Gender Differences in Smart Phone Ownership, Usage and Literacy among Undergraduates of Lead City University, Ibadan, Nigeria

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Abstact

The smartphone has taken the centre stage in shaping the way we talk, think, relate, bank, educate, shop, employ and virtually the way we live on the planet earth. Mobile phone technology offers easy access to information, finance, e-commerce, health and general transformation of lives both in the negative and positive. The use of mobile phones is becoming more and more inevitable because of its many functionality and usability. However, accesibility and usage by male and female has been found to be unequal. This inequality has been found to be more persistent and noticeable in low and middle income countries; more males than female own a mobile device. With the versatility, indispensability that mobile technology offers, noone should be denied access and full usage under any circumstances. This study investigated gender differences in ownership and usage of smartphones among undergraduates in a Nigerian University. 155 students across five faculties participated in the survey. 3 research questions were generated and 1 hypothesis tested. Smart Phone Ownership and Usage Questionnaire (SPOUQ) was used with reliability coefficient of 0.7228. Data were analysed using mean, standard deviation and t-test. Result revealed that 61.95% of females and 34.8% of males own smartphones. Gender had no significant difference in smart phone usage, there is significant difference in male and female ownership of smartphones, there is also significant differences in the level of usage. The study recommends more effective usage of smartphone for education purposes among undergraduates, especially females.

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Keywords: Smart phone, Usage, Gender, Ownership

Introduction

Wireless communication technologies have become widespread all over the world. In 2006, 90.9% of people in developed countries and 32.4% of people in the developing countries owned a cellular phone (Global System for Mobile Commuication, 2018). Many people are mobile-phone subscribers and own devices such as mobile telephone, digital cameras, personal digital assistants and laptops that are enabled with wireless fidelity (Intenational Telecommunication Union, 2006; Katz, 2005). Today, the mostpopular gadgets in addition to cell phones are iPods, tablet PCs and Personal Digital Assistants (PDAs)(Switzer & Csapo, 2005). Hand held technologies are in a time of rapid change. In recent years, handheld devices have become one of the fastest growing communication technologies (Wireless Intelligence, 2005). With over 5 billion subscribers worldwide, mobile is one of the most far-reaching technologies in history. It has the capacity to deliver trans-formative services and opportunities to users,

especially access to the internet. In fact, for most of the world's population, mobile is the primary way to access the internet, with about 3.3 billion subscribing to mobile internet services.

Smartphones have become one of the most used devices in our current times. This is due to the fact that advancements in technology have made them cheap and easy to obtain (Andone and Blaszkiewicz, 2016). In 2015, there were available 3.2 billion Smartphone subscriptions, with 6.3 billion predicted to be available in 2021 (Andone and Blaszkiewicz, 2016), that would be almost the entire population of the world by then, taking into factor growth that will occur in world population, from the current approximate of 7 billion people. People carry them around all the time and they are used not only for communication but also for entertainment and news. Since Smartphone have a multitude of sensors and good recording capabilities, they can easily be used for studying user behaviour (Andone and Blaszkiewicz, 2016).

Smartphones fall under the category of Information and Communication Technology (ICT) devices that enable the manipulation and communication of information. Its' use and application can be found to be suitable for wide range of activities and sphere of human endeavour; for instance, as earlier said we can find Smartphone being used for entertainment purposes, with the availability of different applications for playing various games, watching entertaining videos and reading text. Also,the use of Smartphone enables commerce, banking and financial transactions to be carried out from any remote location. In the field of education, Smartphone are now playing a huge role in how students access, acquire and make use of information for different educational purposes; it will be quite difficult for an undergraduate in the 21st century to cope with academic challenges without having a Smartphone, Caves, (2011).

According toCaves (2011), the brisk advancement of new technologies make change in the educational practice inevitably, and has led to the development of new forms of learning; mobile learning or M-learning, which has been identified byLan and Sie, (2010) as a new type of learning model which allows learners to receive learning materials without limitation of time and place through wireless telecommunication network and the internet. The tools used to support M-learning include mobile devices like smartphones, Tablets, Net-books, and Laptops. Mobile phones of course are popular among university students, increasing their social inclusion and inter connectedness as well as providing a sense of security as they can contact others in times of distress, or emergency, Balakrishnan and Raj, (2012); McIntosh, (2020).

