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## **The Use of ICT Resources for Teaching Social Studies: Does the Availability of ICT Resources Matter?**

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### **ABSTRACT**

The paper explored the availability of information and communication technology (ICT) resources and the extent to which these resources influence the use of ICT in teaching Social Studies. The study setting was in the Awutu Senya district of Ghana. A descriptive survey design and quantitative approach were adopted for the study. From a target population of fifty-seven (57), 46 were sampled from which 39 participated in the survey. Means and standard regression were employed for the investigation. The testing of hypothesis was made possible through the use of structured equation modelling. The study concluded that ICT resources were inadequate for teaching Social Studies and that the use of ICT resources in teaching Social Studies in the district was low. The reason was evident based on the low level of ICT resources in the district. The study also concluded that there was a positive significant relationship between availability of ICT resources and its use in the teaching of Social Studies.

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## Introduction

Information and Communication Technologies (ICTs) have made a tremendous change in modern societies. ICTs have affected the way demands are made among citizenry. The changes brought by ICT have also affected educational institutions. In the advanced countries the use of ICT has permeated the entire educational framework which has resulted in rapid, effective and efficient delivery of quality education to citizens (Galvin, 2017; Hinostrroza, 2018; Mathews, 2017). The advent of ICT has also resulted in the restructuring of the educational curriculum in order to bridge the teaching and learning gap in many countries.

According to Mathews (2017), ICT could be described as the use of technologies to manage classroom activities. All other technologies like computer hardware, software, CDROM, video disc player and the internet are defined within the context of ICT. The availability of ICT technologies provides students and teachers with a wide range of information to execute their academic work. Other scholars have asserted that technology will always play a significant role in working environments as 90% of jobs now count on knowledge in ICT as a basic requirement (Acquah-Doughan, 2015). Most importantly, students must acquire adaptive skills in the use of ICT if they would be successful in their jobs. It is therefore not surprising that the use of ICT is touted as a potential enabling tool for teaching. The ability to make teaching and learning an active process to connect to real life cannot be fully complete without inclusiveness of ICT. This is largely because, ICT strengthens the relevance of education, expands access and increases the quality of teaching and learning processes.

Many contemporary studies have enumerated the tremendous benefits of employing ICT in the teaching and learning of courses. These courses span from the humanities, to social sciences to pure mathematics and languages. For instance, Akpabio and Ogiriki (2017) indicated that the teaching of Social Studies can be improved by the use of ICT to compose documents and

present issues. Their study asserted that using ICT tools in Social Studies topics is very motivational for students.

The prior information has given both theoretical and empirical evidence to the use of ICT in teaching and learning. Additionally, it has been revealed that the importance of using ICT in educational institutions improves students' performance (Afolayan & Oyekunle, 2016; Eickelmann, Gerick & Koop, 2017; Natia & Al-hassan, 2015). Ghana as a nation has not been slow in the implementation of ICT in its educational curricula. From the basic schools through to the tertiary level, ICT is studied as a single subject incorporated in some subjects. ICT tools are used in teaching and learning especially in the urban parts of the country however, the availability of ICT resources and its use within the educational system remains a growing concern to educationist, teachers, researchers and policy makers. While many developed and even developing nations are far advanced in the use of ICT resources, the exact coverage in use so far as ICT resources are concerned in Ghana is still being investigated (Acquah-Doughan, 2015; Natia & Al-hassan, 2015). Additionally, the limited studies which have investigated the availability and use of ICT in teaching and learning have been generic in all subject areas without being subject specific.

The Awutu Senya-District covers a wide range of geographical territory with a myriad of educational institutions. Among the limited exiting literature on the availability and use of ICT in modern education studies, none of them have taken practical interest in this district. Meanwhile, the ICT needs assessment within the district is important for practical policy formulation. Moreover, investigating the availability and use of ICT resources in the district will not only widen the scope of the phenomenon in the Ghanaian literature but also serve as a reference point in ICT decision making globally.

