

**EVALUATION OF DIGITAL NATIVE STUDENTS' BEHAVIOUR TO LEARNING IN
A TECHNOLOGY-ENHANCED ENVIRONMENT IN ILORIN METROPOLIS,
KWARA STATE**

BY

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Abstract

This study is an evaluation of digital native student behavior and reaction to learning in a technology enhanced environment in Ilorin Metropolis of Kwara State covering tertiary education level in Ilorin Metropolis with the view of identifying the influence on the educational development in the state. The research study was carried out in the following institutions in Ilorin Metropolis: Kwara State College of Education, Ilorin, Nana Aishat College of Education, Alagbado, Ilorin, Muyideen College of Education, Zango, College of Arabic and Islamic Legal Studies, Ilorin and Kwara State Polytechnic, Ilorin all within Ilorin Metropolitan City in Kwara State of Nigeria. The unexpected switch to online learning amid the COVID-19 pandemic also requires more attempts from the authorities to ensure educational quality and inclusiveness as well as to build a safe learning environment so that each student can meet the Social Development Goals {SDG4} target. Therefore, this study aims at identifying and understanding the relationship among digital literacy, digital resilience and the students' socio-economic status, family background, gender, and school location. This research will contribute to the ongoing development of the education system in Nigeria society.

Keywords: Digital Native Students, Learning Behavior, Enhanced-Environment, Technology and Ilorin Metropolis

Introduction

With the development of ICT in education and considering scaling up the innovation of technology enhanced learning, researchers begun to conceptualize how learning environments can be made more effective, efficient and engaging on a large and sustainable scale (Spector, 2014). Learning environment is a new emerging research area aiming at promoting independent, flexible and engaged learning by providing learners appropriate technology and pedagogy (Huang, Hu, and Yang, 2015). Learning environment is defined as a physical environment that is enriched with digital, context-aware and adaptive devices to promote better and faster learning (Koper, 2014). With technological support, learning environments become places where teachers and students could practice rich and immersive teaching and learning experiences that they have never experienced before (Li, Kong, & Chen 2015). The design and development of the next generation learning space or learning environment became a hot research area to promote educational innovation through technology integration (George 2010). Nowadays, students seem to have different perceptions about learning digital tools than past generations. This is tied to the idea that individuals born in the late twentieth and early twenty-first centuries are said to be "born digital" and spend their entire lives immersed in digital culture. In other words, they have become a 'digital native' generation. The 2020 outbreak of the COVID-19 Coronavirus disease has been pushing students worldwide in general and Nigerian students in particular to adapt to online learning especially as most schools and educational institutions were closed in Nigeria between the month of March and September 2020 and with the lockdown in the country. However, it

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does appear that any epidemic, no matter how destructive, devastating and damaging the effect could be, it will always come with blessings and advantages. The digital native community have had their own share of such advantage. Many institutions for instance in Kwara State, some departments in the University of Ilorin, Kwara State University (KWASU) Malete, Al-Hikmah University, Kwara State College of Education, Ilorin, College of Arabic and Islamic Legal studies (CAILS), Ilorin and many others went on online learning and delivery of lectures to students virtually. States like Kwara and Lagos among others in the country also resulted to teaching the students in both public and private schools through social media such as television and radio devices.

However, spending more time online could bring both beneficial and harmful effects on young generations. Engaging in online activities, in certain circumstances, can make a young person feel upset, uncomfortable or left out. On these occasions, they need support from adults: either their parents or experts. This issue thus leads to curiosity of how aware are the students of their digital resilience when it comes to understanding the technology needs, preferences in what the today's undergraduate learners, often termed the Net generation or Millennial.

Recently, technology-driven learning experiences in tertiary education have followed the changing educational paradigm from being instructor-led to becoming learner-centered learning strategies (Ituma, [2011](#); Odelewe & Agomuo, [2016](#)). In Nigeria, students in secondary schools, in recent years have been engaging in e-learning courses from the start of their academic lives, often before entering into tertiary institutions. Now, tertiary institutions are investing in the development of campus e-learning environments as students' preferred method of course delivery or as a supplementary method to traditional face-to-face courses, based on the approach that technologically savvy, digital native students are familiar with such learning environments (Parkes, Stein, & Reading, [2015](#)).

