



## TEACHERS' EFFECTIVENESS ON INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) UTILIZATION IN SECONDARY SCHOOLS: CALABAR EDUCATION ZONE

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**ABSTRACT:** *There are problems with teachers' effectiveness as a result of improper utilization of ICT facilities in teaching and learning process. This research is to examine teachers' effectiveness on the use of information and communication technology (ICT) facilities in secondary schools, Calabar education zone. Specifically, this research sought to find the influence of overhead projector and digital versatile disk facilities on teachers' effectiveness in government secondary schools. Related literature and some empirical studies were reviewed. Two research questions and two hypotheses were formulated which guided this research work. Four Likert rating scales made up of 16 structured questionnaire items used in generating data for the study, while the instrument was face validated by three experts. The population of 1,831 respondents with the sample size of 886 teachers and a survey design technique were employed. Data collected was analyzed using the simple percentages and bar charts for the research questions and analysis of variance (ANOVA) was used to test the hypotheses formulated. The finding revealed that overhead projectors and digital versatile disk families were found fairly utilized in teaching and learning process and they significantly influences teachers' effectiveness in secondary schools. It is recommended that digital versatile disk should be made available in government secondary schools and overhead projectors should be installed. Also, teachers and students should be trained on the use of the ICT facilities in order to use them for teachers' effectiveness.*

**KEYWORDS:** Teachers' effectiveness utilization, ICT, Education, Secondary School.



## INTRODUCTION

Teachers' effectiveness occurs during the interactions between teacher and student attitude and behavior toward learning. It entails the extent of effectiveness to which teachers carry out their classroom teaching/learning process. When service is delivered with certain quality learners will be accessed and ultimately improve their knowledge, skills and status. Teachers by this are looked at to be very important to students. The researcher is presuming that teachers' utilization of ICT facilities could help improve service delivery in secondary schools (Ramdas, Teisberg & Tucker, 2012), is seen as a conversation or exchange with people. The ICT facilities that serve as the basic tools to be discussed in this research are overhead projector and Digital Video Disk (DVD) facilities, Alaba (2001) stated that overhead projectors are those devices like machines that could be utilized to reveal the entire information to students by the teachers. Bissex (2016) stated that an overhead projector is used to show images to the audience. Overhead projectors eventually replaced the opaque projector. On May 22nd, 1990, Microsoft launched a slide-based presentation computer program called PowerPoint, with the aim of having "slides" that could represent the transparencies used in an overhead projector, which is more efficient than other forms of visual aid (Scott, 2014). West and Crook (1992) opine that Digital Versatile Disk or Digital Video Disk (DVD) enhances teachers and students to interact with the course material through less bridging effort between the learner and the information being processed.

Students' knowledge improved more with lessons on DVD than the ordinary transfer of information (Issar, Cox, & Killingsworth, 1999), Digital video disk also has many applications for teachers. West and Crook (1992) stated that the use of Digital Versatile Disk (DVD) was examined to determine the effect on learning and their perceptions of the ICT facilities; DVD enhances students to interact with the course material through less bridging effort between the learner and the information being processed. Barlett and Strongh (2003) say that the effect of ICT (DVD) facilities has been measured by assessing teachers' attitude towards the instruction of utilizing the facilities. The studies reported that teacher s' attitude toward the use of ICT (DVD) facilities was becoming more unfavorable after they were exposed to new technology based materials. Students' knowledge improved more with lessons of Compact Disk (CD)-based than the ordinary transfer of information (Issa et al., 1999). Many researchers strive to measure the different types of ICT facilities on teaching and learning. The method considered is multimedia-based CD to checkmate the level of teachers' utilization of ICT facilities. Teachers' utilization of these facilities in the classroom with students has been distorted. Could the utilization of these ICT facilities by teachers improve educational service delivery in government secondary schools in Calabar education zone? To answer this question is the reason for the research.



## **THEORETICAL FRAMEWORK**

ICT utilization theory by Samaranayake (1987) investigates ICT utilization facilities in educational process which in turn concerns teachers and students in the school. This theory deals with the collection of technique which is significant for better teaching and learning process. This finds relevance in this study in that teachers are indispensable in the utilization of ICT facilities in secondary schools. Sequel to this theory, information and communication technology (ICT) utilization helps teachers to teach students effectively and it also helps students to grasp without difficulty. The truth of ICT utilization theory enable both teachers and students in their effectiveness through the use of overhead projectors. Utilization of ICT facilities such as overhead projectors helps teachers and students to gain information without the school environment In Calabar educational zone, including ICT in secondary schools is no longer new because government has drawn actions of providing ICT facilities in schools. The relevance of this to the study is that the utilization of ICT has a great effect in teaching and learning process.