Lead City University is a tertiary institution located at the heart of Ibadan, Oyo State, Nigeria that offers various courses of study such as Accountancy, Biochemistry, Law, Biology, Business Administration, Chemistry, Computer Science and Information Science, Computer Science with Economics, Computer with Electronics, Economics, Guidance and Counseling, Psychology, Performing Arts, Nursing, Anatomy and a range of Education-related courses. The University boasts of a number of academic staff (numbering over two hundred) and over four thousand students studying the variety of undergraduate and post-graduate accredited courses. The Institution is at the frontier of academic progress and development, and pursues academic excellence, having staff that are technologically inclined and understand the importance of Information and Communication Technology devices and the huge advantage that is made available when integrated into the teaching and learning process. They encourage the students to be tech-savvy in their academic pursuits and matters through their teaching methods and academic exercises. Within the school premises, the lecturers and students go about their activities along with their hand-held digital devices (which of course include smart mobile

phones) incorporated into their activities; they used the devices for communication, acquisition and manipulation (processing, storage, sharing) of information for personal and work-related purposes, entertainment, as well as for connecting with family, peers, staff and students. One would be hard pressed to say that the smart phone has become a vital part of the social and academic process among students in general. The University provides optic fiber wireless (wifi) which is accessible to students and staff using password. At the library, there is an e-section (electronic library well furnished with internet ready desktops).

Statement of the Problem
Much as the mobile technology plays important roles in education, communication, entertainment, and social life; not making maximal use of it undermines its functionality. The gender gap in ownership and literacy is also problematic, because everybody needs it, especially students in higher institution. In fact the Covid-19 pandemic has thought humanity a lesson that mobile technology has come to stay; with schools shutdown all over the world, technology has come to the rescue with online classes. Therefore, ownership, usage and literacy should not be the exclusive rights of some privileged few. This study therefore sought to provide answers to the following research questions.

Research Questions
1. Is there difference between the perception of male and female gender towards the ownership of Smartphone?
2. Is there difference between the perception of male and female gender towards the usage of Smartphone?
3. Is there gender difference in mobile (Smartphone) literacy levels between male and female (gender) students?

Purpose of the Study
To investigate the significant difference in ownership, usage and literacy levels of Smartphone between male and female students of Lead City University, Ibadan.

Significance of the Study
The findings of the study are beneficial in raising the level of awareness of the gender gap that exit is Smartphone usage. The result of this study is useful to parents, locos parentis, wards and friends of students, some of whom provided the phones to the students. Lead City University student's affairs, Faculties, and students will benefit from the findings of this study.

Empirical Review
Since the advent of Smartphone use at the beginning of the1990s, researcher have sort to understand the dynamics of its use, ownership and functionality, Andone, Markowetz, and Montag, (2016) in their survey on how age and gender affect Smartphone usage. Their results show that females use Smartphone for longer periods than males, with a daily mean of 166.78 minutes vs. 154.26 minutes. Younger participants use their phones longer and usage is directed towards entertainment and social interactions through specialised applications, older participants use it less and mainly for getting information or using it as a classic phone.

In a research on gender differences in the association of Smartphone use with the vitality and mental health of adolescent students. A total of 218 adolescents were recruited from a junior college as respondents for the research. The findings showed that adolescent females as compared with adolescent males exhibited significantly higher degrees of Smartphone dependence and Smartphone influence (Yang, Lin, Huang and Chang, 2016). Positive correlations were observed between the duration of Smartphone use on weekends and the vitality/mental health of the male adolescents; negative correlations were found between Smartphone dependence and the vitality/mental health of males.