Various and diverse research works, articles and literature have been presented by numerous researchers on the behaviors of Digital Natives in diverse environments, however no research work, article or research studies is found to have been carried out in relation to Ilorin Metropolis, hence this research intends to focus on the evaluation of the behavior of Digital Natives towards learning in a technology enhanced environment in Ilorin Metropolis. The research will adopt brief description of some component part of this research such as the population, sample and sampling technique, research instrument and analysis of data presented of the study. This study equally adopts descriptive survey design. And the population of this study comprises of students of colleges of education and its allies within Ilorin Metropolis. Stratified Random Sampling Techniques was used to select (5) higher institutions and same was used to select 100 students from each of the (5) institutions chosen in all, therefore a total of five hundred (500) students made up the sample subject of the study.

Meaning of Digital Native

The term digital native describes a person who has grown up in the [digital age](#), (rather than having acquired familiarity with digital systems as an adult, as a digital immigrant). Digital native was meant to describe young people born in close contact with computers and the internet through mobile phones, tablets, and video games consoles. The formula was used to distinguish them from "digital immigrants," that is from people who were born before the advent of the internet and came of age in a world dominated by print and television. Both terms were used as early as 1996 as part of the [Declaration of the Independence of Cyberspace](#). They are often used to describe the digital gap in terms of the ability of technological use among people born from 1980 onward and those born before. Prensky, M. (2001b): Digital Natives, Digital Immigrants, Part II; 9(6).

Digital Natives, Digital Immigrants [Marc Prensky](#) further defines the term "digital native" and applies it to a new group of students enrolling in educational establishments referring to the young

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generation as "native speakers" of the digital language of computers, videos, video games, social media and other sites on the internet. Prensky did not strictly define the digital native in his 2001 article, but it was later, arbitrarily, applied to children born after 1980, because computer [bulletin board systems](#) and [Usenet](#) were already in use at the time. The generation born roughly between 1980 and 1994 has been characterized as the 'digital natives' (Prensky, 2001) or the 'Net generation' (Tapscott, 1998) because of their familiarity with and reliance on information and communication technology (ICT). They are described as living lives immersed in technology, "surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age" (Prensky, 2001, p. 1). Social researchers, Howe and Strauss (2000; 2003), labelled this generation the 'millennials', ascribing to them distinct characteristics that set them apart from previous generations.

Concept of digital literacy

Digital literacy is one of the driving forces in the development of the digital age, as well as a critical pillar of general education. To promote Sustainable Development Goal 4 (SDG) - Quality Education, developed countries have introduced digital literacy into general education so that the majority of their citizens become an active element of the digital economy. However, in less developed nations, the issue is neglected, while the context here is more complicated. There is a lack of legal regulations as well as formal education and training for youth.

The concept, digital literacy, is an attempt to define the replacement of TV, telephones and newspapers by new technologies and to refer to the ability of people to adapt to the web. Nonetheless, as Jewitt (2006) suggests, the concept literacy has been fragmented into different types of literacy (visual, emotional, intellectual and digital) in an endeavor to adapt to the continuous new demands of new technologies. In this sense, the concept digital literacy has evolved through the years and has been used to explain different aspects relating to technological skills, such as Internet, on-line, electronic or computer skills. As suggested by Fulton (1997), the definition of technological literacy is a combination of information skills and literacy, communication skills and literacy and the skills necessary to function in a technological environment.

This concept has gradually acquired more relevance because having the skills to properly use and take advantage of computers and the Internet are important requirements to obtain admission to different educational programs and also to gain access to the labour market (Brynin, 2006; Korupp and Szydlik, 2005; van Dijk and Hacker, 2003). In this regard, computer literacy seems to be positively related to social activity and school performance, math and language skills, success in finding a job and hourly wages (Korupp and Szydlik, 2005). Computer and Internet skills are currently important components of human capital (Hargittai and Shafer, 2006) which determine technology expertise (Morahan-Martin and Shumacher, 2007).

Concept of behavior

An American psychologist and behaviorist scholar Burrhus Frederic Skinner (1953) postulates that learning occurs through a process of events happening at the same time. It focuses primarily on the relationship between the environment and behavior and sees learning as the result of forming connections between stimuli from that environment and related responses.