### **Statement of the Problem**

There is problem with teachers' effectiveness in secondary schools, especially schools in Calabar education zone, on the use of ICT facilities for learning. This is evident in the fact that almost all secondary schools in the state have failed to exhibit better students' achievement in school examinations and national examinations in the past years (Ministry of Education, 2012). This horrible performance was ascribed to poor effectiveness of teachers in secondary schools and this called for evaluation of teachers' effectiveness to ascertain their proficiency in ICT.

### **Purpose of the Study**

The study aimed at investigating teachers' ICT utilization and teachers' effectiveness in government secondary schools in Calabar. Specifically, the study sought to find the extent of:

1. Teachers' utilization of projector facilities to the effectiveness of teachers' in government schools.
2. Teachers' utilization of Digital Versatile Disk (DVD) facilities to the effectiveness of teachers' in government schools.

### **Research Questions**

1. To what extent does teachers' utilization of overhead projector facilities influence teachers' effectiveness in secondary schools?
2. To what extent does teachers' utilization of Digital Versatile Disk (DVD) facilities impact the effectiveness of teachers' in secondary schools?

### **Area of the Study**

This study was carried out in Calabar educational zone. The zone under research has seven (7) Local Government Areas namely: Calabar South, Akpabuyo, Municipality, Akamkpa, Bakassi, Odukpani and Biase. The zone has eight-one (81) secondary schools.



## Population and sample

The study had a population of 1,831 teachers. The categorization of the population is displayed in Table 1. The sample of nine hundred and sixteen (916) teachers out of the population of the one thousand eight hundred (1,831) teachers was drawn. Fifty (50) percent of the teachers in each of the schools in the zone with the expected ICT facilities were selected using simple random sampling for the study making a total of 916 teaching staff. Out of 916 copies of questionnaire distributed, only 886 copies were returned and used for the analysis. The breakdown of questionnaire questions filled and returned in various local government areas is shown in Table 2.

**Table 1: Population of the study**

S/N	Local Government Area	No. of Schools	No. of Teachers
1	Calabar Municipality	3	464
2	Calabar South	2	382
3	Odukpani	3	277
4	Akamkpa	3	303
5	Biase	2	205
6	Akpabuyo	2	105
7	Bakassi	1	65
	Total	16	1831

**Source:** *Secondary School Board Calabar (2017)*

**Table 2: Sample Distribution of the study**

S/N	Local Government Area	No. of Teachers
1	Calabar Municipality	245
2	Calabar South	190
3	Odukpani	133
4	Akamkpa	148
5	Biase	96
6	Akpabuyo	46
7	Bakassi	28
	Total	886

## Instrumentation and Data Collection

Teachers' utilization of ICT facilities on teachers' effectiveness questionnaire (TUICTFTEQ) was developed as the instrument for the study. The questionnaire has two parts A and B. Part A elicits details of school information. Part B measures six items for independent variables and eight items for dependent variable. The instrument had a Likert-type scale response option of Very Highly Utilized (VHU), Highly Utilized (HU), Fairly Utilized (FU), and Not Utilized (NU) with values of 4, 3, 2 and 1 respectively. The instrument was administered in the classrooms, for each school, the selected teachers were met in the classroom and the researcher appealed to them to please give them time to obtain his/her learning outcome. Three students were given the instrument to fill appropriately. Students were used in this case to



obtain information about the teacher because it is expected that information obtained from the students about the teacher's utilization of ICT in teachers' effectiveness would be more valid than the teacher's self report.

## RESULTS PRESENTATION

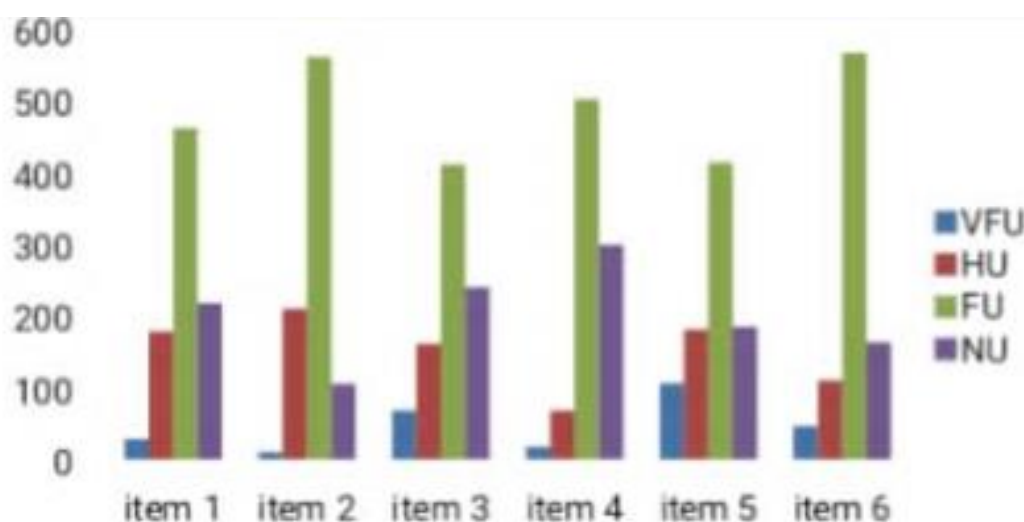
### Research Question One

To what extent does teachers' utilization of overhead projector facilities influence teachers' effectiveness in secondary schools?

