Digitalizing Secondary School Activities in Ibadan Metropolitan Secondary Schools, Oyo State, Nigeria

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Abstract

Problems associated with manual school activities prompted an investigation into digitalization of secondary school activities in Ibadan metropolis secondary schools considering stakeholders' preparation vide available ICT facilities, administrators' and student' readiness with a survey sample of teachers and students that consisted of 600 respondents. Data collection instrument is "Digitalizing Secondary Schools Activities Questionnaire" (DSSAQ) with 'r'-0.80, 0.78 for teachers' and students respectively. Study results indicate that a significant relationship exist between students' readiness and digitalization of secondary school activities; $r = 0.194$; $p < 0.05$, school administrators' readiness and digitalization of secondary school activities $r = 0.532$, $p < 0.0$. ICT facilities did not significantly relate to digitalization of secondary school activities; $r = -0.02$; $p > 0.05$. School administrators' readiness contribution ($\beta = 7.593$, $p < 0.05$) which is significant, student' readiness is ($\beta = 0.019$, $p < 0.05$), also significant. ICT facilities did not significantly influence digitalization of secondary schools ($\beta = 0.081$, $p < 0.05$). Joint contribution of all variables was significant ($R = 0.536$, $F_{(3,144)} = 19.374$, , $p < 0.05$). It was recommended that stakeholders' in secondary school education should assume responsibility for providing basic ICT facilities to facilitate the implementation of digitalization of secondary school activities in Nigeria.
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1. Introduction

Over the years, the teaching profession has witnessed changes from pre-service training through to recruitments and service conditions. Traditional teaching equipment have also kept changing for example; what used to be known as teaching equipment include; books (hard copies), chalk, chalk board, instructional materials that were predominantly cardboards as improved institutional materials (IM). Again, the perception of stakeholders and society concerning the profession has changed and is still changing for example, the Nigerian government has enacted the Teachers Registration Council of Nigeria Act (1993) to regularize, discipline and promote the teaching profession.

Another striking aspect of the teaching profession is the continuous exponential increases that is experienced and associated with number of schools, teachers, students and the complexity in the activities of the school system. Closely associated with these are emerging schools demography and insecurity implying that some changes need to be made to the current school system. Prior to the 1980s' in Nigeria, schools were mainly regulated by government but run exclusively by voluntary agencies until 1973 when Federal Military Government of Nigeria (FMG) took over all schools (Oni, 2015) & Obi (2003). In the wake of the second republic in Nigeria (1979-1983), government introduced numerous schools. Traditional boarding house schools were removed and the inauguration of the national policy on education in 1981(FRN, 2004) exacerbated the complexity by introducing new subjects that required the development of skills. The division of secondary education under the new policy gave rise to the junior and senior school system as well as the 6-3-3-4 system of education. Recently at the turn of the century, the universal basic education programme (UBE) was introduced which is 9-3-4 merging primary and Junior Secondary Schools.

It cannot be reasonably argued that with these new introductions, the traditional methods of school activities could cease to be useful for example, it becomes too challenging to the teacher to manually do so many thing in the new system without electricity in schools (Babalola, 2010). It becomes herculean to teach several subjects without reference to modern materials (Libraries). Children who attend schools are now exposed at tender ages to modern communication equipment rendering the services of teachers who are not exposed to such training on these facilities obsolete and unwanted. At tender ages students can effectively surf the internet, use sophisticated equipment as laptops, desktops, smart phones etc (Emunemu, Isah & Isuku, 2013).

In most schools, traditional teaching equipments have become obsolete especially when private (fee paying schools) and public schools (government tuition free schools) are compared. The private schools have the

capacity to purchase state of the art modern teaching equipment train their teachers to meet modern market demands that is usually lacking in public schools. Over the years, many private schools have changed from black chalk board to whiter marker boards and eventually have changed to smart boards. Such smart boards have the capacity of launching a class into an international class brining about the adoption of the modern wonders of the information and communication technology age (ICT).

This study would have been unnecessary if we had to compare private and public ICT complexities in Nigerian schools as the answer needs no research but the teaching, adoption and utilization of ICT at secondary school level in Nigeria has become mandatory as a matter of national policy. The study has become extremely necessary to show policy makers the ridicule in using traditional methods of teaching in the face of evolving methods. Several researchers in recent times have indicated that ICT facilities are hardly available in schools even up to university level (Isah, 2012).

