

## **Engagement, Learning Styles and Challenges of Learning in the Digital Era among Nigerian Secondary School Students**

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### **ABSTRACT**

This study investigated the availability, frequency of use, learning styles, and the challenges encountered with engagement of digital devices among Nigerian secondary school students, and solutions were proffered on how the challenges could be remediated. The study is a descriptive study that used survey data. The sample consisted of 323 students from public and private secondary schools in Omu-Aran, Kwara State, Nigeria. The data collected were analysed using frequency counts, percentages and means. The study findings indicate that most schools do not have adequate digital media to facilitate good instruction. However, the available digital media were judiciously used for instruction. Further, it was found that challenges were encountered by students in the use of digital media and solutions were suggested. It was recommended that Nigerian schools endeavour to procure adequate digital media that would facilitate good instruction. Employing appropriate teaching strategies using newer learning digital technologies to identify student's strengths, interests and learning styles would go a long way in engaging students to learn actively and independently. Also, organization of seminars, workshops and training for both students and teachers on acquisition of skills would facilitate a better pedagogical experience.

**Keywords:** *Learning styles, Digital era, Digital media, Engagement, Teaching*

### **INTRODUCTION**

The global clamour for improved instructional delivery has led to an increased use of Information and Communication Technology. The availability of online resources such as blogs, social networking sites, and interactive online games has created new modes for engagement, and interaction and expression via electronic platforms has changed instructional methods. This facilitates the trend of using digital mobile technologies for quick access to information and research materials anytime and anywhere which means that usage is not bound to a specific location (Samuel, Ogunlade & Onasanya, 2018). The traditional methods used by teachers, especially in the developing nations of the world has led to teachers dominating the teaching-learning process with less use of a variety of activities and engagement with digital media. Sofowora and Egbedokun (2010) attested that the traditional method of instruction, that is, the "chalk and talk" method is prevalent in most Nigerian Schools as opposed to the use of ICT, and have thus criticized such mode of delivery as being too teacher-centred. However, teaching and learning has gone beyond the teacher standing in front of a group of students to disseminate information without students' adequate participation and engagement. Teachers use diverse strategies in facilitating students' comprehension through engagement of diverse learning technologies and processes for creating a conducive environment to explore pedagogical experiences.

The rapid trend of technological development and innovation has facilitated students in their change from the old to new learning methods through ICT tools that promote initiative, independent learning and ability to make sound decisions. Digital learning refers to the use of modern tools which requires a combination of technology, digital content and instruction to engage students in order to enhance learning. The evolution of the digital era touches almost every aspect of modern life, thereby revolutionizing how information is received and used, especially for instructional purposes. Digital media technologies are veritable tools for improving the effectiveness of teaching and learning when used judiciously. They include digital satellite television, Internet websites, mobile

telephony and multimedia equipment, such as video, audio, and pod-cast facilities, among others. Digital media technologies offer great opportunities that make teaching and learning more concrete, meaningful and effective (Onasanya, Nathaniel, Sofoluwe & Onasanya, 2014). Digital technologies provide the potential to reconfigure the physical spaces in which people learn, to open spaces of learning and are best conceived as amplifying the affordances of the physical environment (Wong & Looi, 2011) and accelerating the changing dynamics of learning (that is, when, where, what and how learning takes place). According to Umunadi (2009), effective use and engagement of new digital media in teaching and learning provides adequate information which is a catalyst for personal and national development.

Globally, teachers have increased their professional usage of digital technologies in facilitating teaching and learning over time (Johnson, Hedditch, & Yin, 2011) by redefining students' learning strategies and environment that would arouse their interests to actively be engaged in pedagogical experiences. Thus, Hartnett, Anderson and Brown (2014) opined that teachers need to possess a high level of understand in order to educate students on developing positive and ethical behaviours in the use of the Internet regularly and effectively. However, slow acceptance and readiness to use modern instructional technologies in facilitating pedagogical experiences has an adverse effect on students learning styles. The Global ICT Report (2012) as cited by Nwana, Ofoegbu and Egbe (2017) notes that Nigeria ranked 112 out of 142 countries surveyed for network readiness to participate and benefit from ICT development. The Federal government of Nigeria in the National Policy on Education (FRN, 2014) recognizes ICT as a product of technological change and as an innovation in education. Based on this premise, the Federal Government of Nigeria introduced Computer Education as an integral part of ICT in the Nigerian educational system. The main purpose was for acquisition of computer literacy and computer skills that are needed in all facets of human life in the 21st century. Therefore, this means that teachers should be responsive to all students' learning abilities or strengths, styles and interests irrespective of students' gender. Hence, this study examined students' learning styles and challenges of engagement in the digital era among Nigerian secondary schools students in Kwara State.