The use of mobile phones by male and female Greek students was investigated; a questionnaire regarding the use of mobile devices was developed and distributed to 416 students in a Greek University. There were completed 384 questionnaires. The results revealed that students use their mobiles mostly for phone calls and SMS (short message service). They also tend to use their mobiles to take photos and activate the reminder. However, they do not deal with many of the devices operations. They use their mobiles to communicate (telephone, SMS, email) mostly with their boy/girlfriends, then with their friends. They use their mobiles mostly at home, then at the University, also, they consider health issues as the main reason to limit the use of their mobiles (Economides, & Grousopoulou, 2008). Finally, there was not a statistically significant relationship between genders and their preferences. Other studies have considered issue around networking and gender difference Park and Lee, (2014) studied gender difference in social networking on Smartphone: a case study of Korean college students Smartphone users. The study examined gender in terms of social relations and social support on Smartphone. Data were collected through an online survey among college student Smartphone users (N=226). Results revealed that women tend to use camera on Smartphone more frequently than men, while men are more likely than women to use phone calling and Smartphone applications. Also, the results showed specific patterns of using Smartphone for maintenance of personal relationships. When spending their time on Smartphone mediated text communications, women were more likely to perceive bonding relationships strengthened, whereas men tended to perceive more bridging relationships expanded. These findings suggest that women tend to intensify close strong relationships by keeping up with friends on Smartphone, while men are likely to use Smartphone to expand their weak social ties.

An examination of the gender gap in Smartphone adoption and use in Arab countries: A cross-national study, carried out by Ameen, Willis and Shah, (2018) is the first research to study gender differences among consumers in a cross-national context in the Middle East: The United Arab Emirates (UAE) and Jordan. A conceptual framework was developed by extending the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) further. It was tested among individuals aged 18–29 years using multi-stage cluster sampling. A total sample of around 900 usable responses from both countries was included in the analysis. The factors national IT development, enjoyment, perceived relative advantage, price value and effort expectancy were found to be significant in the model among Arab women in the UAE and Jordan.

Leung and Wei, (2000) found not only social and instrumental motives of mobile phone use but mobility, immediacy, and fashion/status motives as well. In a similar way, Bae, (2011) shows that the Korean people's satisfactions sought from mobile phone are entertainment, sociability, transaction, Immediacy and privacy. In his study, immediacy and privacy reflect the characteristics of mobile phone communication. BesidesKim and Lee, (2001) suggests a variety

of motives of Korean college students, like; time management, face and conformity, and showing off. Men tend to use mobile phone as an instrument to do business while women tend to make social calls, and men make use of it more than women do. In addition, women have more attachment to their mobile phones than man do, especially to text messaging' Sun, (2004).

Ling, (2005), a Norwegian researchers found difference in texting behaviour between sexes despite the fact that men were quicker in adopting mobile phone and women became the more enthusiastic texters. On the basis of his deep observations, Ling suggested that 'women are more adroit and more literary texters'. Negating the statement that gender use of mobile phone is becoming similar, study among young Finns (16-20 years) identifies that males tend to ward 'trendy use' (focus on design and technology functions) while females tended toward 'addictive use' (focus on the use value)Wilska, (2003). In Europe, where mobile text messaging is more popular, a recent study shows that female users in the age group of 12 to 25 are apparently more enthusiastic about using SMS as a means of communication than male users. Male college students were more likely to use the Internet for recreational purposes, information gathering and entertainment while females preferred to use the Internet for communication (Shaw and Gant, 2002).

Furthermore, females tended to be social as they used e-mail and instant messaging more than their male peers. Also, they stated that the electronic mail messaging was the most important function of the Internet.Wilson, (2000) and actually used the email more than males.

Another survey reported that females made more cell phone calls and sent more SMS messages than men did. Also, teenage girls used their devices more frequently so as to express their feelings while boys were more interested in the technical aspect (Doring, 2004 in Economides and Grousopoulou, 2008). Saunders and Quirke, (2002) stated that males expected the new technology to offer to them easy and quick answers and they worked alone or sometimes even in pairs. On the other hand, females were interested in the quality of the product and they preferred interactive group work. It is worth mentioning that females tended to study online more than men as online learning may be appropriate for women's lifestyles and they were also more likely to look for further views of education (Selwyn, 2006). MoreoverSelwyn, (2006), reported that as the current situation changes, educational technology can be seen as a predominantly feminine activity. Generally, further research has to take place because gender differences emerge. From the foregoing, it is apparent that there are indeed gender differences in Smartphone use, cutting across many cultures, age, religion and economic divide. One interesting thing in the literature is that the differences from place to place, region to region are in themselves both similar and different.

RESEARCH METHODOLOGY

Research Design
Descriptive Survey research design was used for this study. The design is useful in describing a sample chosen from the population to discover the relative incidents, distributions and interrelated events.

