PRINCIPALS' PERCEPTION OF ICT RESOURCES ON THE SERVICE DELIVERY OF BASIC SCIENCE TEACHERS IN SECONDARY SCHOOLS IN CALABAR EDUCATION ZONE OF CROSS RIVER STATE, NIGERIA

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Abstract
The study investigated the perception of principals on the influence of ICT resources on the service delivery of basic science teachers in secondary schools in Calabar education zone of cross river state, Nigeria. Two research questions were raised and two hypotheses formulated to guide the study. Survey research design was adopted for the study while the population of the study comprised all the principal in the 46 public secondary schools in Calabar education zone. The 46 principals also formed the sample of the study because this number is manageable. The instrument used for data collection is titled: "Level of availability of ICT resources and service delivery of Basic Science teachers questionnaire (LAICTRSDBSTQ). The reliability outcome of 0.87 yielded from the Cronbach Alpha test. Data collected was analyzed using population t-test and one-way analysis of variance. Results from the analysis revealed that the level of availability of ICT resources is significantly low in secondary schools in Calabar education zone of cross river state. Results also revealed that the level of availability of ICT resources significantly influence service delivery of basic science teachers. Based on the findings, it was recommended among other things the government and proprietary should endeavor to provide the needed and necessary laboratory resources in secondary schools.

Introduction
Information and communications technology (ICT) has become a key tool for the successful performance of tasks in organizations. Since its emergence, ICT has also brought tremendous innovations and achievements in the field of education.

Information and communications technology are diverse sets of technological tools and resources used to communicate, disseminate, store and manage information (Collin & Edwards, 2000). Lallana and Magat in Monabi (2012) see ICT as a broad field encompassing computers, communications equipment and the services associated with them. They are the whole range of electronic and technological tools and resources used in information management. These

technological tools include computers, internet, television, interactive boards mobile phones, CD Roms, flash drives, E-mail, projectors and other related hardware and software technology tools.

In education sector, the place of ICT cannot be overemphasized because of its various benefits. Udoko (2022) stated that ICT has brought about transformations in the entire education system. ICT has brought about the concept of hybrid learning, e-learning, online learning and other novel concepts related to education. Ugbomor (2015) noted that revolutions in the way and manner of performing tasks initiated by ICT in formal organizations such as the school is tremendous. Oben (2020) asserted that integrating ICT in schools has the potential to benefit school administrators, teachers and students. School administrators such as principals also have their own perceptions on the effects of ICT on teachers service delivery. Molekwu (2020) reported that inspite of the massive potentials of ICT for Education, many secondary schools in Nigeria are still in lack of these resources.

Dimgba (2023) expressed disappointment that ICT facilities is either inadequate or totally non-existent in many secondary schools in Cross River State. Adie *et al.*, (2019) and Umana (2020) observed that teachers and school administrators in various schools do not utilize ICT in the execution of their tasks. This is an indication that the wave of revolution triggered by ICT is yet to touch some schools. As the world evolves, information and knowledge also change rapidly. Teaching and learning processes is also changing and ICT is needed to keep pace with these changes.

At the centre of every learning institution is the teacher whose service delivery leads to attainment of school goals and objectives. Service delivery of teachers refers to the ability of teachers to effectively render those services and activities that are required for the successful achievement of educational goals and objectives. For Basic science teachers, a combination of various school facilities is needed to render these services (Uko, and Nnaji 2015). The growth and performance of any school lies on the shoulders of the principals/ head teachers. They have to be trained professionally for effective service delivery (Egbula and Ekpo, 2016., Adie 2018).

Basic science is a subject that provides learners with fundamental understanding of natural phenomena and the processes by which natural resources are formed and transformed. Teachers of basic science need all the necessary tools that will enable them teach students in such a way that they will retain and recall what has been taught them at any time (Ekpo, Nnaji, Onabe and Ovat, 2023). Laboratories equipped with modern laboratory equipment and resources is crucial for the teaching and learning of Basic science. Ayodele (2021) remarked that in the 21st century digital world, teaching of all subjects especially that of sciences requires the availability of modern facilities in schools (Agwu, 2021). In view of the current quest for science and technology development, science teachers need a variety of modern technologies to be effective in their jobs (Dimeni, 2023).

Modern ICT resources that are essential for the teaching of science related subjects in schools are computers, projectors, televisions, virtual reality headsets, internet and other relevant resources. These equipment has the capacity to enhance students' understanding of science topics and also enable them to retain them. This is because of the clarity of pictures, diagrams and in depth explanation of information about science concepts in some of the ICT resources such as the internet and worldwide web.

