# Internet Use Differentiation across Gender and Age: A Study of Undergraduates in North Eastern Nigeria

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## Abstract

*Research about the Internet has evolved along with the evolution of its related technologies and platforms, hosted on the global information superhighway. Studies since the late 1960s have documented the geometric increase in the number of people enmeshed on the social Internet, particularly children and young people. Theoretically-driven research in Europe and Asia found evidence of the association between certain patterns of Internet use and some demographic characteristics of young people. The current study thus examined three distinct patterns/purposes of use in relation to gender and age categories of undergraduate students in the six federal universities in North East Nigeria. 335 participants filled out self-administered survey questionnaire online, through a multistage random sampling procedure. Students were found to use the Internet comparatively more for social purposes (50.7%), educational purposes (48%), and for recreational purposes (34.9%) on daily basis, while only a negligible 4.5%, 4.2% and 3.9% of respondents respectively would not use the Internet for any of the three purposes investigated in this study. Surprisingly, the students spend more time online during weekdays (X = 4.3, SD = 1.09) than they do in the weekend days (X = 3.58, SD = 1.32). Although there was no mean difference between Internet use and respondents' age (f = 1.799, p = .129), a significant mean difference was however discovered between Internet use and respondents' gender (f = 4.742, p = .030). The theoretical and policy implications of the findings are discussed in the paper.*

***Keywords:*** *Internet use, age, gender, online, uses, time online*

## Introduction

Research about the Internet has evolved along with the evolution of its related technologies and platforms, hosted on the global information superhighway. Studies since the late 1960s have documented the geometric increase in the number of people enmeshed on the social Internet, particularly children and young people. The Internet has remained one of the most dynamic socio-technological phenomena since the late 20th century till date. About two decades ago, "182 million people accessed the internet globally and almost all of them lived in the developed world" (ITU, 2017, p. 1). A decade later around 2009, the number of Internet users geometrically rose eight times higher,

with an approximate 1.5 billion Internet users across the developed and the developing world (ITU, 2017). Today, as stakeholders work toward attaining UNESCO's Connect 2020 Agenda (aims to bring 60% of the world's population online by 2020), 4.021 billion out of the world's 7.5 billion people have access to the Internet (as at January, 2018), two times higher than in 2009 (ITU, 2017; Statista, 2018). By February 2019, 4.388 billion people use the Internet, with 57% penetration rate (smartinsight.com).

While these developments mean a boost for Internet access and use, low cost mobile telephony is creating even more channels of access and online participation among diverse demographic groups (Christoph, Enrico & Alison, 2014; Dalberg, 2017). Just half a decade ago, the African continent was described as having "alarmingly little access to the Internet on the continent, together with a large-scale absence of computers and smart phones, compounded by the high cost of connectivity" (Christoph et al., 2014, p.2.). The spread of mobile phones is rapidly bridging the digital gap by proving cost-effective Internet access and consequently use. Internet use is also enhanced in Nigeria by decreasing cost of data services as 1GB could be obtainable at as low as 1.59% of average monthly income; almost 5 times less than 6.54% in 2015 (Web Foundation, 2018). In fact, Nigeria has been ranked 44$^{th}$ in affordable mobile data cost alongside the UK at 136$^{th}$, and the US at 185$^{th}$ position; while the average cost of 1GB in Nigeria is $2.25, it is alarmingly higher in the UK ($6.66) and the US ($12.37) as at December 2018 (Cable, 2018).

## THE PROBLEM

Several studies have been conducted on Internet use among secondary school students (Anunobi & Mbagwu, 2011; Anunobi, 2006; Camilia, Ibrahim, & Dalhatu, 2013; Ehikhamenor, 2003; Emwanta & Nwalo, 2013; Israel & Edesiri, 2014; Ngoumandjoka, 2012; Odede, 2013; Sanni, Awoleye, Egbetokun, & Syanbola, 2009), and among students in tertiary institutions (Israel & Edesiri, 2014; Ivwighreghweta & Igere, 2014; Ogedebe, 2012) in Nigeria. Most, if not all of these studies focused mainly on descriptive aspects of Internet use by young people, often limiting the scope to students' use of the Internet for academic purposes. Research in these contexts is still at the documentation stage, with unreported or poorly developed measures.