In Nigeria, despite the fact that school activities vary, prominent among activities include; teaching - learning process that involves the teacher, learner and medium of instruction. There are academic and non academic activities in schools. There are activities that involve the use of school facilities and infrastructure for which the school and its administrator require records. Such records could be manual (traditional) or digitalized. The learning process could also be traditional which is the teaching method face to face teacher student method (Ajadi; 2012 &Isah, 2012).

This paper opines that in the present era of ICT, the earlier mentioned activities could be digitalized. Teacher productively in terms of lesson preparation, lesson delivery and the use of instructional materials, promptness to classes using electronic reminders could be automated (digitalized). Students records of class proceedings can be digitalized through recording of class activities and going back to play these recordings over and over again facilitating recall.

The foregoing indicates that the significance of this study cannot be over emphasized how? In the first instance a teacher has the capacity of editing previous lessons prepared in electronic format without destroying the rudiment of the new lesson. Lessons can be stored and saved without damage. Distribution and dissemination of facts between student and teachers become more efficient. Again, arrangement of class discussions in several forums (local, national and international) becomes possible during lessons. This could culminate into cross fertilization of ideas whose final destination cannot be determined. It is clear that adopting the result of this study will be beneficial to teachers, students etc. Another major set of beneficiaries are the policy makers (managers) and government considering the urgency with which the federal government of Nigeria (FGN) is pursing ICT adoption and implementation to align with the rest of the world. The success of digitalization will facilitate that aspect of the policy as many teachers, students and the public will become ICT compliant and computer literate in no distant time. A good question at this time is what is digitalization?

Witten & David (2003), described digitalization as the process of taking traditional school materials that are in the form of hard paper books and converting them to electronic formats where they can be stored or manipulated by a computer. De Stefano (2001), explained that there must be a reason for digitalization and such reasons include the fact that school materials that are growing old and require constant reuse and are in danger of extinction be reproduced, stored and placed in formats that enable them to be retrieved at any point in time. In essence it involves the production, storage, retrieval and dissemination of materials. Materials that can be digitalized in the school system could include; library books, instructional materials, images, manuscripts, photos and photographs, musical recording etc.

In another study, Gertz (2000), explained that the first criteria that could be accepted in a digitalization process of school materials is the physical condition of the material, followed by access value of content demand for the material and the intellectual property rights. Line (1996) & Mickinley (1997) dwelt on the advantages of digitalization of materials thus;

- Digitalization does not mean building new schools but information sharing which reduces redundancy and enhances acquisitions of new materials.
- Digitalization teaches the development of the internet in digital based libraries as the internet is now the proffered forum of information dissemination
- Digital materials can be sorted, transmitted and retrieved easily and quickly
- Access to electronic information is cheaper than its print counterpart when all files are stored in an electronic warehouse with compatible facilities and equipment
- Digital text can be linked thus made interactive and enhances information retrieval

The foregoing and its involvements indicate that the digitalization process could be technically demanding as its implementation will require competently trained and experienced personnel to carry it out. The process is a function of time coupled with the present economic situation in Nigeria. The present digital situation in Nigerian primary and secondary schools cannot be ascertained as researchers in public education are yet to zero on the digitalization of school activities. Most researchers have rather concentrated recently on the implementation of the ICT policy and infrastructure that may not be unconnected with government's creation of ICT policy and its

inclusion into secondary school curriculum and examinable at senior secondary school level to complement literacy in the art and its study at tertiary education level in Nigeria.

Digitalization of school activities require a wide range of sophisticated techniques and tools that could include, scanning, conversion of materials to file formats such as hyper text markup languages (HTML), Optical Character Recognition (OCR), standardized generalized markup languages (SGML) etc. digital technologies however abound outside public schools in Nigeria and are getting proliferated. The foregoing view is a part of Morgan (2009) study which explained that there have been proliferation of digital technologies explaining that the number of personal computers (PC)s ranged from 100 million in 1990 to 1.4 billion in 2016 and the present scenario can be imagined. Again, the number of interactive users grew worldwide from 2 million to 2 billion people at the same period. Here in Nigeria alone, we have over 150 million smart phone users. This figure includes teachers, students and pupils in public primary and secondary schools.