Principals and other scholars have their different p of ICT and how it impacts on teachers overall performance. Titus (2022) posits that modern ICT will enhance teachers' job performance in no small measure. Maboli (2023) submitted that teachers will willingly put their best effort on the job when facilities are available. Williams (2010) noted that 21st century education is such that teachers may find it difficult explaining certain concepts which computers or virtual reality gadget would have otherwise made more clear, concrete and interesting to the students. Advances in technology has improved education so much that schools who fail to embrace and integrate ICT in the teaching and learning process may be doing disservice to their teachers and students (Unamba 2023). The teacher is the heart and soul of the educational

programme (Nnaji et al 2023). Considering the plethora of services delivered by teachers in school, technology holds the potential to enhance their effectiveness (Uko and Nnaji,2016).

Obi (2015) found out in a study that teachers' effectiveness in terms of lesson preparation and delivery, students' evaluation and students record management were inhibited due to inadequate and total unavailability of various ICT resources. This shows the importance and relevance of ICT to the entire education process. As old methods of communication and manual methods of carrying out tasks no longer receive prominence, educational institutions must rise to embrace this new development.

Statement of the problem

The current quest for the development of science and technology has increased the interest of education stakeholders in the teaching and learning of science related subjects in schools. In the public secondary schools in Calabar education zone, the teaching and learning of basic science seem not to be effective. As it is, students are not showing interest in Basic science and other science related subjects. Some of the students' academic achievements in basic science have also been reported to be poor. Basic science teachers in these schools have also not been effective in their service delivery as some of them often skip classes and end up not covering their syllabus. Some of the teachers do not expose their students to science practicals and field works while some do not exercise control over their students to keep them orderly, focused and attentive during classes. Others hardly mark and return continuous assessments which serve as feedback to students. Some teachers cannot also give proper account of their students due to inability to keep and maintain up-to-date class attendance registers, students grades, results and other assessment scores as well as students health records.

Training and retraining of science teachers through workshops and seminars sponsored by the government has not solved this problem. This is an indication that there are factors that could be responsible for this, hence, this study was carried out to ascertain the influence of level of availability of ICT resources on service delivery of Basic Science teachers in secondary schools in Calabar education zone of Cross River State.

Research question

1. What is the level of availability of ICT resources in public secondary schools in Calabar Education Zone?
2. How does the level of availability of ICT resources influence service delivery of basic science teachers in secondary schools in Calabar education zone?

Hypothesis

1. The level of availability of ICT resources in public secondary schools in Calabar Education Zone is not significantly low.
2. There is no significant influence of availability of ICT resources on service delivery of science teachers in secondary schools in Calabar education zone.

Methodology

The study adopted the survey research design. The target population of the study comprised all principals in the 46 public secondary schools in Calabar Education Zone of Cross River State. Purposive sampling technique was adopted to select all the 46 principals as sample of the study. The instrument used for data collection was a questionnaire titled "Level of availability of ICT resources and service delivery of Basic Science teachers questionnaire (LAICTRSDBSTQ)" The questionnaire consisted of two sections, A and B. Section A contained 18 items that measured the sub variables of the independent variable under investigation which is level of availability of ICT resources while section B contained 10 items that measured the dependent variable (service delivery of Basic science teachers). Each of the

subscale was measured on a four-point scale of strongly agree (sa), agree (a), disagree (d) and strongly disagree (sd). The instrument was face validated by two experts in test and measurement in university of calabar. The reliability of the instrument using Cronbach alpha yielded an index of 0.88. This was considered appropriate for the study. Data collected were analyzed using Population t-test and one-way analysis of variance statistics. The hypotheses were tested at .05 level of significance.

Result and Discussion

Hypothesis one

The level of availability of ICT resources in public secondary schools in Calabar education Zone is not significantly low.

Table 1: Population t-test of level of ICT resources availability in secondary schools in Calabar education zone.

Variables	Expected mean (μ)	Observed mean (x)	Standard deviation (SD)	t	p-level
Destop computers	45.00	37.37	6.25	15.02	.000
Laptop computers	52.00	38.11	2.90	7.22	.000
Internet	35.50	32.42	6.25	9.31	.000
Microsoft office tools	43.50	37.01	8.84	15.72	.000
Multimedia projector	38.00	27.51	6.24	8.30	.000
Interactive Boards	54.00	32.33	7.80	6.33	.000
Printers	35.00	31.28	3.33	6.81	.000
Moderns	65.00	45.11	4.44	4.22	.000
Flash drives	62.00	43.21	5.01	5.61	.000

*p<.05, df = 44, critical t = 1.97

Results in table 1 indicated that at .05 level of significance and degree of freedom 290, the critical t-value is 1.97. The calculated t-values obtained in establishing the level of availability of nine ICT resources were greater than the critical t-value of 1.97 with their respective observed mean values less than their respective expected mean values. With this result, the null hypothesis is rejected. It was alternately accepted that the level of ICT resources availability is significantly low in public secondary schools in Calabar education zone, Cross River State.