However, in contrast to local studies cited above, further search into Internet use literature in other parts of the world shows that research in this area has gone beyond documentation to a more in-depth analysis of wide range of opportunities that abound on the Internet, and the attendant risks associated with patterns of use, and ultimately understanding the factors and conditions that predict these opportunities and risks among especially children and young people, who are widely acclaimed 'digital natives.' This global trend of Internet use research (Cabello-hutt, Cabello & Claro, 2017; Guan & Subrahmanyam, 2009; Lee & Chae, 2012; Louis Leung, 2014; Livingstone & Helsper, 2010b, 2010a; Mascheroni, 2015; Mascheroni & Ólafsson, 2014; Norliah, Safiah, Zakiah, Masila, Mhadi & Shahrulanuar, 2017; Zobidah, Daud, Hassan & Bolong, 2014) has clear implication for digital divide/inclusion and examined various factors that predict online opportunities and risks, and the demographic differentiation of children and young people's Internet use.

In line with the forgoing, the current study examined, from the perspective of digital/Internet literacy and digital divide/inclusion theoretical discourses, the relationship between Internet use and age and gender among undergraduate students of the six federal universities in the North East sub-region as the target population. Specifically, the current study interrogates the following:

1. What is the extent of Internet use among university students in north eastern Nigeria?
2. What is the association between Internet use and age categories of university students in the North East?
3. What is the association between Internet use and gender of university students in the North East?

## LITERATURE REVIEW

### *1.1* Stages of Development of Research about the Internet

The Internet has developed in a unique fashion, different from a lot of other technological inventions of earlier epochs. Even though determining the actual beginning of the Internet has remained controversial among historians, it is generally believed that the inventions that led to what we call today the Internet were mainly ideas that had their roots in the 1960s (Abbate, 1999; Cohen-Almagor, 2011; Haigh, Russell, & Dutton, 201; Leiner et al., 2009). Scholars in the new field of Internet Histories have variously referred to four distinct phases in the evolution of this giant socio-technological innovation. Research in the area has also

developed in almost the same fashion as the evolution of the Internet (Abbate, 1999, 2017; Cohen-Amalgor, 2011).

Barry Wellman has been recognised as one of the earliest scholars who lived the early days of the evolution of computer networks and the Internet (Livingstone, Mascheroni & Staksrud, 2017). Wellman (2004) has identified three distinct stages in the development of research about the Internet. He describes the first as "Punditry Rides Rampant" in which he emphasized that studies in the first stage depicted two extreme views about the Internet – a mixed feeling of hope and despair, and of moral panic about the future of young people. Wellman called the second "Systematic Documentation of Users and Uses" which began around 1998, when, according to Wellman (2004) "government policymakers, commercial interests and academics all realised the need for systematic accounts of the Internet," acknowledging the need to "describe the Internet rather than just praise it or coast on it" (p. 3).

The third stage (from Documentation to Analysis) represents current state of research into the Internet, especially its social impact in an increasingly digitised media environment. The third stage is characterised "with more focused, theoretically-driven projects" (p. 5). In this stage, researchers are developing testable theoretical models of the different sheds of relationships that develop on the Internet, factors that might foster or mar such relationships. Unlike the euphoria and the anxiety that characterised the first stage of Internet studies, current research has shown "that the Internet is neither a place where adolescents are exclusively confronted with risks that they cannot handle, nor a place that, in itself and automatically, creates opportunities for positive psychosocial development" (Valkenburg & Peter, 2011, p. 5). Current research has been concerned with developing testable theoretical models on the various social roles of the Internet among various age groups, especially among children and young people who are increasingly becoming enmeshed on the giant information superhighway (Livingstone, Mascheroni & Staksrud, 2017).