With the foregoing explanations, the research direction of this study is to find out how ready are we in Nigeria to confront this problem and challenge it. In the countdown to digital transformation of school activities on Oyo State, there are prominent stakeholders that include; teachers, learners, parents, community/policy makers and government the attitudinal disposition of these people are highly important and necessary hence, this investigation

1.1 Statement of the Problem

Recent studies in the global ICT revolution has made it imperative for Nigeria to transform and conform to global ICT standards. In these regards the Nigeria government has moved a step further by having an ICT policy which was missing several years ago but the ICT policy has compelled government to introduce ICT into the senior secondary school curriculum as are examinable subject being a call over the years by scholars. However, this study spines that the traditional (manual) school routines must give way to automated, digitalized approach to school activities. These activities are teacher, learning/learner, community and policy centered. Facilities are required which will be handled by experts preferably teachers to facilitate the digitization process that includes; scanning, conversion of hardcopy papers to hyper text formats etc, operating characters' recognition machines conversion to PDF formation etc. the state of mind and attitude of these stake holders need to be ascertained at these preliminary stages especially teachers , learners and administrators. This study intends to find out if the state of readiness of stake holders will affect the digitalization process? Will the facilities for digitalization be ready or are already in schools if not, what are the preparations so far made to effect that?

1.1.2 Hypotheses

The following hypotheses have been formulated to guide this study;

Ho$_1$ There is no significant relationship between the availability of school facilities and the digitalization of secondary school activities in Ibadan metropolitan secondary schools.

Ho$_2$ There is no significant relationship between learner readiness and digitalization of secondary school activities in Ibadan metropolitan secondary schools.

Ho$_3$ There is no significant relationship between readiness of secondary school administrators and the digitalization of secondary school activities in Ibadan metropolitan secondary schools.

Ho$_4$ Availability of school facilities, learners' readiness and school administrator readiness when taken together will not significantly influence the digitalization of secondary school activities in Ibadan metropolis.

Ho$_5$ Availability of school facilities, learners' readiness and school administrators' readiness have no significantly relative influence on the digitalization of secondary school activities in Ibadan municipal.

1.1.3 Methodology

This study adopted the descriptive survey research design conducted 'ex post facto'. This study is only interested in describing stakeholders' readiness for digitalization in relation to the population. The populations of the study consist of all secondary school students and teachers in Ibadan municipal area of Oyo state.

Table 1: Study Population – LGAs, and Human Indicators

Local Government Areas	Number of School	Number of Students	Number of Male Teachers	Number of Female Teachers	Total
Ibadan North	36	38,225	577	1033	1603
Ibadan North East	28	28,124	635	395	1030
Ibadan North West	13	10,353	164	206	370
Ibadan South East	27	39,476	698	413	1111
Ibadan South West	29	27,514	660	416	1076
Total	133	14,3692	2734	2463	5197

Source: Oyo State Post Primary Teaching Service Commission "TESCOM" 2018

Simple random sampling technique was used to select participant for the study, out of 5 Local Government Area (LGA) that constitute Ibadan metropolis/municipal area. 2 of the Local Government Areas (LGA)s were randomly selected and the same technique was adopted to select 10 secondary schools from each of the selected LGAs with 20 teachers and 40 students further selected in each sampled secondary school to make a total population of 200 teachers and 400 students respondents respectively.

The instrument adopted for the survey is a questionnaire designed by the researcher and titled "Digitalizing Secondary School Activities Questionnaire" (DSSAQ). The instrument is divided into four sections: section A elicited responses on respondent's demographic characteristics, section B on items measuring Student/teacher/administrative staff readiness for digitalization while section C elicited information on level of available school facilities for digitalization of secondary schools and section D on digitalization of secondary school activities. The expected responses was designed after the Likert type scale with a reliability coefficient of r= 0.80 and r= 0.78 respectively for teachers' and students questionnaire using the Cronbach alpha statistical tool. Data collected were analyzed through the use of inferential statistics. Hypotheses 1-3 was analyzed using Pearson Product Moment Correlation (PPMC) while hypotheses 4 & 5 was analyzed using multiple regression analysis.

1.1.4 Results

Hypothesis1: There is no significant relationship between the availability of school facilities and the digitalization of secondary school activities in Ibadan municipal secondary schools.

