Examining the impact of Information and Communication Technology capacity building in High School education in Ghana.

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ABSTRACT

The quality of education in general is improved, if Information and Communication Technology (ICT) is used in teaching and learning in High School education. This is because the use of ICT related strategy for teaching and learning rise the motivation level of both the teacher and the learner. Hence this calls for adoption of proper ICT related methods in teaching and learning in High School Education. However, a greater much impact is made, if teachers or facilitators of ICT related methodologies in teaching and learning of the subject gets adequate capacity building on the new and emerging technologies associated with it. The research examines the impact of capacity building of ICT on High School education at Akuapem North Municipality in the Eastern Region of Ghana. The methods used were questionnaire, and interview. Both students and teachers were interviewed, and the data was analyzed using Statistical Package of Social Science (SPSS). The result was presented in tables and diagrams. The study concluded that capacity building activities in the various schools in the Municipality have been used to build the teachers knowledge base, however about 70.6% of the respondents indicated that their schools did have adequate capacity building.

Keywords Capacity Building, High School, Education, Information and Communication Technology

1. Introduction

According to Price Water House Coopers (2010), teachers particularly, have a very important role to play, in the many stakeholders involved in ensuring effective integration of ICT in the education system. Carlson and Gadio (2002) stated that, teachers are the key to whether technology is used appropriately and effectively. According to Aktaruzzaman, Shamim and Clement (2011), appropriate use of ICT can catalyze the paradigmatic shift from teacher-centered pedagogy to a more effective learner-centered pedagogy. Capacity building of teachers as well as administrators and managers can play a major role in enabling this shift (Opoku-Mensah, Abilimi & Amoako, 2013). The focus of teacher training institute however should not be limited to training teachers on how to use ICT rather it should provide the teachers with the skills and expertise required to use ICT to teach a curriculum which is better suited to prepare students for the 21st century. According to Monahan (2004), it results in an "incredible influx of financial support for equipment but only a meager trickle for network support or staff training." Without a sound capacity building framework, the financial resources spent on building the infrastructure will go to waste.

According to Haddad and Jurich (2002), important parameters that determine the success of ICT adoption in Education sector are the appropriateness of technologies, the suitability and quality of instructional materials and educational services made available, learning effectiveness and appropriation of new ways of work, and the cost-benefit ratio. It is,

therefore, important that policy-makers are sensitized on the importance of incorporating these aspects within the plans for ICT in education at all levels.

This paper assesses the impact of capacity building of ICT on quality of teaching and learning output in High School Education in Ghana, a case study of Akuapem North Municipal Assembly which has eighty one (81) Public Junior High Schools and Thirteen (13) Private Junior High Schools, making a total of ninety four (94). It has ten (10) Pubic Senior High Schools and two (2) Private Senior High Schools. Out of the eighty one Public Junior High School in the municipality only sixty three (63) schools offer ICT and out of this number only ten (10) schools have computer laboratories (Abilimi & Yeboah, 2013). The paper assesses the impact by administration of questionnaires and interviews on a randomly sampled population made of students and teachers relating the various training programmes in examine the extent of capacity building among schools that have ICTs.

2. Methodology

2.1 Research Design

Descriptive research refers to a research which specifies the nature of a given phenomena. It determines and reports the way things are. Descriptive research thus involves collecting data in order to test hypotheses or answer research questions concerning the current status of the subject of the study. It seeks to portray accurately the characteristics of a population (Rubin & Babbie, 2010). They also maintained that in descriptive research, accurate description of activities, objects processes and persons is the objective

2.2 Population

Teachers and students of Senior and junior High Schools in Akuapem North constituted the population for this research. A population is considered to be any group of people, events or things that are of interest to the researchers and that they wish to investigate (Sekaran, 2000). Sekaran also said a sample is a subset of the population in question and consists of a selection of members from the particular population. Sampling is described as the selection of a proportion of the total number of units of interest for the ultimate reason of being able to draw general conclusions about the total number of units.

3.2 Sampling Procedures

It is noted that, analyses are best when conducted on samples that are still fresh (Sarandakos, 1998). Therefore, sampling is used to select a portion of the population to represent the entire population. The authors use purposive sampling; this is because it is convenient and adequate for this research.