## 1.2 Internet Use

Internet use has been conceptualized as the length and breadth of time people spend on the Internet. In other words, Internet use refers to the frequency of visit and the

time spent when one logs onto the Internet (Livingstone & Helsper, 2010a, 2008; Livingstone et al., 2017). Numerous surveys have attempted to measure the amount of general Internet use – including the length of time people spend online per unit of time. Estimates vary widely, depending on how Internet usage is measured (e.g., self-report, automatically recorded), the ages of respondents sampled, when data was collected (i.e., year of the study), and how Internet use is defined (e.g., length of time online, frequency of use (Jackson, von Eye, Biocca, Barbatsis, Zhao, & Fitzgerald 2006). There is a need to empirically distinguish the amount of time spent online in various types activities (Lee & Kuo, 2002), even though most studies do not categorize or weigh Internet use according to the various activities and content (Joinson, 2001), it should be considered important since people use the Internet for a variety of purposes, which may vary by characteristics such as age, culture and gender.

Internet use is categorised in the literature into three specific but overlapping activities: a) educational use, such as information seeking for school project and homework, downloading data, and programming; b) recreational activities such as gaming, searching information about music, movie, and entertainment; and c) communicative activities, such as chatting, e-mailing, involvement in online communities, and social networking websites, which is similar to that of the general population as documented in European and Asian literature on young people's Internet use (Deursen, Helsper, & Eynon, 2016; Kim, 2011). Moreover, these categorizations have been consistently found in American populations (DeBell & Chapman, 2006; Jackson, 2006; Pew, 2016). More related to the latter categorisation above, Helsper, van Deursen and Eynon (2016) conceptualise uses from four conceptually distinct fields of economic, cultural, social and personal resources.

Meanwhile, Internet use patterns in the Nigerian context are also consistent to a large extent with those of the other regions cited above. For instance, Bankole and Adio (2018, p.1) reported a pattern of use among undergraduate students: "Majority of them used the Internet to complete class assignment (78.4%), entertainment (76.3%) and for communication (73.2%). The most used internet services and resources were the social media and search engines, online newspapers and e-books." Other local literature equally document evidence of patterns of use consistent with the foregoing but noted the lingering gap of inadequate skills and competence to traverse the diverse activities and resources obtainable on the

Internet (Akporido, 2010; Anunobi & Mbagwu, 2011; Anunobi, 2006; Awoleye, Siyanbola., & Oladapo, 2008; Nwezeh, 2011).

### 1.3 Demographic Factors in Internet Use Research

Internet use research is replete with analysis of the relationship between Internet use, digital literacy, online opportunities, online risks and socio-demographic factors of users including age, gender, social status, self-efficacy, parental mediation, age online, etc. These demographic factors have been used with varying effects in the available literature. In some cases, they occur as independent predictors, as moderators, as mediators and used to indicate certain emerging patterns in the analysis of data with enormous implication for digital inclusion. A review of some studies that used socio-demographic factors in relation to online opportunities and risks, the two dependent variables in the current study, is presented in few succeeding paragraphs.

Livingstone and Helsper (2010b), in their study of online communication of 9–19 year olds in the UK, examined the age differentiation of the respondents in terms of their offline socio-psychological characteristics (shyness, life satisfaction, risk-taking), family communication patterns and online behaviour/skills. They found that older teens engage in more online communication activities than do younger children and so encounter more communication risks. Also, gender disparity existed among children Internet users as they discover, even though girls communicate more on the Internet, they seem not to be more at risk; rather boys appear to face more risks online. "It was found that children's offline social psychological characteristics, particularly their levels of life satisfaction and risk-taking, influence their online communication, with different online communication activities being predicted by different patterns of off and online characteristics" (Livingstone & Helsper, 2010b, p. 1).

In a study to determine factors that influence the relationship between Internet addiction and academic performance of secondary school students in Turkey, Türel and Toraman (2015) found that academic success of the students increase with decrease in their Internet addiction averages. Gender appears to be determining factors as the average Internet addiction levels of male students, especially among less academically successful male students.

The influence of age, gender and social status on Internet access, use and online skills was examined by Livingstone and Helsper (2010a) using data from a national survey of teenagers in the UK (N=789). Results show increased access to the Internet is strongly associated with older teenagers, boys, and those from higher socio-economic status. Also, middle class teenagers and older teens are found to use the Internet more frequently and for longer period on an average day. But there is no significant difference between boys and girls in amount of use (measured by frequency of use and time spent online on an average day). Age as SES positively correlated associated with online skills and self-efficacy, with no gender differences. Further, older and middle class teenagers took up more online opportunities, while older teens and boys appear to encounter more online risks.