Table 1: Relationship between Available School Facilities and Digitalization of Secondary School Activities

Variables	N	Mean	Std. Deviation	r	Sig.	P	Remark
School ICT Facilities	200	15.3200	6.36081				
Digitalization	200	18.0600	4.10495	-.022	.756	>0.05	Not Significant

Pearson Product Moment Correlation coefficient was calculated to know the relationship between school facilities and digitalization of secondary school activities. The results shows that there is low, negative linear relationship (r= -0.022) between the two variables which was not significant at p>0.05. This implies school facilities have no significant relationship with digitalization of secondary school activities. From the results of the analysis, there is no statistical reason why null hypothesis should be rejected. Therefore, null hypothesis was not rejected.

Hypothesis 2: There is no significant relationship between learner readiness and digitalization of secondary school activities in Ibadan municipal secondary schools

Table 2: Relationship between Students' Readiness and Digitalization

Variable	N	Mean	Std. Dev	r	Sig.	P	Remark
Student Readiness	400	21.3800	4.23917				
Digitalization	400	18.4025	5.10594	0.194**	0.000	<0.05	Significant

Pearson Product Moment correlation was calculated to know the relationship between students' readiness and digitalization of secondary school activities. The result revealed a low, positive leaner relationship (r=0.194) which was significant at p<0.05, this implies that students are ready enough to accommodate the digitalization of secondary school activities. Hence, there is no statistical reason why null hypothesis should not be rejected. Hence null hypothesis was rejected.

Hypothesis 3: There is no significant relationship between school administrators' readiness and digitalization of secondary school activities in Ibadan municipal secondary schools

Table 3: Relationship between School Administrators' Readiness and Digitalization of Secondary School Activities.

Variable	N	Mean	Std. Dev.	r	Sig.	P	Remark
School Administrator Readiness	200	17.5950	3.62999	0.532**	0.000	<0.05	Significant
Digitalization	200	18.0600	4.10495				

Table 3 shows the result of estimation of Pearson Product Moment Correlation for the relationship between school administrators' readiness and digitalization of secondary schools activities in Ibadan Municipal. The result revealed a moderate, positive linear relationship between the two variables (r=0.532) which was significant at p<0.05. This implies that teachers' readiness could influence the digitalization of secondary school activities. Also it could be inferred that school administrators are ready to accommodate digital solution to teaching, learning and administrative activities.

Hypothesis 4: Availability of school facilities, learners' readiness and school administrator readiness when taken together will not significantly influence the digitalization of secondary school activities in Ibadan municipal.

Table 4: Composite Contribution of School Facilities, School Administrators' and Students' Readiness for Digitalization

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	733.320	3	244.440	19.374	0.000[b]
	Residual	1816.870	144	12.617		
	Total	2550.189	147			
Model Summary						
Model	1					
R	0.536[a]					
R Square	0.288					
Adjusted R Square	0.273					
Std. Error of the Estimate	3.552					

Table 4 revealed that the three variables namely: school facilities, students' readiness and school administrators' readiness taken together jointly correlate positively (R = .536) with digitalization of secondary school activities. This implies that three factors have a positive multiple relationships with Ibadan Municipal secondary schools' readiness for digitalization. Hence they have the potential of explaining acceptance and rejection of digitalization of secondary schools' activities. Also the three variables could explain 28.8% of total readiness to acceptance or rejection of digitalization secondary schools activities (R^2 = 0.288). This leaves the remaining 71.2% to other factors that were not considered in the study. The level of significance of the joint contribution of independent variables were presented in the ANOVA Table , the table shows that R value of .536 was significant (F = 19.374, P < 0.05). This implies the three variables jointly influence digitalization of secondary schools activities in Ibadan Municipal.

Hypothesis 5: Availability of school facilities, learners' readiness and school administrators' readiness have no significantly relative influence on the digitalization of secondary school activities in Ibadan municipal.