### **Statement of the Problem**

Learning in the digital era is challenged by the problem of slow acceptance, availability of devices such as Internet enabled mobile computers, computer laboratories, Internet and e-mail facilities, wireless applications, digital library, digital classrooms, multimedia systems and multimedia courseware development, among others in the developing nations of the world (Dutta, & Bilbao-Osorio, 2012). Akanmu and Fajemidagba (2013) posited that huge investment of the stakeholders on education does not commensurate with the Senior Secondary Certificate Examination (SSCE) results in different school subjects in Nigeria, due to slow and low acceptance of use of digital technologies for quick access to the needed information. The use of computers is not fully implemented as part of classroom technology in over 90% of public schools in Nigeria, hence, the traditional use of textbooks, chalk, chalkboard and the duster approach still dominates in secondary school classroom activities (Amedu, 2014). This is an indication that the students are still lagging behind in the dynamic trend of instruction in the world due to insufficient access to digital devices. One of the yardsticks to determine students' corresponding improvement in academic performance according to Haythornthwaite and Andrews (2011) lies in the teachers' ability to adopt a digital lifestyle and use bundles of related technologies professionally and socially, in order strengthen and maintain students' high level of engagement while delivering instruction.

Thus, successful integration of learning in the digital era depends largely on the availability, competence, learning styles, students' engagement and the attitude of teachers towards the role of digital media in teaching and learning. Therefore, it is paramount for teachers to know the technology to use and suitable learning strategies to employ, create, manage and use in order to disseminate information for instructional purposes. It is against this background that the

researchers investigated the availability of digital media, the extent of students' engagement, their learning styles and the challenges facing secondary school students in the use of digital media in Kwara State, Nigeria.

### **Research Questions**

The following research questions were formulated for this study:

1. What are the available digital media for teaching and learning in secondary schools?
2. How often do secondary school students utilize digital media in the teaching and learning process?
3. What are the perceived benefits of using digital media for students' improved instruction?
4. What are the perceived challenges facing secondary school students in the engagement of digital media for learning?
5. What are the perceived solutions to the challenges facing the engagement of digital media among secondary school students?

### **MATERIALS AND METHODS**

**Sample:** This research was a descriptive study using the survey approach. The population for this study was all senior secondary school students in Kwara State, Nigeria. However, three hundred and twenty-three (323) out of 400 students responded to the copies of the questionnaires that were randomly administered to senior secondary school students ranging from Levels 1–3 (that is, S.S.S I, II & III). The sample selection was made using the simple random sampling technique among public and private secondary school students in the area. The data collected was analysed using frequency counts, simple percentages and mean.

**Instrumentation:** A researcher-designed questionnaire was used to ascertain the respondents' opinion on the availability, use of digital media, benefits of using digital media for improved instruction, challenges encountered and the related solutions were proffered. The draft of the instrument was given to three educational technologists to ensure its suitability, face and content validity of the items. The reviewed draft of the instrument was pilot tested on 30 students and the data collected were analysed using Cronbach alpha, section by section, in order to measure the internal consistency of the instrument. The high reliability coefficients of  $r=0.86$ ,  $p<0.00$  for the availability of digital media,  $r=0.78$ ,  $p<0.00$  for the frequency of utilizing digital media,  $r=0.82$ ,  $p<0.00$  for frequency of perceived benefits of using digital media,  $r=0.76$ ,  $p<0.00$  for the perceived challenges facing the secondary school students in the engagement of digital media for learning and  $r=0.89$ ,  $p<0.00$  for the perceived solutions to the challenges facing the engagement of digital media among secondary school students, indicated the reliability of the instrument for data collection.

### **RESULTS**

The students' responses on the availability, use and benefits of digital media for improved instruction, challenges encountered and the related solutions were collected, collated and analysed using frequency counts, means and percentages to explore engagement among secondary schools students in Kwara State, Nigeria. Three hundred and twenty- three (323) male and female senior secondary school students who were randomly selected, participated in the study. Table 1 shows the analyzed data on research question 1: What are the available digital media for teaching and learning in secondary schools?

**Table 1:** Availability of digital media

S/No	Items	Available	(%)	Not Available	(%)
1	Digital Camera	89	27.55	234	72.45
2	Desktop Computer	231	71.52	92	28.48
3	Laptop Computer	162	50.16	161	49.84
4	Tablet Pc	86	26.63	237	73.37
5	Internet enabled Mobile Phones	188	58.20	135	41.80
6	Internet facilities	189	58.51	134	41.49
7	Multimedia Projector	95	29.41	228	70.59
8	Television Sets	44	13.62	279	86.38
9	Digital Compact Disc	267	82.66	56	17.34
	<b>Mean scores</b>	<b>150</b>	<b>46.43</b>	<b>173</b>	<b>53.57</b>

The data in Table 1, shows that digital media was available to the respondents, with desktop computer systems, laptop computers, Internet enabled Mobile Phones and Digital Compact Discs available to more than half of the respondents. Internet facilities were also available to just under 3 in 5 of the respondents. Digital cameras, tablets, multimedia projectors and television sets were the least available digital media.