Hypothesis 2

Level of availability of ICT resources does not significantly influence the service delivery of Basic science teachers in Calabar Education Zone.

Table 2: one way analysis of variance of influence of availability of ICT resources on service delivery of Basic science teachers.

Service delivery	Source of variation	SS	Df	Ms	F-ratro	p-level
Instructional	Between groups	32.61	2	91.30	10.32*	.000
delivery	within groups	283.45	44	8.97		
	Total	316.06	46			
Academic	Between groups	98.51	2	99.25	9.02*	.000
Advising	within groups	400.81	44	8.34		
	total	499.32	46			
Record	Between groups	59.16	2	59.60	10.92*	.000
Keeping	within groups	305.96	44	10.00		
	total	365.12	46			
Students	Between groups	67.99	2	84.00	8.21*	.00
evaluation	within groups	178.00	44	7.25		
	total	255.99	46			

*P<.05; df 2 and 44, critical f=30.4.

Results in table 2, indicated that at .05 level of significance and degrees of freedom 2 and 44, the F-ratios obtained in establishing the influence of availability of ICT resources on four aspects of service delivery of Basic science teachers (instructional delivery, f = 10.32, academic Advising, f = 9.02, classroom management, t = 1092, students' evaluation, f = 8.21) were all greater than the critical f ration of 3.04. With these results, the null hypothesis was rejected. It was therefore accepted that the level of availability of ICT resources significantly influence service delivery of Basic science teachers in secondary schools in Calabar education zone in the aspects of instructional delivery, academic advising, classroom management and students' evaluation.

Discussion of findings

The findings of hypothesis one revealed that the level of availability of ICT resources in public secondary schools in Calabar education zone is significantly low. This indicates that computers (desktop and laptops), Microsoft office tools, multimedia projectors, interactive boards, printers, modems, flash drives and internet were not adequately provided in schools of the study. This finding is in line with that of Molekwu (2020) who reported that in spite of the massive potentials of ICT for education, many secondary schools in Nigeria are still in lack of these resources. This finding has exposed the challenges of ICT resources adequacy for use by teachers in the various schools studied. This finding also corroborates Umana (2020) who expressed his disappointment that ICT facilities is either inadequate or totally non-existent in many secondary schools in Cross River State.

The findings of hypothesis two revealed that the level of availability of ICT resources has significant influence on service delivery of Basic science teachers in secondary schools in Calabar education zone as perceived by their principals. This implies that adequate availability of ICT resources for use by basic science teachers will to a large extent enhance their service delivery in the aspects of instructional delivery, academic advising, record keeping, and students' evaluation while the inadequacy or total unavailability of these resources will hamper Basic Science teachers in the identified four aspects of service delivery. This finding is in line with Maboli (2023) who stated that teachers will willingly put in their best effort on the job when facilities are available. When ICT resources such as computer, Microsoft-office tools, internet, and printers are available, science teachers can easily keep abreast of new development in their subjects and also update their knowledge. Science teachers can also effectively deliver their lessons with relevant illustrations on a computer screen, interactive white board or

projector. This finding is in line with Obi (2015) whose study revealed that teachers' effectiveness in terms of lesson preparation and delivery, students' evaluation and students record management were inhibited due to inadequate and total unavailability of various ICT resources. This shows that lack of ICT resources can in no small measure restrict basic science teachers from effectively explaining science concepts during instructional delivery and also limit their dissemination of information and advice to students on how to improve their academic activities.

Conclusion

This study has established that the level of availability of ICT resources is significantly low in public secondary schools in Calabar education zone and that principals perceive that level of availability of ICT resources significantly influence service delivery of basic science teachers in the zone. It is therefore concluded that the service delivery of Basic science teachers in terms of instructional delivery, academic advising, students record management and students' evaluation will be greatly enhanced when ICT resources are adequately provided for use in public secondary schools.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Government should prioritize the provision of ICT resources in all public secondary schools in Calabar Education Zone.
2. School administrators should seek alternative ways of generating funds in order to provide ICT facilities in their schools.
3. Philanthropists and school alumni showed endeavor to donate ICT resources to public secondary schools or funds to procure them.
4. Basic science teachers should endeavor to get training on the use of various ICT facilities for science teaching.

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