## Statement of the problem

ICT in education has the ability to enhance the quality of teaching and learning. In fact, the

research productivity of teachers and students, and the management and effectiveness of institutions in recent times depend largely on ICT (Natia & Al-hassan, 2015). However, the realisations of the benefits of using ICT in educational institutions face a number of challenges in developing countries. In most African countries, access to ICT facilities continues to be a major challenge. For instance, a study on pedagogical integration of ICTs from 2017-2018 in some Ghanaian schools indicated that there was a gap between the policy directives and actual practices in schools (Acquah-Doughan, 2015).

In spite of the staggering evidence demonstrating a structural gap between ICT policy directives in education and actual implementation, little has been done empirically to assess the availability and use of ICT resources in teaching and learning. The few existing ones have overly concentrated on the tertiary level and in distance education. This has left a huge literature gap in the basic and senior high schools. Moreover, literature on the use of ICT in education mainly focuses attention on multisectoral discipline without little or no attention to subject specific areas. For instance, till date, there is no single study which has empirically tested the availability and use of ICT resources in Social Studies. The perception of teachers on the adoption and use of ICT resources have not gained wide attention in the Ghanaian literature. It is in this light that this study investigated the availability and use of ICT resources for teaching Social Studies in selected senior high schools in the Awutu-Senya District.

### **Objectives of the study**

The overall purpose of the study was to investigate the availability and the extent to which ICT resources influence the teaching of Social Studies in selected senior high schools in the Awutu-Senya district. Specifically, the study sought to:

1. Examine the availability of ICT resources in teaching Social Studies.
2. Investigate the relationship between the availability of ICT resources and the extent to

which the resources influence the teaching of Social Studies.

### **Hypothesis**

In view of the research objectives, the following null hypothesis was formulated

*H<sub>0</sub>: There is no significant relationship between the availability of ICT resources and the extent to which the resources influence the teaching of Social Studies.*

### **Review of Related Literature**

#### **Bates Action Model**

The model adopted for this paper is the Bates Action Model (BAM). The Actions model is based on Bates (1995) approach for evaluating technologies. The model provides a framework for using technology in teaching. According to Bates (1995), major changes are needed in the education system to meet the needs of lifelong learning. The Actions model is based on various underlying questions which try to find answers to how accessible certain technologies are, from the perspective of students and its flexibility to various target groups among students. For instance, is a particular technology accessibly to high school students or only to tertiary students? (Agbo, 2015; Vrasidas, 2015). The model tries to underscore the implication of the existing cost of a particular technology to other alternative ones.

The aforementioned assumption implies that the use of technology is largely determined by cost and accessibility. Therefore, if the cost or accessibility is beyond reach, the implication is that it would be very difficult for students as well as teachers to employ it. Moreover, the model deals with flexibility of technology to target groups.

Another important feature of the model is its interactivity, user friendliness and ease of use. At this stage, the kind of interaction which is made possible by the technology is investigated (synchronous or asynchronous) Agbo, 2015; Vrasidas, 2015. Additionally, organizational issues and institutional requirements are one of the important issues that the model tries to investigate. Similarly, changes that are needed to

be made within the organization to incorporate technologies need to be identified.

The action model has varied implications on the study. Therefore, for any technology to be useful to teachers and students it should be available, flexible and accessible. Bates (1995) considered cost as one of the strong determinants when it comes to the adoption of technologies and is often the first issue considered by many institutional policy directors. Generally, the technologies that are perceived to be easy to use or are user friendly tend to be more accessible to teachers and students. Generally, teachers and students seek for technology that is versatile to support teaching and learning processes. Countries need educational organisations that can identify new technologies to meet the needs of the twenty-first century (Bates, 1995)

### **Conceptual review**

#### **Information and Communication Technology in Teaching**

Information and communication technology (ICT) is seen as techniques people use to share, distribute and gather information and to communicate through computers and computer networks. Due to this, Yunus and Suliman (2014) described ICT to be a complex set of applications used for the processing of information. This includes but not limited to telecoms, hardware and software, computer services and electronic media. This means that ICT can be described as a set of activities which are facilitated by electronic means.