Table 2 shows the data on research question 2: How often do the secondary schools students utilize digital media in the teaching and learning process?

**Table 2:** Frequency of use of digital media

S/No	Items	FU	(%)	NFU	(%)
1	Digital Camera	194	60.06	129	39.94
2	Desktop Computer	215	66.56	108	33.44
3	Laptop Computer	262	81.11	61	18.89
4	Tablet Pc	86	26.63	237	73.37
5	Internet enabled Mobile Phones	198	61.30	125	38.70
6	Internet facilities	205	63.47	118	36.53
7	Multimedia Projector	163	50.46	160	49.54
8	Television Sets	24	7.33	299	92.56
9	Digital Compact Disc	287	88.85	36	11.15
	<b>Mean scores</b>	<b>182</b>	<b>56.35</b>	<b>141</b>	<b>43.65</b>

FU: Frequency Used; NFU: Not Frequently Used

The data in Table 2, indicates that the respondents frequently used the following available digital media: digital cameras, desktop computers, laptop computers, Internet enabled mobile phones, multimedia projector and digital compact discs for instruction. Internet facilities were also frequently used. The majority of the respondents in the sample affirmed frequent use of the available digital media for instructional purposes, with an average mean of 56.35% or just over 1 in every 2 respondents.

Table 3 shows the data on research question 3: What are the perceived benefits of using digital media for students' improved instruction?

**Table 3: Perceived Benefits of digital media**

S/No	Items	A	(%)	DA	(%)
1	Digital media improves learning	242	74.92	81	25.08
2	Digital media promote individualized instruction	202	62.54	121	37.46
3	Digital media facilitate the engagement of students to learn more	213	65.94	110	34.06
4	Digital media motivates students to learn	194	60.06	129	39.94
5	Digital media arouses students' interest to learn more	200	61.92	123	38.08
6	Digital media is difficult to integrate into pedagogical experiences.	-	-	323	100
	<b>Mean scores</b>	<b>210</b>	<b>65.02</b>	<b>113</b>	<b>34.94</b>

A: collapsed of Strongly Agreed & Agreed; DA: collapsed of Strongly Disagreed & Disagreed

The data in Table 3 on the benefits of digital media, indicates that the majority of respondents perceived digital media as a means to improve learning, promote individualized instruction, facilitate the engagement of students to learn more, motivate them to learn more and arouse their interest in learning. Approximately 3 in 5 of the respondents (mean of 65.02%) agreed that the use of digital media greatly benefits students for improved instructional purposes. None of the respondents were of the view that digital media is difficult to integrate into pedagogical experiences.

Table 4 below shows the data on research question 4: What are the perceived challenges facing secondary school students in the engagement of digital media for learning?

**Table 4: Perceived Challenges Facing Students in the Use of Digital Media**

S/No	Items	A	(%)	DA	(%)
1	Not understand teachers teaching style.	173	53.56	150	46.44
2	Limited access to digital media.	215	66.56	108	33.44
3	Low level of interaction with teachers.	208	64.40	115	35.60
4	Inadequate digital media tools in school.	210	65.02	113	34.98
5	Teachers' uncertainty about the possible benefit of using digital media.	208	64.40	115	35.60
6	Teachers' failure to use digital media.	200	61.92	123	38.08
	<b>Mean scores</b>	<b>202</b>	<b>62.54</b>	<b>121</b>	<b>37.46</b>

A: collapsed of Strongly Agreed & Agreed; DA: collapsed of Strongly Disagreed & Disagreed

The data in Table 4 revealed the perceived challenges facing students on the use of digital media to facilitate learning. The respondents perceived the following challenges in their engagement with digital media: they do not understand their teachers' teaching style with the use of digital media; limited access to digital media constraints usage; there is a low level of interaction with teachers during instructional delivery; inadequate digital tools are available in schools; teachers are uncertain about the possible benefit of using digital media; and the failure of teachers to use the available media. The responses revealed that there are many challenges facing the use of digital media in schools and the average mean of 62.54% indicates that 3 in 5 of the respondents agree on the main challenges perceived to be facing students in the use of digital media.

Table 5 below shows the data on research question 5: What are the perceived strategies for improving the engagement of digital media among secondary school students?