Population of the Study
The population of the study consists of all the undergraduate students at Lead City University, Ibadan.

Sample and Sampling Technique

Purposive sampling was used to make sure only undergraduate students were used and proportionate random sampling was used to select representation of male and female students among the population; this is because the nature of the research work focuses on investigating gender difference. According toFrankel, Wallen, & Hyun, (2012) in random sampling, every member of the population presumably has an equal chance of being selected (Cooper and Schindler).David, (2005) mention that probability sampling is based on the concept of random selection, a procedure that assures that all elements in the population are given equal chance of being selected as a sample unit.

A sample of one hundred and fifty (150) students was selected at random in the University. Respondents consist of Ninety-six (96) females, and Fifty-four (54) males.

Research Instrument

Research instrument development for the purpose of this research is a questionnaire titled: Student Questionnaire on Smart-phone Usage (SQSP). The questionnaire consists of 4-point Likert scales, designed from strongly disagree to strongly agree.

The instrument is made up of two major sections; section A which contain the demography and section B which contains items (questions and statements) that are structured.

Reliability of Instrument

University of Ibadan was used for the pilot testing of the questionnaire of the students. The choice of the university was done with the understanding that they did not fall into the actual study sample. A sample of fifty students were selected for the pilot testing to ascertain the reliability of the instruments, reliability coefficients were computed using Cronbach Alpha, a generalized formula, which is normally used to test multiple itemsOgabazi & Okpala, (1994). The reliability coefficient of the instrument (SQSU) was 0.7228 was obtained, thus, indicating internal consistency and overall reliability of the instrument.

Administration of Research Instrument

After the pilot testing was carried out, and all necessary modifications were made on the questionnaire, a face-to-face mode questionnaire administration was adopted. This was to minimize the misinterpretation of some questions by the respondents, as the researcher was physically present. Again, the face-to-face contact ensured that the individual for whom the questionnaire was meant was actually the person that completed it. Four research assistants were employed in the administration of the instrument.

Data Analysis

Research questions were answered on individual item basis using mean and standard deviation. Also t-test was used to measure gender difference in the variables. The responses to the questions on the instrument were measured using a 4-point modified Likert scale. The numerical values assigned to the ratings were as follows; Strongly Disagree (SD) – 1, Disagree (A) – 2, Agree (D) – 3, Strongly Agree (SA) – 4, the cut off for decision making was given by the mean rating, which was obtained by summing all the ratings (1, 2, 3 and 4) and dividing by the number of ratings, which was (4) in this case. Hence, the mean rating of 2.5 was obtained. Scores below

2.5 were regarded as negative and indicate disagreement, while scores 2.50 and above were regarded as positive and indicate agreement with the statement in question.

Respondent's Demographic Characteristics

There were ninety-six (96) female and fifty-four (54) male. The age of respondents range from 21-30 years represented by 16-20= 47; 21-25= 47; 26-30= 10, total is 150. Faculties covered are Science 30; Humanities 31; Law 27; Social Sciences 30; and Education 32, totaling 150. Respondents' levels: 100 = 27; 200 =30; 300 =19; 400 =74, total is 150. They all have Smartphone.

Analysis of Respondent's Opinion on Research Questions

RQ1: Is there difference between the perception of male and female students towards the ownership and usage of smart phones in Lead City University, Ibadan

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Male Perception on usage and ownership of smart phone	54	3.31	.469	.064
Female perception on usage and ownership of smart phone	96	3.42	.496	.051

One-Sample Test

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Male Perception on usage and ownership of smart phone	51.960	53	.000	3.315	3.19	3.4
Female perception on usage and ownership of smart phone	67.548	95	.000	3.417	3.32	3.5

RQ2: Is there gender difference in level of ownership of smart phones among students of Lead City University Ibadan?

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error
Male Level of ownership of smart phone	54	1.06	.235	.023
Female Level of ownership of smart phone	96	1.04	.202	.021

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Male Level of usage of smart phone	45.632	102	.000	1.058	1.01	1.10
Female Level of usage of smart phone	50.309	94	.000	1.042	1.00	1.01

RQ3: Is there gender difference in level of usage of smart phones among students of Lead City University Ibadan?