Human behavior refers to the range of behaviors exhibited by humans and which are influenced by culture, attitudes, emotions, values, ethics, authority, rapport, hypnosis, persuasion, coercion and/or genetics. The behavior of people falls within a range with some behavior being common, some unusual, some acceptable, and some outside acceptable limits. Human behavior is the potential and expressed capacity ([mentally](#), [physically](#), and [socially](#)) of [human individuals](#) or groups to respond to internal and

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external [stimuli](#) throughout their life (Richard 2020) While specific traits of one's [personality](#), [temperament](#), and [genetics](#) may be more consistent, other behaviors change as one moves between life stages, from birth through [adolescence](#), [adulthood](#), and, for example, [parenthood](#) and [retirement](#) (marc 2020)

Behavior is also driven, in part, by [thoughts](#) and [feelings](#), which provides insight into individual [psyche](#), revealing such things as [attitudes](#) and [values](#). Human behavior is shaped by [psychological traits](#), as personality types vary from person to person, producing different actions and behavior. [Extraverted](#) people, for instance, are more likely than introverted people to participate in social activities like parties (Michael 2017)

The behavior of humans (just as of other [organisms](#)) falls upon a spectrum, whereby some behaviors are common while others unusual, and some are acceptable while others [beyond acceptable limits](#). The acceptability of behavior depends heavily upon [social norms](#) and is regulated by various means of [social control](#), partly due to the inherently [conformist](#) nature of human society in general. Thus, social norms also [condition](#) behavior, whereby humans are [pressured](#) into following certain rules and displaying certain behaviors that are deemed [acceptable](#) or [unacceptable](#) depending on the given society or culture.

Motivation to learn is driven by rewards and punishments (Bransford, Brown and Cocking, 2000). An instructional model that was considered to be a good scaffold for a behaviorist approach to teaching was developed by Gagne (1977) and consisted of the following steps:

* Gaining attention; Expectancy: Informing the learner of the objective; Memory retrieval: Stimulating recall of prerequisite learning; Presenting stimulus materials; Providing learning guidance; Eliciting performance; Providing feedback; Assessing performance and Enhancing retention and transfer to the job.

Learning: The increase in knowledge and capability experienced by the students

This is usually assessed by conducting and comparing the results of tests carried out before and after training. Assessment can also be done via interview or observation. Like *Level One* it's relatively easy to set up, and is really useful for assessing clearly quantifiable skills.

Behaviour: The extent to which students apply their learning in the working environment.

Compared to levels 1 and 2, Level 3 requires much more participation and skilled observation from line-managers. Behaviour is assessed via observation and interview over a period of time so as to assess behaviour change, how relevant that change is, and whether it is sustained.

Results: The overall impact that the trainee's performance has on the business or working environment.

This represents a fundamentally different challenge to levels 1 to 3 as individuals' assessment are carried out. It's about relating the trainee's behaviour change to real bottom-line improvements and organizational performance metrics in a credible and believable way.

A unit of change in learning should be directly linked to a specific improvement in a key organizational metric

Data Analysis and Discussion of Results

This research work titled Evaluation of Digital Native Students' Behavior to Learning in a Technology- Enhanced environment in Ilorin Metropolis, sampled five hundred (500) students from the College of Educations and its allies. The analysis was presented in sections. Section one presented the bio-data variable distribution of the respondents' opinion, section two answers three

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research questions as opinions to the items in the instruments, while section three tested the only formulated null hypotheses. The fourth section presented the summary of the major findings. The hypothesis was tested at 0.05 Alpha-Level of Significance.

Presentation and Analysis of Respondents' Bio-Data

This section of the research work has the result of analysis taken on the respondents' bio-data contained in the questionnaire. These were clearly expressed in tabulated form showing the items understudy in frequency counts and percentage (%) analysis of each variable tested.

Table 1: shows the distribution of questionnaires to the respondents

Questionnaire	Number of respondents	Percentage
Completed	480	96%
Not completed	20	4%
Total	500	100%

Source: research survey (2021)

Comment: we can see that 500 copies of questionnaires distributed to the respondents, 480 copies were completed while 20 were not completed

Table 2: shows the respondents distribution by sex

Sex	Number of respondents	Percentage
Male	205	41%
Female	295	59%
Total	500	100%

Source: research survey (2021)

Comment: table 2 shows that the distribution of the respondents by sex, we can see that there are more male than female. Male (41%) and female (59%)

Table 3: shows the distribution of teachers respondent by type of school of the respondents

Type of school	Number of respondents	Percentage
Public	300	60%
Private	200	40%
Total	500	100%

Source: research survey (2021)

Comment: table 3 shows that we have more students from public school than the students from private school. Public school (60%) and private school (40%)

Analysis of Respondents Opinion of Research Questions

This section seeks to analyze the research questions formulated for this study. This was with a view to determining whether or not the responses of the respondents were positive or negative. The summary of the analysis was presented one after the other, in what appeared to have been analyzed using mean deviation.