**Table 5:** Solutions suggested for meeting the challenges

S/No	Items	A	%	DA	%
1	More induction, orientation and training for student	260	80.50	63	19.50
2	Acquisition of specific technical skill to facilitate learning in the digital environment.	244	75.54	79	24.46
3	Encouraging positive attitudes about the significance of engaging students with digital media.	229	70.90	94	29.10
4	More training should be given to teachers.	231	71.52	92	28.48
5	Provide professional development activities related to digital media to update teachers' skills and knowledge.	236	73.07	87	26.93
6	School need to provide appropriate access to digital media.	250	77.40	73	22.60
7	Understanding students' learning style by the teacher will help whenever digital media is being used.	244	75.54	79	24.46
	<b>Mean scores</b>	<b>242</b>	<b>74.92</b>	<b>81</b>	<b>25.08</b>

A: collapsed of Strongly Agreed & Agreed; DA: collapsed of Strongly Disagreed & Disagreed

Table 5 shows the solutions to remediate the challenges facing students in the use of digital media for improved instruction. The respondents indicated that more induction, orientation and training should be available for students; there should be focus on the acquisition of specific skills to facilitate learning in the digital environment; encouraging positive attitudes about the significance of engaging students with digital media; more training for teachers on the use of digital media, and professional development activities related to digital media to update teachers' skills and knowledge; schools need to provide appropriate access to digital media; and more effort by the teacher to understand students' learning style whenever digital media is used. The average mean of 74.92% across all items indicates agreement among students on the suggested strategies to remediate the challenges on the use of digital media for improved instruction. This implies that the challenges confronting the use of digital media by the secondary school students could be remediated with the solutions proffered.

## DISCUSSION

Based on research questions 1 and 2 on the availability and frequency of utilizing digital media for instruction, the results of this study corroborates Amedu (2014) and Nwana, Ofoegbu and Egbe (2017) that the use of computers and other related digital media are not sufficiently procured in public schools in Nigeria. The study further revealed that the majority of the students in the sample are interested in using digital media to acquire pedagogical experiences, despite the inadequate procurement and inaccessibility of digital media to facilitate learning. Research question 3 examined the perceived benefits of using digital media for students' improved instruction. The results were in accordance with the findings by Onasanya, Nathaniel, Sofoluwe and Onasanya (2014) and Onasanya and Adegbija (2007) and confirms that digital media facilitates concretization of learning, equal access to education, individualization of instruction, arouses learners' interests and provides for the immediacy of learning. However, there are related constraints to the use of digital media for teaching and learning. Similarly, responses to research question 5 on the perceived strategies for improving the engagement of digital media among secondary school students lend support to the results of earlier studies (Johnson, Hedditch, & Yin, 2011; Hartnett,

Anderson & Brown, 2014). Integration and judicious utilization of digital media into instruction facilitates identification of student's strengths, interests and learning styles, informs the choice of appropriate teaching strategies and design of the learning environment, and enable students to be actively engaged in pedagogical experiences.

The success of students in their academic pursuits is more often determined by the quality of teaching received, individual learner's learning styles and engagement on the use of the available digital media. This study corroborates the findings of Bennett, Maton and Kervin (2008) that the cogency of learning in the digital era has to do with assigning broad characteristics to specific learning styles, the amount and type of technology use and/or set of learning preferences. Therefore, learning in the digital era will require complementary efforts, roles and skills of both teachers and students and the use of adequate media to facilitate learning. Therefore, the suggested solutions could go a long way to reducing to the barest minimum, some of the problems facing Nigerian secondary school students on the use of digital media for improved instruction.

## **CONCLUSIONS**

The majority of the students in the sample of respondents from Nigerian secondary schools frequently use the available digital media for instructional purposes despite the fact that most schools do not have adequate digital media to facilitate good instruction. Subsequently, the respondents agreed that the use of digital media greatly benefits students for improved instructional purposes. However, challenges such as: teachers' teaching style with the use of digital media, limited access to digital media, low level of interaction with teachers during instructional delivery, inadequate digital tools in schools, teachers' uncertainty about the possible benefit of using digital media and teachers' failure to use the available media were perceived challenges hindering successful integration of digital media by the students.

## **RECOMMENDATIONS**

To remediate the perceived challenges confronting students on the use of digital technologies and learning styles could be remediated by:

1. Procuring adequate digital media that would facilitate good instruction in Nigerian secondary schools.
2. Organizing intensive seminars, workshops and training to update and upgrade students and teachers' knowledge on the needed skills for use of digital media to facilitate teaching and learning.
3. Providing more induction, orientation and training for students on the acquisition of specific skills to facilitate learning in the digital environment.
4. Encouraging positive attitudes about the significance of engaging students with digital media,
5. Nigerian teachers should be given more professional development and training activities related to digital media to update teachers' skills and knowledge.
6. Educational stakeholders for Nigerian secondary schools should provide adequate access for the use of digital media by students.
7. Teachers should endeavour to understand students' learning styles and help them whenever digital technologies are used in facilitating pedagogic experiences.

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