Louis Leung (2014) used gender, age, and education as control variables in a longitudinal panel study of gratifications-sought, Internet addiction symptoms, and social media use among children and adolescents. Closely related, Vandoninck, DlHaenens and Donoso (2010) controlled for digital literacy levels, socio-demographics and personality traits in a study to determine the influence of digital literacy on online risks encounter among Flemish youth. They found that while Flemish youth are exposed to risks online, demographic characteristics (age, gender, education, SES of the parents) and personality traits (self-image, risk perception, relation with parents) predict their digital literacy.

## METHODOLOGY

### 1.4 Population and sampling

The population of the current study comprised registered undergraduate students for the 2018/2019 academic session in the six federal universities: University of Maiduguri (UNIMAID); Abubakar Tafawa Balewa University, Bauchi (ATBU); Modibbo Adama University of Technology (MAUTECH), Yola; Federal University, Gashua (FUG); Federal University, Kashere (FUK); and Federal University, Wukari (FUW). Based on the sampling guide by Krejcie and Morgan (1970), a sample of 461 participants were drawn through multistage stratified random sampling of faculties, departments and classes.

### 1.5 Measures

**Internet Use (IU)**

IU is defined in terms of the frequency of use and time spent online by the survey respondents on daily/monthly basis. The measure for IU was adopted from

Livingstone and Helsper (2010a) with an 8-point scale. The scale is modified in the current study as follows:

| Original scale | Modified scale |
|---|---|
| 1. Uses more than once day = 8; | 1. Uses more than once a day = 5; |
| 2. Uses once a day = 7; | 2. Uses once a day = 4; |
| 3. Uses more than once a week = 6; | 3. Uses at least once a week = 3; |
| 4. Uses once a week = 5; | 4. Uses at least once a month = 2; |
| 5. Uses once a month = 4; | 5. Never uses = 1. |
| 6. Uses more than once in months = 3; | |
| 7. Uses once in months = 2; | |
| 8. Never uses = 1. | |

Time spent online was a composite measure based on the respondents' judgment of how much time they spent online on an average weekday and weekend day. Options were: (1=none, 2=about ten minutes, 3=about half an hour, 4=about an hour, 5=between one and two hours, 6=between two and three hours or 7=more than three hours). Hence, to develop a measure for Internet Use, the adapted 5-point scale for Frequency of Use was used to measure the three major categories of use – educational, social and recreational uses (Livingstone & Helsper, 2010a), along with the other 5-point scale for Time Spent Online, to form a composite measure of IU.

Meanwhile, five age categories were used (15-18, 19-22, 23-26, 27-30, 30 & above). Respondents were categorized as male, female and others.

### 1.6 Instrumentation and data collection

A structured questionnaire containing close-ended, multiple choice questions was designed and employed for the cross-sectional data collection process in this survey. Survey items in all the constructs of the study were designed with the same scale points (5-points Likert type) to ease analysis. Elmore and Beggs (1975) and Helsper, van Deursen, and Eynon (2016) have argued in favour of a five-point

scale, noting that there was no significant difference in the results obtained from a 5, 7, or 9-point scale. The questionnaire was designed with Google Form, "a cloud-based data management tool used for designing and developing web-based questionnaires" (Vasantha & Harinarayana, 2016). Google Form is one of the most widespread web-based survey tools in use in various fields of academic and non-academic researches. Kay and Jonson (as cited in Vasantha & Harinarayana, 2016) have identified more than 200 of such web-based survey tools, in 59 research areas, as far back as 1999. As the popultion of web users geomerically increases, so is the use of online survey tools (Jansen, Corley & Jansen, 2006; Vasantha & Harinarayana, 2016). For instance in Nigeria, there are over 122 million (65.5%) people online. It is thus logical to conclude that an online survey delivery system should be appropriately applicable, especially that the target population of the current study are tertiary students who are known to be digital and interract with web-based paltforms such as Facebook and WhatsApp in an unprecedented manner.