The availability and use of ICT determines the role that ICT plays in the classroom. In view of this, Murdock and Desberg (2014) indicated that teachers use ICT tools to share and access information to support students learning. Similarly, Candau, Hannafin, Doherty, Judge, Kuni and Yost (2013) revealed that access to ICT tools for teaching influences students' thoughts and eventually move them towards a better learning experience.

The implication is that integration of ICT tools in teaching can motivate teachers and students in

their teaching and learning respectively. The use of ICT improves and develops the quality of education by providing support in difficult subject areas in various curricular (Acquah-Doughan, 2015). To achieve this, it is incumbent on teachers to be involved in collaborative projects which include teaching partnerships with ICT as a tool for teaching. Other studies have similarly demonstrated that ICT use in teaching and learning can result in effective literacy gains. Empirical evidence suggests that students, who are having difficulties with reading, can be motivated and engaged through the use of ICT (Lynch, Fawcett & Nicolson 2010; Hilty & Huber, 2017).

#### **Availability of ICT Facilities in Social Studies Education**

ICT resources in schools depend on whether the school has purchased the resources or the department has provided the resources. According to Szeto and Cheng (2013) and Tezci (2011a), availability of ICT resources is important to generate situations in which teachers can make use of ICT in classrooms with confidence. An important variable of ICT integration in schools is its availability.

The term social studies is mostly used to explain a subject which deals with human relationship with others. In turn, Tamakloe (1994) looks at social studies as a subject that deals with man and his relationship with his immediate environment. This implies that the teaching of social studies should aim at exposing students to the way of life of the society and the realization that humans, plants and all the other animals are dependent upon each other. To Quashigah (2014), social studies involves the studying of individuals, groups and other societies cultures and citizenship education, this means that social studies as a subject is taught to promote citizenship by using social science concepts.

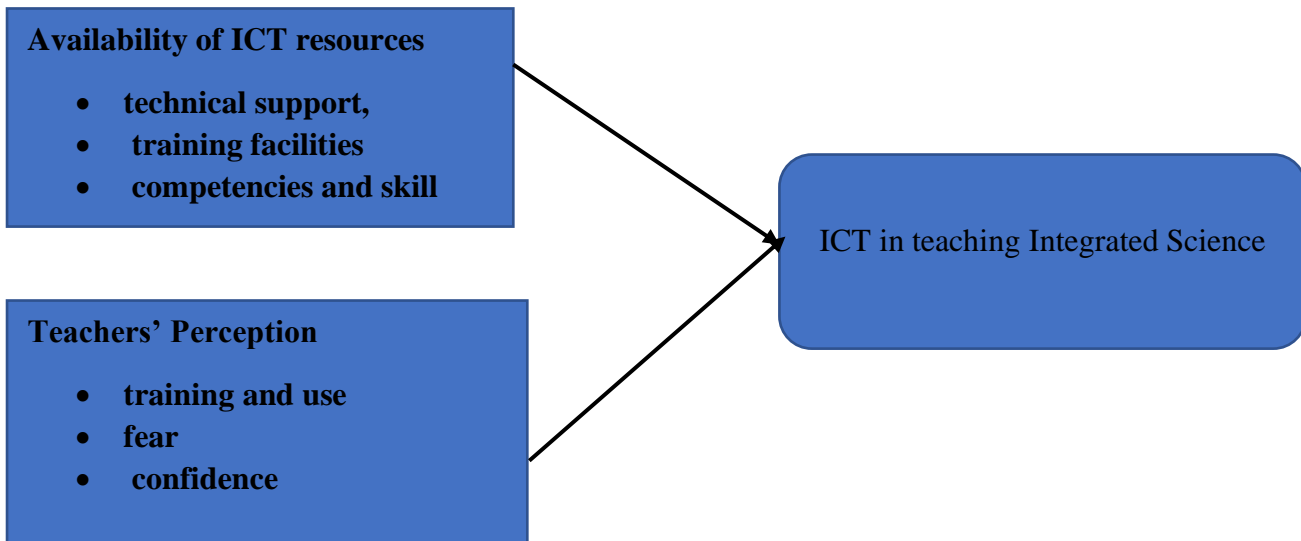
It is evident from these definitions that one main characteristic that makes social studies more distinct is that it incorporates many fields of endeavour. The integrative nature of social studies therefore calls for critical thinking about social

issues leading to the development of thoughtfulness in students. Through integration, pupils acquire a variety of skills including inquiries, investigations and discoveries.