The adapted or reviewed questionnaires were administered to the participants in the various schools during the normal class periods. In each school, the researchers first sought permission from the head teacher of the school, after which the students and teachers were selected and grouped differently in a hall. After a brief explanation of the purpose of the study, the questionnaires were administered to the students. They were instructed to do independent

work and they were supervised by the researchers. The average time for responding to the questions was 30 minutes. The return rate for this questionnaire was 75.8%.

2.4 Sample Size

Stratified sampling method was used to group the school population into two (2) main categories: teaching staff, and student. Stratified sampling technique was adopted as it embraced the distinct categories and organized them into separate strata. This technique was more efficient because it improves accuracy of estimates. Purposive sampling technique was used for the selection of the teachers and students. Purposive sampling was adopted because they were the people who gave the researcher the necessary information on the ground. A total of 40789 sample size of which: Junior High students -26664, Senior High students -14049, ICT Teachers for Junior High- 61 size and ICT Teachers for Senior High -15, were surveyed.

3. Results

3.1 Capacity Building in Schools
3.1.1 Workshop /Seminar on ICT
Table 1 show whether respondents have attended any Workshop/Seminar/Talk on ICT

Table 1

Workshop or Seminars on ICT

Questions		WAS IT BENEFICIAL TO YOU?		PERCENT (%)	
		YES	NO		TOTAL
HAVE YOU ATTENDED	YES	89	0	29.4	89
ANY WORKSHOP /	NO	0	214	70.6	214
SEMINAR / TALK ON					
ICT?					
TOTAL		**89**	**214**	**100.0**	**303**

From Table 1, it is observed that 89(29.4%) respondents said "Yes" indicated that they have attended workshop on ICT before and it was beneficial where as 214(70.6%) responded "No" they have not been to any workshop before and that it cannot be beneficial to them. This means that majority of the respondents believed that trainers or teachers or facilitators in ICT related education do not have enough capacity building in the new and ever emerging technologies the subject area (Table 1).

3.1.2 Capacity Building
Again when respondents were asked how they apply the knowledge gained at the workshop/seminar and also what capacity was provided to teachers, the responses were presented in Table 2 below.

Table 2

Capacity Building in frequency

Questions		ACTION PLAN	INVESTIGATING AND CREATING A FRAMEWORK	WORKSHOP / SEMINAR / TALK	DISCUSSION OF THE CONCEPT NOTE	CONSULTATIVE MEETING	NOT YET	TOTAL
ARE YOU APPLYING WHAT YOU GAINED AT THE WORKSHOP / SEMINAR / TALK?	YES	33	13	7	27	14	0	**89**
	NO	0	0	0	0	0	214	**214**
TOTAL		**33**	**13**	**7**	**27**	**14**	**233**	**303**

From Table 2, it is observed that 89(29.4%) of the respondents indicated that they apply the knowledge and the skills that they gained at the workshop or seminar in their day to day teachings or facilitations of their students, whiles majority (count = 214, percent = 70.6%) of the respondents stated that they have not attended any seminar or workshop so it is not beneficial to them. Some respondents who responded that it was beneficial to them said that the capacity provided to them was action plan, investigating and creating framework, workshop/ seminar/talk, discussion of the concept note and consultative meeting, and these capacities made them extra skillful and knowledgeable, which made them more competent in teaching the ICT subject.

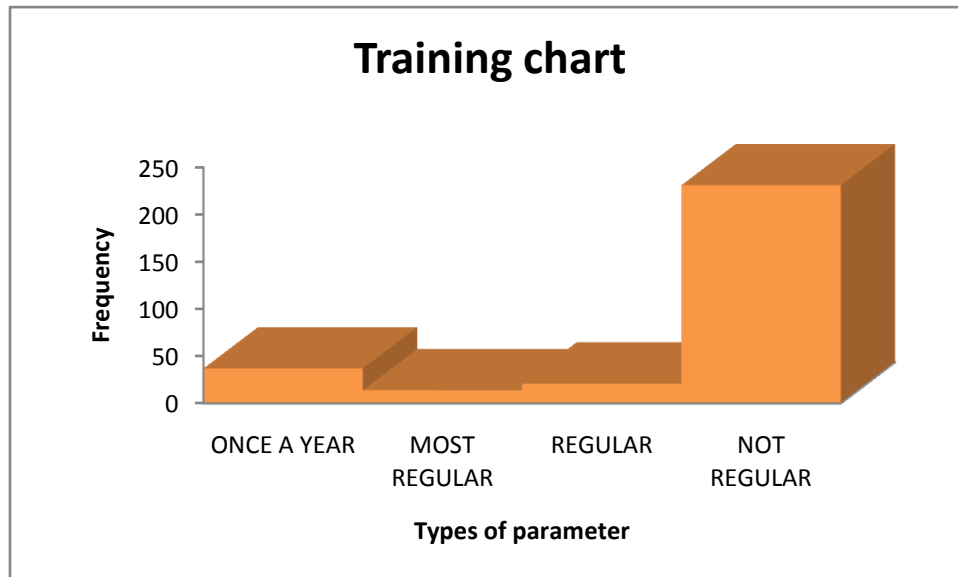### 3.1.3 How often Seminars/Workshops are Organize