In accordance with the sampling procedure discussed, primary data was collected from respondents who are undergraduate students of the six federal universities in the Northeast. The survey was administered to the respondents (units of analysis) through the help of class/level advisers/coordinators and representatives in each of the selected departments and classes, who served as survey assistants after they were briefed on the objective and nature of the study. As admins of their official class WhatsApp groups, the advisers and reps shared a link to the web-based survey and sought group members' consent, on behalf of the researcher, to fill out the questionnaire online. Responses were automatically received via an attached spreadsheet immediately a respondent successfully submitted a completed questionnaire.

## RESULTS

***Table 1: Questionnaire Return Rate***

| | **Used Sample** | | **Required Sample** | |
|---|---|---|---|---|
| **Instrument** | *F* | *%* | *f* | *%* |
| Distributed questionnaire | 461 | 100 | 384 | 100 |
| Returned questionnaire | 338 | 73.3 | 338 | 88.0 |
| Rejected questionnaire | 3 | 0.7 | 3 | 0.78 |
| Valid questionnaire | 335 | 72.7 | 335 | 87.2 |

*Source: Field work, 2019*

The valid sample used in this study is thus 335 undergraduates drawn from six universities in the North-east of Nigeria. Table 1 shows return rates between 72% and 87% considering the two sample sizes used, either of which is considered high return rate even in paper-based surveys which often report higher rates in comparison to e-surveys (Nulty, 2008). The response rate so quoted is considered sufficient for multiple regression analyses to be carried out, since the sample size is more between 5 and 10 times the number of study variables (Hair, Babin, Black & Anderson, 2010).

### *1.7* Demographic Profile of Respondents

Data in table 2 shows that the sample was 68% male 32% female. The literacy ratio by gender in the Northeast region as at 2017 was 50.5% and 31.8% for male and female respectively (NDHS, 2018). This helps to explain the disparity in the sample between male and female students. Undergraduates within the ages 19-26 form the overwhelming part of the sample with 70%, while the category 15-18 were just 14 (4.2%) and those within 27-30 and 31 & above years old were 17% and 10% respectively. The minimum university age in Nigeria is 17, hence the predominance of 19-25 year-olds in the sample.

Following the principle of proportionality used in drawing the sample, 90% of the respondents were from the first three universities: UNIMaid (131), ATBU (80) and MAUTech (90). Meanwhile the three others (FUGashuwa (3), FUKashere (12) and FUWukari (19) had a total of 10% of the sample. Relative to the last three universities, the first three belong to the first generation universities that admit large number of students into their various programmes of study. Federal universities Gashuwa, Kashere and Wukari are just a decade old, with less academic programmes, hence the differences in the sample sizes relative to the population of each of these institutions. Meanwhile the sample is relatively normally distributed across level of study of the students except for 200 and 300 levels with 31% and 22% respectively.

***Table 2: Demographic Distribution of respondents (N = 335)***

| *Variable* | *Category* | *f* | *%* |
|---|---|---|---|
| **Gender:** | Male | 228 | 68.1 |
| | Female | 107 | 31.9 |
| **Age:** | 15-18 | 14 | 4.2 |
| | 19-22 | 107 | 31.9 |
| | 23-26 | 125 | 37.3 |
| | 27-30 | 56 | 16.7 |
| | 31 & above | 33 | 9.9 |
| **University:** | UniMaid | 131 | 39.1 |
| | ATBU | 80 | 23.9 |
| | MAUTech | 90 | 26.9 |
| | FUGashua | 3 | 0.9 |
| | FUKashere | 12 | 3.6 |
| | FUWukari | 19 | 5.7 |
| **Level of Study:** | 100 | 36 | 10.7 |
| | 200 | 105 | 31.3 |
| | 300 | 75 | 22.4 |
| | 400 | 58 | 17.3 |
| | 500 | 24 | 7.2 |
| | Others | 37 | 11 |

*Source: Field work, 2019*

### *1.8* Descriptive statistics of Internet Use

Data in table 8 show that 82% of the respondents would go online once (48.4) or more than once (34%) daily for educational purposes. 89% would use the Internet at least once daily (50.7) and more than once daily (38.2) for social purposes, while 69% go online at least once daily (34.6) and more than once daily (32.5) for recreational purposes. It is also observed that only a negligible 4.5%, 4.2% and 8.3% of respondents would not use the Internet for educational, social and recreational purposes, indicating the conceptual relevance of the three most common Internet use purposes.

