

Integrating ICT into Nigerian Secondary School Curriculum: Addressable issues

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Abstract

The world is increasingly dependent on technology and computing systems and the use of technological equipment like computer is paramount to national and individual development. It is on this premise that this research work is carried out to reveal those issues that has been hindering the full implementation of ICT in Nigerian secondary school curriculum. Our survey was carried out in sampled 12 states of the Federation on 156 secondary schools to address those issues relating to infrastructure, curriculum implementation, and staff training. The questionnaires were administered to principals, head teachers or ICT coordinators to find out those issues hindering the effectively implementation of ICT in secondary schools. The result of the findings revealed that 84 (53.8%) of respondents have appointed ICT coordinator while 72 (46.2%) have none showing lack of preparedness for the implementation of the policy. The study recommends continuous professional development for all teaching staff to make integration of ICT in the secondary school curriculum a success.

Keywords: integration, Secondary education, curriculum, policy, ICT

Introduction

Information and communication technology, as a subject in secondary school education curriculum is to familiarise learners with the use of computer system, and related social and ethical issues. It gives users the opportunity to handle texts, images, figure, music, sound, video, etc to process data by analysing, organizing, storing, retrieving, presenting and communicating. Many countries are re-evaluating their education system in order to incorporate ICT to bring the next generation up to international standard. Kozma (Kozma, 2011) pointed out that application of ICT is making dramatic changes in economic and social development around the world. Technology has changed teaching and learning in many ways and will continue to change the education systems throughout the world. Countries around the globe have established groups to computer education in order to catch up with the increasing pace to technological advancement. According to IFIP-UNESCO (IFIP-Unesco, 2006), ICT is such an important subject that helps the industrial and commercial growth of a country. ICT can improve the process of designing, delivering, marking, and grading of examination results. Therefore, investment in the equipment, teacher training, and support services should rank higher in government priorities. In order for Nigeria, a developing country to meet up with this increasing pace, computer education should gain its ground in secondary school curriculum. This will enable the next generation to catch up with the pace. One of the objectives of national computer policy (NCCE, 1988) is to use IT for education and that education starts at secondary level where students are able to understand the needs to acquire such knowledge. It is unfortunate that the policy formulated since 1988 has still not taking full effect. Look at the present education curriculum would reveal some problems associated with the implementation of ICT in the curriculum. These problems include but not limited to the following which is listed out under research questions.

Research questions

- What is the opinion of stakeholders in the inclusion of computer studies or ICT in secondary school curriculum?
- Where will the source of funding come from; with respect to government, school administrators, parent teachers association, students, industrialists, or external donors?
- How do one describe ICT competency of teachers in the school and at what level can they be placed?
- How many computers and their peripherals are available in the school?
- Which type of training will be appropriate for the teachers to bring them up-to-date on recent technology?

Related Literatures

In 1987, the Federal Government of Nigeria through a constituted National Council on Education proposed the introduction of ICT or computer studies in secondary school system. The report of national committee on computer education in 1988 (NCCE, 1988) , which handled the formulation of the policies, concluded that Nigeria will be a computer literate society by mid -1990s. Unfortunately, the realisation of this policy is yet to take effect as many school leavers could not use the computer in various aspects of their lives and future employment. The implementation of this policy in secondary school curriculum is yet to take full effect after 25 years. Jegede (Jegede P. O., 2009) attributed this to inability of teacher educators to prepare student teachers with the required knowledge and skills in ICT. Even Magliaro and Ezeife said “*beginning teachers play an important role in integrating computer technology into the curriculum*” (Magliaro & Ezeife, 2007). The competency of teaching staff is paramount to the success of this policy; therefore, it is advisable that all teachers training institution fortifies teaching, learning and usage of computers in their curriculum. Another issue worth addressing is ICT infrastructures, non-existent internet connection, inadequate learning resources, and skilled manpower (Olakulehin, 2007). Tella and Adu (Tella & Adu, 2009) included lack of policies as one of the challenges. The policies have already been formulated but the hitch is implementation and revision of these policies. The task of curriculum design, development, revision, and implementation relay mostly on senior educators who may not have good knowledge of ICT, thus their views and perception affects the integration of ICT (Jegede P. O., 2009). Taiwo Olatunji (Olatunji, 2013) representing the MD of Accenture Nigeria, went on to say that this will improve the quality of lives of the people and successfully drive and sustain economic development, productivity and per-capita income. The chairman of Google, Eric Schmidt (James, 2011) lamented that poor education system makes us to ignore our great heritage and we are paying for it. Ferenstein, (Ferenstein, 2010) went further to warn that outdated school curriculum was unwittingly sabotaging economic superiority; therefore, education curriculum needs to be reviewed biannually to accommodate innovations. Kozma (Kozma, 2011) in his research discovered the inability of most countries to benefit from the development and advances technology is bringing. Some advocators have emphasized consistently the need to increase awareness among stakeholders in education, (Olagunju, 1996). Secondary school leavers acquire basic training to prepare them for further studies, of which knowledge of computer studies at this level will help them to understand and get acquainted with the present technology. As in (Salen & Zimmerman, 2004), students should use content to digitally author materials, and drive their ideas further. We will not achieve this unless ICT integration is implemented according to NCCE policy.