Also respondents were investigated to find out how often they have seminar / talk / workshop on ICT related areas, and the responses are summary into frequencies and percentages, and this is shown in Table 3 below.

Table 3

How Seminars / Workshops are Organize

How often do you attend seminars?	FREQUENCY	PERCENT (%)
ONCE A YEAR	37	12.2
MOST REGULAR	14	4.6
REGULAR	21	6.9
NOT REGULAR	231	76.2
TOTAL	**303**	**100.0**

The analysis of the factors responsible for decision making in the frequency of seminars or training workshop in ICT reveals that 37(12%) of the respondents indicated that they had the seminar or workshop once a year, whereas 14(5%) of them indicated that they often have seminar or workshops in most regular bases, also 21(7%) of the respondents indicated that they have regular seminar or workshop, however, majority 231(76%) of the respondents stated that they do not have seminar or workshop regularly (Table 3). This also illustrated in Figure 1 below, where it can be seen that more than half of the total respondents (76.2%) of them showed that they do not attend seminars or workshops or capacity buildings programmes in ICT regularly.

The frequency of attending workshops affords the teachers the opportunity to update the knowledge they have gained. New information and skills are also acquired teachers attend workshop regularly. The responses indicated that not much is being done about having seminar or workshop on ICT to the teachers.

Figure 1: How often Seminar / Workshop are Organize

4. Discussion

The research sort to find out how the capacity building activities in the various schools in the Municipality have been used to build the teachers knowledge base. The research findings from Table 2 showed that 70.6% of the schools in the Akuapem North Municipality do not provide capacity building for their ICT teachers or trainers. On the other hand 29.4% of the respondents indicated that they do apply the skills and the knowledge gained in the ICT workshop or seminar in delivering their content when teaching the learner. The research revealed that the capacity building provided to these teachers was action plan, investigating and creating framework, workshop/seminar/talk, discussion of the concept note and consultative meeting and these capacities gave them extra knowledge which made them more competent in teaching the subjects. According to Tinio (2003), it is no longer necessary for teachers and students to be in the same space, due to innovations of technologies such as teleconferencing and distance learning, which allow for synchronous learning. If given access and appropriate training in ICT, the internet can also provide these groups with an abundance of online learning materials, covering a wide range of subjects that are up-to-date and produced by cutting-edge technologies.

From Table 3, it can be seen that 76.2% of the respondents stated that they do not have seminar or workshop regularly whereas 12.2% of them indicated that they had the seminar or workshop once a year, 6.9% of the respondents indicated that they have regular seminar or workshop, However, 4.6% of the respondents indicated that workshops for capacity building were organized regularly for them (Figure 1). This implies that the frequency of attending workshops affords the teachers the opportunity to update the knowledge they have gained. New information and skills are also acquired by teachers who attend workshop regularly. The responses indicated that not much is being done about organizing seminar or workshop on ICT for the teachers. The literature reviewed showed that while there are many stakeholders involved in ensuring effective integration of ICT in the education system, teachers have a particularly

important role to play. According to Carlson and Gadio (2002), teachers are the key to whether technology is used appropriately and effectively.

5. Conclusions

The research concluded that capacity building activities in the various schools in the Municipality have been used to build the teachers knowledge base. The data generated from Table 2 reveals that 70.6% of the respondents indicated that they have not been to any workshop before; in view of this the research established that teachers did not have capacity to use ICTs. Also, 29.4% of the respondents indicated that capacity such as action plan, investigating and creating framework, workshop/seminar/talk, discussion of the concept note and consultative meeting. These capacities buildings gave them extra knowledge, skills, new ideas which made them more competent in teaching the subjects. This research established that teachers need capacity to build their knowledge and these capacities should be regular for all ICT teachers or facilitators.

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