**Conceptual framework**

From the theoretical and empirical review, it could be observed that many ICT oriented factors have been explained to affect the teaching of social studies. The broad study factors in the

study were availability of ICT resources and perception of teachers. From the literature, it was observed that availability of ICT resources is defined within the context of technical support, training facilities and competencies and skills. The perception of teachers was defined from the perspective of training and use, fear and confidence. Figure 1 gives a diagrammatical presentation of these variables and how they affect teaching of social studies.



Source: Authors construct developed from literature

**Methodology**

The current study adopted a descriptive survey design and quantitative approach to investigate the availability and use of ICT resources in the teaching of Social Studies in Senior High Schools. The focus was the Awutu Senya district in Ghana. In the view of Bell, Bryman and Harley (2018), a survey design is a method of collecting information by administering questionnaire and collecting data about people’s opinions and issues.

**Target Population, Sampling Technique and Instrument Design**

The population of the study consisted of 6 senior high schools and Social Studies teachers in the district. The target population was made up of 57 Social Studies teachers. A sample size of 46 participants used for the study. The data was collected through a self-administered

questionnaire. The questionnaires were distributed through a drop and pick method whereby the researcher allowed the respondents to answer the questions at their own pace.

**Data Analysis**

The collected data were cleaned and edited to ensure completeness and consistency. The data was tabulated and analysed using descriptive and inferential statistics with the help of statistical package for social sciences (SPSS version 22) in conjunction with IBM Amos using Structured Equation Modelling (SEM) (Hoyle, 1995). The mean scale analysis was used to determine the perceived availability of ICT resources in teaching Social Studies. SEM was used to test the hypothesis that

*Ho: There is no significant relationship between the availability of ICT resources and the extent*

to which the resources influence the teaching of Social Studies.

The relationship between the study variables was established using the following model;

$$Y = \beta_0 + \beta_1 TS_1 + \beta_2 TF_2 + \beta_3 CS_3 + \varepsilon \text{ ----- (eqn 1)}$$

Where:

Y = teaching of Social Studies (dependent variable)

$\beta_0$  = Constant Term

$\beta_1, \beta_2, \beta_3$  = Beta coefficients

TS = Technical support

TF = Teaching Facilities

CS = Competencies and Skills

$\varepsilon$  = Error Term

## Result and Discussions

Out of the 46 questionnaires administered 39 were received. The response rate was above 85% which was very good according to Kothari (2011). The first research objective was to examine the availability of ICT resources within the Awutu Senya district. To achieve this research objective, three variables with a total of 12 indicators were used to measure the variable on a five-point likert scale. Score '5' indicated the strongest agreement while score '1' showed the least agreement. Given this measurement scale, the overall highest score expected was 60.00 (i.e. 5 indicators X 12 point on the scale) and the lowest was five (i.e. 1 indicator X 5 on the scale). The perceived low level of availability of ICT resources had a range of 1 to 2.9, while the perceived high availability of ICT resources was from 3 to 5.