Methodology

The survey is aimed at discovering those problems preventing the implementation of ICT in secondary school curriculum. The sample consists of 156 secondary schools teachers randomly selected from 12 sampled states of Nigeria. . These teachers were in both private and government-owned secondary schools comprising of junior and senior secondary schools. The questionnaire

was divided into two sections with the first section devoted to demographic information, while the second section collected research activities information. Department of computer science second year students took the questionnaires home during the holidays to administer. Quantitative and qualitative concepts were utilized during data gathering, analysis, and presentation. The analysis used descriptive statistical method to compare different variables as shown in succeeding section. The quantitative components were analysed on the following variables: likely objection areas, sources of funding, infrastructure, available facilities, training, and the qualitative aspects were based on open-ended questions used in drawing inference.

Result and Discussion

The result in Table 1 indicated that 107 (68.6%) senior secondary schools participated in the survey and only 46(31.4%) participated. Most secondary schools are mixed with junior and senior, with few schools running only one. Table 2 variables are analysed with their results attached below.

Table 1: Demographic Information

Variable	Group description	Frequency	Percentage
Gender	Male	81	51.9
	Female	75	48.1
School Division	Junior	49	31.4
	Senior	107	68.6
Ownership	Government	78	50
	Private	78	50

Table 2: Research activities Information

Variable	Group description	Frequency	Percentage
Support for ICT inclusion	Supported	153	98.1
	Not Supported	3	1.9
	Indifferent	0	0
Likely Objection	Government	16	10.3
	Teachers	17	10.9
	Students	21	13.5
	Administrators	27	17.3
	Parents	30	19.2
	Society	13	8.3
	No objection	32	20.5
Computer Lab	Yes	21	13.5
	No	135	86.5
Source of Funding	Government	63	40
	Administrators	16	10
	PTA	25	16
	Industrialists	20	13
	External Donor	32	21
Competent Manpower	Yes	55	35.3
	No	101	64.7
ICT Coordinator	Yes	84	53.8
	No	72	46.2
Infrastructure	Yes	44	28.2
	No	112	71.8
Types of Training	Ongoing	110	70.5
	Basic/ Beginners	56	35.9
	Intermediate	72	46.2
	Refresher	45	28.8
Experience with ICT	Experienced	26	16.7
	Inexperienced	39	25
	Some experience	64	41
	Neutral	27	17.3
Facility available	Hardware	28	63.6
	Software	12	27.3
	Internet Connection	4	9.1

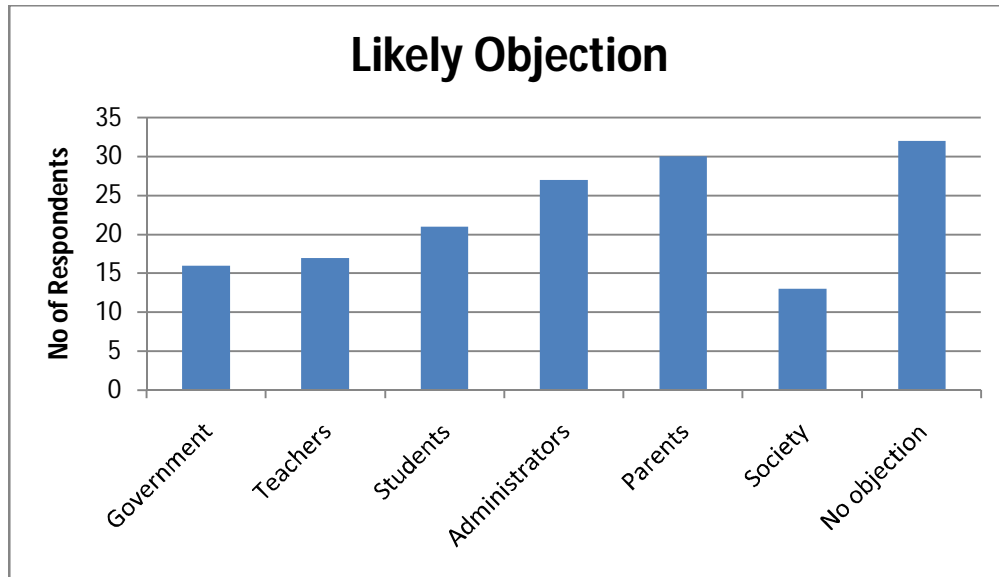


Figure 1: The opinion of stakeholders in the inclusion of ICT in secondary school curriculum

