spheres of development, socio-cultural factors are found to be relevant impeding factors to ICT adoption among female students of public secondary schools (PSS). The socio-cultural factors as used in this study include – cultural bias, gender stereotype and negative perceptions about the ability of the girl child referred to as weaker vessel, good at domestics and less stressful ventures is crucial for ICT engagement by the female child. The study found that the level of ICT adoption and usage is still at a low ebb especially among female students in secondary schools located in rural and semi-urban centers. For instance, during data collection, the researchers found only two computers in a secondary school with a student population of over 3,000. Sadly, only one of the two computers available in the school is functional and was lying dormant in the school principals' office due to power outage and lack of provision for fuelling the

available generator in the school. Similarly another public secondary school sampled with over Ten (10) desktop computers has no power supply as at the time of the visit to maximally engage the students with the available computers. For the students to have access to the few computers available, they will have to be grouped into batches due to the large population to enable them access the few available computers. Data collected from the field reveal that most of the female students in the schools visited had no access to computers during and after school hours mainly due to lack of interest in ICT, Computer studies and STEM related subjects. The reverse is the case with some male students who in spite of the unavailability of ICT resources create alternative means of access including visiting the cyber café.

## 5 CONCLUSION AND RECOMMENDATIONS

The study examined the socio-cultural factors influencing Gender Differences in ICT adoption in Selected Public Secondary Schools (PSS) in Ogun State, South west, Nigeria. The 21<sup>st</sup> century global society of modern time is powered and driven by Information and Communication Technologies (ICT). In spite of efforts to ensure that ICTs are available and used in Nigerian Secondary schools, the level of uptake is remain very low in most public Schools. Over 50 percent of the students sampled especially the females stated that they had no prior experience in using computers. The study found that sociocultural practices and gender stereotype exist and if eliminated, the level of ICT adoption among female students in Nigeria will be grossly increased. The adoption of same at various levels irrespective of gender and socio-cultural differences is not negotiable. Power outage was a major challenge in the Public Secondary schools sampled due to inadequate or insufficient funding. The role of constant power supply for computers and other ICT equipment cannot be over-emphasized. According to a Principal in one of the Secondary schools sampled, It is only when the challenge of power is resolved that the question of ICT adoption among Secondary school students can become realistic". On the basis of the findings from this study, the following recommendations are suggested. There is urgent need for alternative source of power for the available computers in the schools to give more access to students. There is need for constant awareness on the need to give equal opportunity to both male and female students in terms of access to Computers and relevant ICT equipment to enhance adoption of the multiple benefits of ICT. Finally, the female students themselves should show interest in making choices relating to Computer and ICT studies. Importantly, government should ensure that ICT policy Statements are translated into reality. Government at different levels (Local, State and Federal) should provide relevant infrastructure and training for the integration of ICT into the Secondary school system in Nigeria. The collective efforts of Public –private partnerships, Non-Governmental Organizations (NGOs) Professional Bodies, Alumni associations and well-meaning individual will compliment Government efforts and indeed make much difference in up scaling ICT adoption in Nigerian public schools. Finally, Teachers should be supported through grants and soft loans to purchase personal computers as starting point in ICT education and sustainable development.

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