Time online had two items measured on a 5-points scale. Respondents were asked to indicate the approximate amount of time they would stay online on a typical weekday and a weekend day. The scale ranges between 0-1 to more than 4 hours.

Table 8 below shows that respondents stay online for varying hours, but mostly between beyond 4 hours on a typical weekday 210 (62.7%) and between 3-4 hours in a typical weekend day 115 (34.3%). The mean score for both items is beyond the medium level of high (4.3, SD = 1.09) and (3.58, SD = 1.32) respectively, indicating high level of Internet use among respondents. However, time online is higher within the week than in the weekend days. This might have been so because the respondents were students who would usually have more assignments and school work to carry out within the week.

***Table 1: Frequency, percentage, mean and standard deviation of items in IU (N = 335)***

| **Frequency of use** | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **N** | **OM** | **OW** | **OD** | **MOD** | ***Mean (SD)*** |
| I use the Internet mostly for educational purposes (school projects, assignment, downloading data, etc.). | 15 (4.5) | 21 (6.3) | 23 (6.9) | 162 (48.4) | 114 (34) | *4.01 (1.00)* |
| I use the Internet mostly for social purposes (chats, emails, Facebook, Twitter, etc.). | 14 (4.2) | 17 (5.1) | 6 (1.8) | 170 (50.7) | 128 (38.2) | *4.1 (.981)* |
| I use the Internet mostly for recreational purposes (gaming, music, movie etc.). | 28 (8.3) | 33 (9.8) | 43 (12.8) | 122 (36.4) | 109 (32.5) | *4.3 (.966)* |
| **Time online** | | | | | | |
| | **0-1 hour** | **1-2 hours** | **2-3 hours** | **3-4 hours** | **≥4 hours** | **Mean SD** |
| On an average weekday, I would stay online for as long as… | 26 (7.8) | 1 (.3) | 1 (.3) | 97 (29.0) | 210 (62.7) | *4.3 (1.09)* |
| On an average weekend, I would stay online for as long as… | 33 (9.9) | 54 (16.1) | 33 (9.9) | 115 (34.3) | 100 (29.9) | *3.58 (1.32)* |

| | |
|---|---|
| Total mean and standard deviation | 4.05 (1.07) |

*Source: Field work, 2019*

Freq. of use: N = Never, OM = Once monthly, OW = Once weekly, OD = Once daily, MOD = More than once daily

Time online: 0-1 hour, 1-2 hours, 2-3 hours, 3-4 hours, More than 4 hours

### *1.9* Differentiation in Internet Use across Age and Gender

Approaching from the digital inclusion debate, the current study sought to determine whether statistically significant difference exists in Internet use among various age groups, and between male and female tertiary students in Nigeria. Hence, a test of Analysis of Variance (ANOVA) was used to check that significance (Gravetter & Wallnau, 2013; Tabachnic & Fidell, 2007). Table 4 and 5 below contained result of the independent sample t-test for gender, and an ANOVA test for age, using SPSS version 23. It shows that although there was no significant mean difference between Internet use and respondents' age categories (as in table 2 above) (*f = 1.799, p = .129)*, comparatively, a significant mean difference was however discovered between Internet use and respondents' gender (*f = 4.742, p = .030*).

***Table 4: Indep. Sample T-test for IU & Gender***

| | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 2.815 | 1 | 2.815 | 4.742 | .030 |
| Within Groups | 197.710 | 333 | .594 | | |
| Total | 200.525 | 334 | | | |

***Table 5: ANOVA for IU & Age***

| | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4.278 | 4 | 1.070 | 1.799 | .129 |
| Within Groups | 196.247 | 330 | .595 | | |
| Total | 200.525 | 334 | | | |