Despite the approval of the policy to implement ICT in secondary school curriculum since 1988, the survey showed that only 32 out of 156 respondents believed that no party will object to the inclusion of ICT in secondary school curriculum. Although 153 supported the inclusion of ICT in the secondary education curriculum, only 3 did not support it. 16 respondents said that government may object to it, 17 indicated that teachers will object to it, 21 for students, 27 for school administrators, 30 for parents, and while 13 said society may object to it. People are usually scared of change; curriculum implementers need support from key stakeholders from the beginning to the completion (CITEd Learn Center). Lockard et al cited in (Bukaliya & Mubika, 2012) argued that successful implementation of ICT can be possible if stakeholders offer support. They went further to say that teaching staff attitude towards ICT in the curriculum is a significant factor. If teaching staff object to this idea, they are bond to jeopardise it. It is advisable that the teaching staff must be well trained and infrastructure made available before this implementation can succeed.

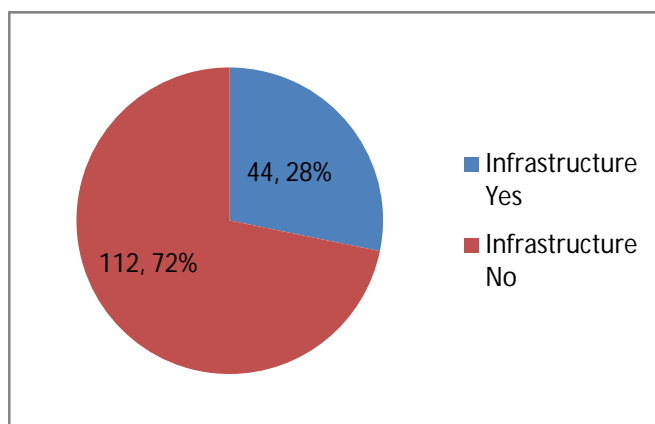


Figure 2: Availability of infrastructure

“In any educational system, the level of available resources places a restriction on the degree to which any new subject can be introduced into the school curriculum ... “ (IFIP-Unesco, 2006). Figure 2 shows that the majority of 112 (72%) acknowledged the non-availability of computer infrastructure while only 44 (28%) accepted having something in place. Out of this 44 that have, only 4 (9.1%) have internet connection in the Principal’s office or administration, and 28 (63.6%) have hardware facility. Majority of those who have these resources in place are privately owned secondary schools. The government and school managements have to put resources to make the inclusion of ICT as a subject a success.