**Table 1: Availability of ICT resources for teaching Social Studies**

Checklist	N	Mean	Std. Dev
<b>Technical Support</b>			
Educational software	39	1.89	.316
Overhead projectors	39	1.74	.444
Quality Internet connectivity	39	1.69	.572
Modern computer systems	39	2.74	.133
<b>Teaching Facilities</b>			
Video conference room	39	1.09	.744
ICT training centre	39	1.47	.478
Availability of digital cameras for teachers	39	1.40	.599
Centre for photocopier machines	39	1.20	.603
<b>Competent Skills</b>			
I have the needed skills on ICT tools like software	39	1.11	.623
I am well trained to use ICT for teaching	39	1.55	.581
I have personal hands on devices like cameras	39	1.32	.601
I have basic programming skills for teaching	39	1.14	.645
<b>Total Mean</b>		<b>18.34</b>	
<b>Grand Mean</b>	<b>39</b>	<b>1.52</b>	<b>.528</b>

Scale (Mean): Low = 1.00 – 2.90; Cut-off Point =2.99; High = 3.00 – 5.00

Source: Field Survey (2020)

The total mean for availability of ICT resources was 18.34. Findings revealed that there was low availability of ICT resources in the district. The grand mean for ICT resources availability as shown in Table 1 was 1.52. However, the overall availability of each of the items was low. Technical support, availability of training facilities and ICT competency skills fell within the lower margin of 1 to 2.9. The availability of educational software, projectors, video conferencing rooms and basic programming skills were all seen to be very low. The only indicator which was seen to be relatively higher was the availability of modern computer systems with a mean of 2.74. On the other hand, the lowest among all the indicators was the needed ICT skills with a mean of (1.11).

The findings affirm the study by Umoren (2016) who observed that ICT resources are beyond the reach of teacher educators and as such, they cannot access them for instructional development. It further affirms the findings of Adebic-Caesar (2012) whose study revealed that there is inadequacy of computer in schools. Tezci, 2011a;

Szeto and Cheng (2013) Similarly, other studies revealed low availability of ICT resources in schools

The findings of the study revealed that, the availability of ICT resources in the district for the teaching of Social Studies in the Awutu Senya district was low. The implication is that ICT resources like computers, educational software, smart boards, overhead projectors etc should be made available for Social Studies teachers to enhance their teaching. This is in line with the tenets of the Action theory which indicates that for a successful use of technology, all subsidiary technologies or resources should be accessible and available.

The second research objective was to investigate the relationship between availability of ICT resources and the teaching of Social Studies. To answer this research objective, the use of ICT resources for the teaching of Social Studies was examined. Table 2 gives the descriptive statistics on the use of ICT resources for the teaching of Social Studies.

**Table 2: Use of ICT resources in teaching Social Studies**

Checklist	N	Mean	Std. Deviation
Practical demonstration	39	2.94	.593
Teaching learning materials	39	3.01	.645
Drill and Practice	39	2.20	1.467
Finding information	39	2.50	.537
Keeping records of students' scores	39	2.51	1.464
Preparing and delivering lessons	39	3.23	.285
Communicating with other teachers	39	3.17	.600
Making presentation	39	3.15	.632
Storage of vital data or information	39	3.12	.693
<b>Total Mean</b>		<b>25.59</b>	<b>6.916</b>
<b>Grand Mean</b>		<b>2.84</b>	<b>.768</b>

Scale (Mean): Low = 1.00 – 2.90; Cut-off Point = 2.99; High = 3.00 – 5.00

Source: Field Survey (2020)

From Table 2, it could be observed that the use of ICT resources relatively contributes to the teaching of Social Studies. It could be observed that it was used in the preparation and delivery of lessons, communication with other teachers, making presentation and storage of vital data or information had a high mean score which was within the higher margin of 3 to 5. Nine (9) indicators of the use of ICT resources were employed in the data collection. Out of a total of mean point of 45, it could be observed that the total mean score was 25.59 with a grand mean of 2.8. Though closer to 3.0, it was still low.

The study proceeded to employ the use of SEM to investigate the relationship between the availability of ICT resources and the use of ICT resources for teaching. SEM was used to test the hypothesis that

*H<sub>0</sub>: There is no significant relationship between the availability of ICT resources and the extent to which the resources influence the teaching of Social Studies*

The independent variable was the availability of ICT resources defined by Technical support (TS), Teaching Facilities (TF) and competent skills (CS). The dependent variable was the use of ICT resources in teaching. This type of statistical analysis required some underlying assumptions like the absence of multicollinearity. The basic assumption for regression to generate reliable results was the absence of multicollinearity. Using SPSS, the study used 'Tolerance Value and Variance Inflation Factor (VIF)' as the bases for testing this assumption. Tolerance value is the inverse of VIF. The norm is that when tolerance value is very small (i.e. less than 0.1) and VIF greater than 10, then there is a multicollinearity problem.