This question was answered using simple percentages and a bar graph. The result as shown in Table 3 showed that 22.00% of the responses of the respondents, when collapsed into utilized and not utilized, noted that teachers utilize overhead projector in their service delivery while 78.01% noted teachers' level of utilization of overhead projector in lesson delivery is low. The result is further presented in Fig. 1

**Table 3: Simple Percentage Analysis of Responses to Utilization of Overhead projector facilities among Teachers**

S/N	Items	VHU	HU	FU	NU
	To what extent does your teacher use the overhead projector for the following:				
1	Break down difficult concepts for students understanding	28 (3.16%)	178 (20.09%)	462 (52.14%)	218 (24.60%)
2	Enlarges small objects for easy observation	10 (1.13%)	210 (23.70%)	561 (63.32%)	105 (11.85%)
3	Brings out the images to explain for your understanding	68 (7.67%)	161 (18.84%)	411 (46.38%)	240 (27.1%)
4	Teaching	17 (1.92%)	68 (7.67%)	502 (56.66%)	299 (33.75%)
5	Classroom interaction	206 (11.96%)	181 (20.43%)	414 (46.73%)	185 (20.88%)
6	As instructional aid	46 (5.19%)	110 (12.41%)	567 (63.99%)	163 (18.39%)



**Fig. 1: Bar graph showing responses to utilization of overhead projector facilities**

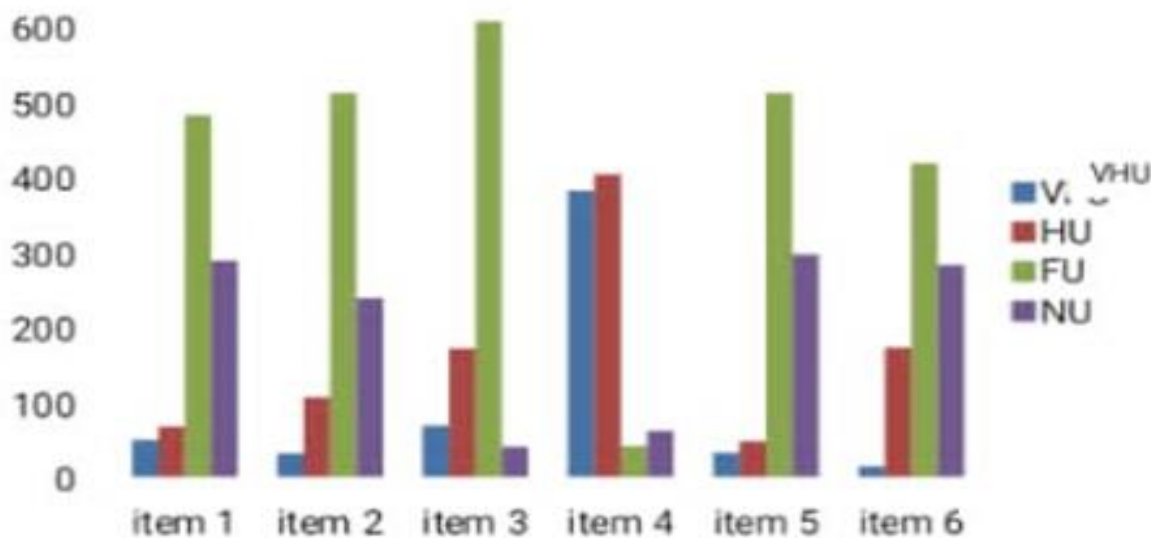
### Research Question Two

To what extent does teachers' utilization of DVD/CDs facilities influence teachers' effectiveness in secondary schools?

This question was answered using simple percentages and a bar graph. The result as shown in Table 4 showed that 29.01% of the responses of the respondents, when collapsed into utilized and not utilized noted that teachers utilize DVD/CDs effectively while 71.00% noted that teachers' level of utilization of overhead projector in lesson delivery is low. The result is further presented in Fig. 2.