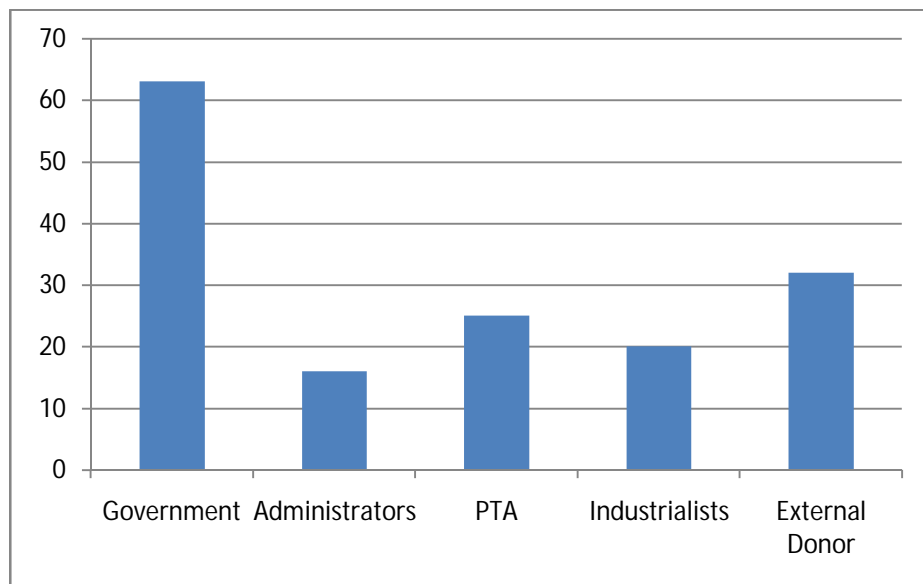


Figure 3: Sources of funding

For change to occur successfully resources and support must come from different sources (CITED Learn Center). Education Funding is mainly government affairs in Nigeria. Notwithstanding, figure 3 shows that 21% of the respondents want External donors to contribute to the funding of ICT integration in secondary schools and 16% believe that Parents-Teachers Association (PTA) should contribute as well. Contribution can be in form of manpower which government may provide, from external donors and industrialists money or partnership with IT firms, and time from administrators and PTA devoted to collaboration or sharing good practice.

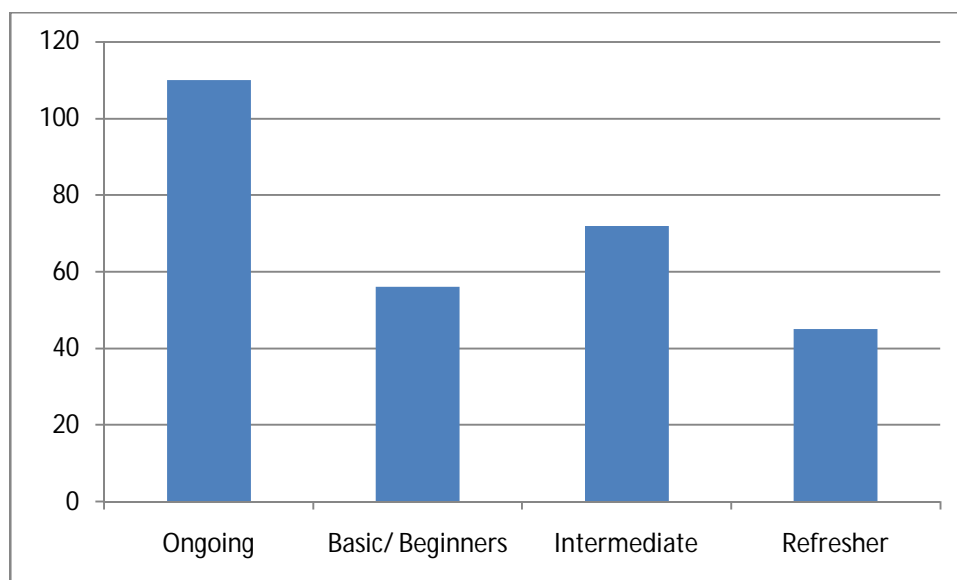


Figure 4: Types of training

When teachers were asked the type of training they need to update them with present technology, about 110 of the indicated Ongoing because technology is revolving so training should be ongoing. This question allows them to indicate as many options as needed; therefore the percentage calculation is different from others. There is continuous professional development programme for teachers; it will be appreciated more if computer literacy training is included in this programme.

Conclusion

The result shows that 35.3% of the respondents claimed to have competent manpower to handle ICT as a subject in the secondary schools, yet availability of facilities hinders their performances. Lack of computer literacy is the main obstacle to the acceptance of ICT inclusion in the curriculum and many of these stakeholders hold on to traditional method instead of new technology. Continuous professional development should be a must for all teaching staff to acquaint themselves with the evolving nature of ICT. (Staples, Pugach, & Himes, 2005). The use of ICT facilities should be mandatory in certain cases, for example, registration of Junior Secondary School Certificate Examination, teachers' scheme of work (SOW), and submission of school reports to Secondary School Management board. Government should enforce the policy (NCCE, 1988) by making it compulsory for all schools to offer ICT and include it in secondary school certificate examinations. Government and school administrators should provide adequate computer facilities, (hardware, software, and internet connections) to school and create computer laboratories for practical. Fresh graduates who participate in one-year National Youth Service Corp (NYSC) can be used for the meantime to fill-in the gap of inadequate ICT tutors in secondary schools. School managements can design programs to bring awareness and entice teaching staff into using ICT on daily basis, and then they will help in working for its integration in the curriculum. It is appropriate to create continuous awareness and students take ICT as one of the subjects in West African Senior Secondary School Examination just as in GCSE (General Certificate of Secondary Education) in

United Kingdom. If ICT is made one of the mandatory subjects as English and Mathematics in Secondary School Certificate, then its implementation will be a walkover.

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