*Source: Field work, 2019*

## DISCUSSION

Results of analysis revealed that students in the university use the Internet frequently; mostly in the weekdays, and they engage more in social uses than in educational and recreational uses. With regard to the amount of time they spend online, the average time recorded is between 4 and ≥4 hours on weekdays, and 3-4

hours on weekends. The findings buttress what has widely been reported in past studies of the extent of use of the Internet among undergraduate students (Lee & Chae, 2012; Livingstone & Helsper, 2010a; Norliah et al., 2017; Oskouei & Chaudhary, 2010; Türel & Toraman, 2015). Also, the study found that Internet use among the students favours more of social use, notwithstanding more use within the weekdays, which ordinarily one would think use should be more of academic and educational. The widespread social media platforms and other web based online channels are opening more opportunities for socializing among students and young people as Salubi and Muchaonyerwa (2018), Smart (2019) and Sponcil and Gitimu (n.d.) separately reported. In fact some studies have reported Internet use addictions among this group of users (young people), and source of addiction was often found to be psychosocial factors that hinge mostly on social uses of the Internet (Gámez-Guadix, Borrajo & Almendros, 2016; Guan & Subrahmanyam, 2009; Leung & Lee, 2012; Louis, 2014; Türel & Toraman, 2015).

Findings revealed evidence of a lingering divide in access and use of the Internet among young people in terms of their gender distribution. There was evidence of mean difference between male and female students, where the average extent of use was found to be higher for male than for female students. This is consistent with studies on digital divide and inclusion, especially from African, Asian and Latin American contexts (Ani, Uchendu & Atseye, 2007; Mascheroni & Ólafsson, 2015; Van Deursen & van Dijk, 2011), unlike in some Western contexts where the gender divide has largely been bridged (Haddon & Livingstone, 2017; Livingstone, Ólafsson, et al., 2017; Livingstone & Helsper, 2010a).

On the other hand, the current research did not find evidence of age divide among the respondents, even though some of the existing literature in this area reported confirmed the influence of age on the length and breadth of Internet use (Lee & Chae, 2012; Livingstone, Ólafsson, et al., 2017; Livingstone & Helsper, 2010a). Judging from the level of Internet penetration and relatively affordable cost of Internet services in Nigeria, particularly among the middle class who are consequently the predominant members of the population investigated in this study, the absence of age differentiation in use might not be unprecedented. Since, about 88% of the participants of the study fall within 15-26 age bracket, it might not be surprising that their level of use of the Internet appeared to be uniform. More than

70% of this number belong to the 'digital natives' category (they were born and brought up surrounded by digital technologies and the Internet); hence they would have acquired almost the same levels of digital literacy and skills.

## CONCLUSION/ RECOMMENDATIONS

There is no gainsaying young people tremendously use the Internet for various beneficial ends including social, educational and recreational. Even though evidence seems to suggest a more social use, educational and recreational activities young people and undergraduate students engage in on the Internet are equally noticeably substantial. Current and past efforts at digital bridge and digital inclusion appear to have yielded the intended results as age, gender and other forms of divide are being addressed in practice. But, there is still more work to be done in this regard. The current report investigated only two demographic divides among university students in Nigeria, a review of literature would reveal a lingering of some of these divides in other areas and contexts. However, following from the findings of this study, it is recommended that:

i. To encourage more of educational and recreational uses of the Internet among students and young people, the federal ministry of education (FMOE), Nigeria Communications Commission (NCC) and the National Information Technology Development Agency (NITDA) should work with other development partners to design and deploy specialized students digital devices that would give students access to online materials and training in educational and recreational spheres. This will be in addition to providing functional Wi-Fi points in the institutions of learning – from primary to tertiary;

ii. In addition (i) above, regulating bodies such as the NUC, NBTE NCCE and the like must roll out policies that will make academic and academic staff of these institutions acquire requisite digital skills to meet the standard of or even beyond that of their students, so that learning could be done more interactively through digital devices as this is the trend in the developed world;

iii. Beyond mere rhetoric girl child enrolment in school, governments at all levels must see to it through deliberate policy actions and programmes that female students receive the same educational opportunities as their male counterparts;

iv. Current efforts on digital bridge and inclusion should be sustained as it is obviously helping to address digital gaps among the populations. However, considering the dynamic nature of the digital environment, future inventions should be strictly guided by research, so as to avoid wastage and achieve the highest possible results.

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