**Table 4: Simple Percentage Analysis of Responses to Utilization of DVD/CD Facilities among Teachers**

S/N	Items	VHU	HU	FU	NU
	To what extent does your teacher uses the DVD/CDs for the following:				
1	Compile work for use to watch at home	49 (5.19%)	67 (12.41%)	482 (54.40%)	288 (32.50%)
2	Teach complicated topics	31 (3.49%)	106 (11.26%)	511 (57.67%)	238 (32.50%)
3	Promote learning	68 (7.67%)	171 (19.30%)	607 (68.5%)	40 (4.57%)
4	Encourage participation in class	381 (43.00%)	403 (45.48%)	41 (4.63%)	61 (6.88%)
5	Develop students communication skills	32 (3.61%)	47 (5.30%)	511 (57.67%)	296 (33.41%)
6	Capture the attention of learners	14 (16.28%)	172 (19.41%)	418 (47.17%)	282 (31.81%)



**Fig. 2: Bar graph showing responses to utilization of DVD/CD facilities**

### Hypothesis One

Utilization of overhead projector facilities does not significantly influence teachers' effectiveness.

The independent variable is teachers' utilization of overhead projector facilities, with the dependent variable as teachers' effectiveness. One-way analysis of variance (ANOVA) technique was employed in testing the hypothesis, and the result as presented in Table 5 showed [ $F = 10.74$ ,  $p < .05$ ]. Since  $p (.000)$  is less than  $p(05)$ , this means that there is a significant influence of teachers' utilization of overhead projector facilities on teachers' effectiveness in secondary schools.

**Table 5: ANOVA Result of Teachers' Utilization of Overhead Projector Facilities on Teachers' Effectiveness**

Variation	N	Mean	Std. Dev
High	481	14.69	4.919
Moderate	141	12.59	3.183
Low	264	14.27	4.080
Total	886	14.13	4.489

Sources of variation	SS	df	MS	F	Sig.
Between Groups	423.809	2	211.904	10.747	.000
Within Groups	17410.476	883	19.717		
Total	17834.284	885			



## Hypothesis Two

Utilization of DVD/CD facilities does not significantly Influence teachers' effectiveness.

The independent variable is teachers' utilization of DVD/CDs facilities and the dependent variable is teachers' effectiveness. One-way analysts of variance (ANOVA) technique was employed in testing the hypothesis and the result as presented in Table 6 showed ( $F= 3.05$ ,  $p < .05$ ). Since  $p(.000)$  is less than  $p(.05)$ , this means that there is a significant influence of teachers' utilization of DVD/CDs facilities on teachers' effectiveness in secondary schools.

**Table 6: One-way Analysts of Variance (ANOVA) Result on the Influence of Teachers' Utilization of DVD/CD Facilities on Teachers' Effectiveness**

Variation	N	Mean	Std. Dev
Low	238	13.63	3.426
Moderate	297	14.04	4.659
High	349	14.52	4.926
Total	886	14.13	4.489

Sources of variation	SS	df	MS	F	Sig.
Between Groups	183.262	2	61.087	3.052	.028
Within Groups	17651.02	883	20.012		
Total	17834.4	885			

## DISCUSSION OF FINDINGS

The findings of this research revealed that overhead projectors are fairly utilized by teachers in teachers' effectiveness and that overhead projectors significantly influence teachers' effectiveness among teachers in secondary schools. This is in line with Ademala (2004), who stated that instruction involving the use of overhead projectors materials facilitates permanency of teaming. The finding is in harmony with Stephen (2004) suggested that the use of overhead projectors makes subject-matter real and understandable. It is obvious that overhead projectors, when used effectively in the teaching and learning process, enhance students' understanding. It is believed that Instructions are better understood when learning is made real, as asserted by Sharon (2002). Also, the work revealed the need of using projectors in classrooms, including making learning interesting as teachers could now face the class and maintain eye contact with the students instead of turning around and writing. Findings also revealed that Digital Versatile Disk (DVD) is fairly utilized by teachers it teachers' effectiveness and that Digital Versatile Disk (DVD) significantly influences teachers effectiveness among teachers in secondary school. This findings is in line with the findings of Bariett and Strong (2003) who said teachers' attitude towards the use of Digital Versatile Disk facilities was becoming more unfavorable after they were exposed to a new technology based material (multimedia base CD).





## CONCLUSION

Based on the outcome of this research, the results show that the use of overhead projector and Digital Versatile Disk (DVD) is fairly utilized and significantly Influences teachers' effectiveness among teachers in secondary schools in the zone under study. The study revealed that the proper utilization of ICT facilities, such as overhead projectors and Digital Versatile Disk, will improve teachers' improve teachers' effectiveness and prepare learners for a role in an information age. This will cushion the problem of the high rate of students' failure in national examinations.

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