Table 5: Relative Contribution of School Facilities, School Administrators' and Students' Readiness for Digitalization of Secondary School Activities

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.552	2.150		3.513	0.001
	Facilities	-.049	0.043	-.081	-1.142	0.255
	Administrators' Readiness	0.627	0.083	0.535	7.593	0.000
	Students' Readiness	0.019	0.072	0.019	2.266	0.001

a. Dependent Variable: Digitalization

The result revealed that among the three independent variables school administrators' readiness made the highest influence (β = 0.535, p < 0.05) which was significant. This is followed by students' readiness which was also significant (β = 0.019, p < 0.05). The contribution of school facilities was not significant (β = -.081, p < 0.05). This implies that students and schools' administrators are ready and prepared for the digitalization secondary school activities in Ibadan Municipal. Thus, null hypothesis was rejected for students' and schools' administrators' readiness while it was not rejected for school facilities.

1.1.5 Discussion of Finding

Hypothesis 1 was trying to find the relationship between school facilities and digitalization of secondary activities in Ibadan Municipal. The result revealed that school facilities have no significant relationship with digitalization of secondary schools in Ibadan Municipal. This is an indication that the level of school facilities in Ibadan Municipal secondary schools is not sufficient for effective implementation of digitalized teaching, learning and administrative activities of Ibadan Municipal secondary schools. The importance of school facilities have been given premium among the factors requisite for digitalization of school activities, (Plomp, Anderson, Law, & Quale, 2009) reported that access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education . They also tress the fact that effective adoption and integration of ICT into teaching and other schools activities depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Obviously, if teachers cannot access ICT resources, then they will not use them. Therefore, access to computers, updated software and hardware are key elements to successful adoption and integration of technology. Yildrim (2007) also found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching. Thus, Ibadan Municipal secondary schools have not enough school facilities for digitalization of their teaching and other school activities.

In the same vein, hypotheses 2 and 3 was trying to find out stakeholders (students and school administrators)

readiness for digitalization of secondary school activities, the results revealed that students and schools' administrators are ready and prepared for digitalization of the school activities. Stakeholders' preparations are in forms of ICT competence, computer self-efficacy and attitude to adoption of digital solution. (Hew & Brush, 2007; Keengwe & Onchwari, 2008) reported that if students' and teachers' attitudes are positive toward the use of educational technology then they can easily provide useful insight about the adoption and integration of ICT into the teaching and learning processes. Also, according to Berner (2003), Na (1993) and summers (1990) as cited in Bordbar (2010), teachers' computer competence is a major predictor of integrating ICT in teaching. Evidence suggests that majority of teachers who reported negative or neutral attitude towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decision" on the adoption of ICT for teaching and other school activities (Al- Oteawi, 2002, in Bordbar, 2010).

Hypothesis 4& 5 trying to find out joint and relative contribution of school facilities, students' readiness and school's administrators' readiness for the acceptance or rejection of digitalization in Ibadan Municipal secondary schools. The result revealed that the joint influence of the three variables could influence digitalization of secondary schools activities to some extent; the contribution of secondary schools stakeholders was significant whereas school facilities made no significant influence on adoption digitalized secondary school activities. This finding is in alliance with that of Further the National Centre for Education Statistics report (2000 as cited in Afshari, Bakar, Luan, Samah, & Fooi 2009) which revealed that inadequate computers were not great barriers to ICT use in teaching, but improved availability and fairness of access to technology resources by teachers, students and administrative staff is essential. Access to hardware and software is not only important, but also the use of suitable kind of tools and program to support teaching and learning (Tondeur, Valcke, & van Braak, 2008).

1.1.6 Conclusion
Base on the results of the findings of this study, the following conclusions are made;
Stakeholders in secondary school education in Ibadan Municipal are ready for the digitalization of secondary school activities in study area. The level of facilities available in the secondary schools in the study area is not sufficient for digitalization of school activities. The level of school administrators' readiness is more than that of student. Stakeholders' readiness and availability of school facilities is the function of acceptance or rejection of digitalization of school activities in the study area

1.1.7 Recommendation
Based on the result of the findings, the following recommendations were made;
1. Stakeholders' in secondary school education in the study area should assumed the responsibility of providing basic ICT facilities that will expedite adoption and implementation of digitalization of secondary school activities.
2. School administrators' and other stakeholders in school community should brand instructional contents and other school material/ activities into the format fit for digital content in readiness for digitalization of secondary school activities.
3. School administrators should also sensitize their students on the need to be more computers efficacious and in other digital devices.
4. Government should allocate funds and basic materials for the teaching and learning of ICT in secondary schools in the study area.

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