Table 4: Opinion of students' Respondents on the digital native behavior to learning

S/N	ITEMS	SA	A	SD	D	Mean	SD	SE
A	DIGITAL NATIVE BEHAVIOUR TO LEARNING							
1	Learning is central to my personal development	300	124	16	38	19.503	7.514	2.196
2	Parading the social media distract my attention from learning	230	190	39	33	25.800	8.862	2.558
3	The widespread of technology encourage me to learn	219	80	126	62	20.250	11.592	3.346
4	As a digital native student, ability to surf the web motivate me to do assignment	202	99	180	29	18.000	8.577	2.477
5	The swiftness of technology while using it to learn always motivate me to learn more	226	119	91	51	24.003	11.077	3.198
6	I feel more comfortable while learning with technology simply because of easy access to use at anywhere and time	330	101	35	40	23.577	9.312	2.996
7	I do feel reluctant in using technology at any time to learn because of the technicalities involved in it	193	132	148	19	21.976	8.237	3.165

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According to the table above, the highest mean response of 25.800 is on the item that says that Parading the social media distract my attention from learning. This item on the digital native behavior to learning showed that a total of 420 of them agreed with this item while 72 disagreed.

Table 5: opinion of students' respondent on the behavior of digital natives

B	BEHAVIOR OF DIGITAL NATIVES	SA	A	SD	D	MEAN	SD	SE
1	I do use internet for educational purpose	380	100	8	10	25.497	10.737	3.105
2	I prefer social media sites that are image based (e.g you tube, instagram snap chat etcetera) to text based one	297	149	31	28	16.497	1.076	0.311
3	Getting information about different products and services online satisfy me more	301	103	59	31	15.750	2.259	2.598
4	I trust information about products and services that comes from social media	199	190	65	33	20.250	10.242	2.952
5	I got educational related information on different social media	401	90	0	0	24.188	7.694	2.982
6	I am interested in learning with digital aid than the traditional method	391	92	10	5	22.800	10.232	3.000
7	I do feel impressed sharing my learning activities online with digital aids among my peers	252	121	96	28	22.500	10.503	3.003
8	I prefer getting educational information on different social media	207	190	67	30	18.750	6.263	2.612

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Comment: according to the response rate on the behavior of digital natives, most of the respondents use internet for educational purposes. This item attracted the highest mean response of 25.497 and details showed that 480 respondent agreed with the item while 18 disagree with the item

Table 6: opinion of teacher respondent on the relationship between causes of broken home and academic performance

C	EVALUATION OF REACTION OF TECHNOLOGY ENHANCED ENVIRONMENT	SA	A	SD	D	MEAN	SD	SD
1	I do understand different concept while learning through technology enhanced means platform	320	140	20	16	18.747	8.100	2.331
2	I get to know different aspect and branches of my learning activities through technology enhanced learning environment	240	103	57	93	21.934	7.684	2.252
3	Learning through technology enhanced environment provide a visualize image that makes the learning more interesting	342	109	26	25	26.253	8.493	2.439
4	Technology enhanced learning promote an effective collaborative approach to learning different concept	399	99	0	0	16.497	6.021	1.737
5	Technology enhanced learning ignites positive emotion towards learning among my peer groups/ mates	299	111	59	49	19.881	6.897	2.118
6	Technology enhanced environment always encourage and help me in critical thinking of various concept of my learning activities	231	107	97	59	22.650	8.100	1.968

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7	Technology enhanced learning respect my privacy while learning and also cater for individual difference among students	402	71	0	17	19.494	6.453	1.863
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Research Survey (2021)

Comment: according to the respondents' opinion on the items above, Learning through technology enhanced environment provide a visualize image that makes learning more interesting. This item attracted the highest mean response of 26.253. Details of responses on this item revealed that 451 of them agreed to this item as 51 disagreed.