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error
Male Level of usage of smart phone	54	1.06	.235	.023
Female Level of usage of smart phone	96	1.04	.202	.021

One-Sample Test

	Test Value = 0				95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Male Level of usage of smart phone	45.632	102	.000	1.058	1.01	1.10
Female Level of usage of smart phone	50.309	94	.000	1.042	1.00	1.01

RQ4: Is there gender difference in smart phone literacy levels?

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error
Male smart phone literacy	54	1.11	.310	.031
Female smart phone literacy	96	1.13	.334	.034

One-Sample Test

	Test Value = 0				95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Female smart phone literacy	36.192	102	.000	1.107	1.05	1.10
Male smart phone literacy	32.871	94	.000	1.126	1.00	1.01

Test of Hypothesis

H_0^1: There is no significant difference of gender to smart phone usage among students of Lead City University, Ibadan.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Person Chi-Square	150.000[a]	1	.000		
Continuity Correction	145.691[b]	1	.000		
Likelihood Ratio	196.025	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	149.000	1	.000		
N of Valid Cases	150				

a. 0 cells (0.0%) have expected count less than 5.
b. The minimum expected count is 19.44.
c. Computed only for a 2x2 table

Discussion of Findings

This study investigates the relationship between gender differences in the usage of Smartphone among undergraduate students of Lead City University. The model used reveals the degree of usage of Smartphone among the students 34.8% of the respondent were male while female was 61.9%. Also majority of the respondent fell between the age rangesfrom 21 to 25 years.

Since the advent of Smartphone use at the beginning of the 1990s, researchers have sort to understand the dynamics of its use, ownership and usage is consistent with the findings of, Andone, Markowetz, and Montag, (2016) which reveal that females use Smartphone for longer periods than males, with a daily mean of 166.78 minutes vs. 154.26 minutes. Younger participants use their phones longer and usage is directed towards entertainment and social interactions through specialized apps. Participants in this study are all young and use their phone for longer period, while male and female catch different fancy on applications they use. However, calculation of number of use is not of interest to this study. In alignment with the study of Yang, Lin, Huang, and Chang, (2016) on a research on gender differences in the association of Smartphone use with the vitality and mental health of adolescent students, in which adolescent females as compared with adolescent males exhibited significantly higher degrees of Smartphone dependence, this research found a similar trait especially with the use of phone cameras by female students.

In agreement with the findings of Economides and Grousopoulou, (2008) which asserts that students use their mobiles mostly for phone calls and SMS (Short Message Service), take photos and activate the reminders. In contrary, this study did not cover the issue of health, respondents careless on this issue with the ways they use their phone, especially females.

This study corroborates the findings of Park and Lee, (2014) on gender difference in social networking on Smartphone which revealed that women tend to use camera on Smartphone more frequently than men, while men are more likely than women to use phone calling and Smartphone applications.

Contrary to the results of Saunders and Quirke, (2002) which states that males expected the new technology to offer to them easy and quick answers and they worked alone or sometimes even in pairs. On the other hand, females were interested in the quality of the product and they preferred interactive group work. Female in this study are more interested in entertainment, fashion and celebrity gist online. Key contribution to knowledge in this study is that both male and female under-use the education applications on their phones, but male are more literate in the use of Smartphone application than females. They use it more for social interactions than for academic purposes. An on-going observation by the researcher, when she had to start her 300 level students on online classes using Google classroom, Zoom and Google hangout only one student representing 4 percent of the classroom had at least 60 percent knowledge of the use of these applications. The rest of the class is only savvy with WhatsApp. Therefore, I had to first tutor them on use of the applications.

From the foregoing, it is apparent that there are indeed gender differences in Smartphone use, cutting across many cultures, age, religion and economic divide. One interesting thing in the literature is that the differences from place to place, region to region are in themselves both similar and different.

Recommendation

Based on the findings of this study, it is recommended that students should focus on the factors that affect smart phone usage so as to improve its usage and maximise the functionality of their smart phones. It is also recommended that students should identify the factors that cause smart phone anxiety so as to come against them to avoid smart phone slavery. Also; the school should implement good motivational incentives on smart phone for the students and ensure the students are well appraised to improve on the use of smart phone for educational purposes and other areas of their lives.

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