Test of Hypothesis

This section presents the results of the analysis of hypothesis. Summary of the only null-hypotheses tested using the same statistical tools were presented below at 0.05 alpha-level of significance.

Hypothesis 1: The null hypothesis states that there is no significant influence of behavior on reaction of digital native student to learning in technology enhanced learning environment.

Table 7: Summary of t-test statistical analysis on the significant influence of behavior on reaction of digital native student to learning in technology enhanced learning environment

Variable	N	Mean X	SD	DF	Cal t-value	Crit. T-value	Remark
Behavior of digital natives in technology-enhanced learning environment	500	86.42	48.10	198	11.42	1.96	Sig. exist Reject H ₀₁
Reaction of digital native in technology-enhanced learning environment	500	92.11	52.04				

P < 0.005 level of significance (one tail)

From the table 7 above, there is significant influence of behavior on reaction of digital natives to technology-enhanced learning environment. Consequently the hypothesis (H₀₁) was rejected since the calculated t-value is greater than the critical t-value (i.e 11.42 > 1.96) at the degree of freedom of 198 and alpha level of significance of 0.005.

Summary of the findings

Digital natives have a different way of learning compared to previous generations (Barnes, Marateo and Ferris 2007). This research evaluates digital native behavior to learning in a technology-enhanced environment. Based on the result, it can be deduced that the use of technology for academic purpose tend to be high as shown in Table 5 item 1 where most of the respondents stated that they use internet for educational purposes, thereby meaning that the use of technology for searching for information towards completion of academic task tend to be high.

However, the findings also showed that despite the advantage of the digital natives in a technology enhanced environment, it has an adverse effect on their learning as most of the respondents agreed that parading social media distract their attention from learning as shown in item 2 of Table 4 Moreso, in item 3 of Table 6, the correspondents believe that learning through technology enhanced environment provide a visualized image that makes learning more interesting, meaning that photo/image and video learning materials tend to be more effective in learning to the digital natives

Table 7 shows that there is significant influence of behavior on the reaction of digital natives in learning in a technology enhanced environment.

Summary, Conclusion and Recommendations

This study examined the Evaluation of Digital native students' behavior to learning in a technology-enhanced environment in Ilorin Metropolis. A number of literature works were reviewed in this research work, which sought to identify, understand and define the key items ranging from digital literacy, Concept of behavior. The research method adopted for gathering information was descriptive survey type. The population of this research covered students in the selected Public and Private College of Educations and its allies in Ilorin Metropolis of Kwara State. The instruments used was questionnaire for gathering information from the respondents which are students. The data analysis was carried out using descriptive statistics such as simple percentages for the bio-data sections of the students' questionnaire, mean deviation for the research questions and t-test statistical procedure for the null-hypothesis. The findings reported in the research are that there exist significant influence of behavior on the reaction of digital natives in learning in a technology enhanced environment, social media has negative effect on their learning as most of the respondents agreed that parading social media distract their attention from learning , It is also reported from the findings that the respondents prefer learning through technology enhanced environment has it provides a visualized image that makes the learning more interesting, meaning photo/image and video learning materials tend to be more effective in learning to the digital natives

Conclusions

The advancement of the technology has presented a new 'species of generation. This condition has forced the higher educational teacher and the teaching practitioner to be updated on the ever changing and often diverse characteristics of the students. The finding on the students' digital nativity should become the main consideration of the teaching practice especially in incorporating the array of technological tools in designing rich and engaging learning experiences for all students. The teacher should always seek the most proper way of delivering materials in the classroom as well as motivating the students to learn. Furthermore, the advancement of the technology should be viewed as the opportunity to evolving new approach to teaching practice.

Recommendations

The following are the recommendations put forward as a result of the outcome of this study:

- Both government and private institutions should provide an accessible technology enhanced learning environment by putting in place an effective technical infrastructure.
- With the increasing complexity and sophistication of digital technology, digital native experience a significant distraction and obstruction in their studies through exposure to social media vices and negativities. Therefore, teachers, parents and other stakeholders should play an important role to control and manage the use of digital technology by the students by being mindful of their children/wards' technological activities
- The institutions should prepare more graphics, images, videos, inter-active electronic documents instead of text based materials.
- The Government should provide options for students to attend online course through mobile devices independent from their physical space

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