It can be observed from Table 3 that all the variables had tolerance values greater than 0.1 and VIF values less than 10. This suggests that the model did not violate the multicollinearity assumption.

**Table 3: Multicollinearity Analysis**

Study Variables	Tolerance Value	VIF	Decision
ITU	.392	2.548	No
TS	.700	1.429	No
TF	.920	1.087	No
CS	.780	1.619	No

*Note ITU denote Use of ICT resources, TS is Technical Support, TF is Teaching Facilities, CS is Competent Skill*

**Table 4: Estimation of Availability of ICT Resources on the Teaching of Social Studies**

	Beta	t-stat	Sig.	R <sup>2</sup>	AdjR <sup>2</sup>	f-stat
ITU Model				0.781	0.760	11.255 (.001)
TS	0.481	4.475	0.030			
TF	0.651	8.226	0.002			
CS	0.221	5.175	0.020			

*Note ITU denote Use of ICT resources, TS is Technical Support, TF is Teaching Facilities, CS is Competent Skills*



## Inferential analysis

From the model, the value for R square was 0.78. This illustrates that there was a relationship between availability of ICT resources and the use of ICT in the teaching of Social Studies in the Awutu Senya district. The adjusted R squared (R<sup>2</sup>) value of 0.760 showed that 76.0% of the use of ICT by teachers of Social Studies is determined by the availability of ICT resources. The model was significant with an F statistic = 11.255 at p value 0.000 which was less than 0.05. This was an indication that all the variables and the accompanying indicators used for measuring the availability of ICT resources had significant effect on the use of ICT for teaching Social Studies.

The inferential statistics illustrates that availability of ICT resources have positive significant effect on the use of ICT in teaching Social Studies. The coefficient of TS, TF, and CS were 0.481(0.030), 0.651 (0.002) 0.221 (0.020) respectively. The implication is that a percentage increase in any of these variables ie 0.481 0.651and 0.221 would increase the use of ICT for teaching Social Studies. On the other hand, a percentage decrease in these variables will lead to a decrease in the use of ICT resources in the teaching of Social Studies. It could be observed that none of the values of p were above 5% significant level. The implication was that availability of ICT resources had a positive significant relationship with the use of ICT in teaching Social Studies This explains why the use of ICT for teaching of Social Studies as explained in Table 2 had a low mean value of 2.84. From Table 1, availability of ICT resources was found to be low, therefore, the findings of the study reject the null hypothesis that:

*H<sub>0</sub>: There is no significant relationship between the availability of ICT resources and the extent to which the resources influence the teaching of Social Studies.*

The significant positive relationship between availability of ICT resources and use of ICT in teaching Social Studies is consistent with the study of Amengor (2011). Amengor (2011)

found that within the Ashanti region teachers who had ICT resources, were able to use it in their presentations and for class data analysis. Similarly, Yusuf, Bashir and Dare (2013) found that the absence of ICT resources like computers, projectors, software and interactive boards made it difficult for teachers to employ the use of ICT in teaching. The findings further support the opinions of prior research (Acquah-Doughan, 2015; Galvin, 2017; Mathews, 2017; Tedla, 2012). Tedla (2012) observed from his study that there was a significant relationship between availability of ICT resources and the ability of teachers to use these resources. The implication of the findings in relation to prior research illustrates that, even if teachers do not possess all the required skills in the use of ICT, its availability alone would serve as conduit for effective usage by teachers.

The overall finding was that with the adequate availability of ICT resources, teachers would be in a better position to exploit its use in their daily teaching. The findings have revealed that the use of ICT resources in teaching has a direct or positive relationship with the teaching of Social Studies. Thus, within the Awutu Senya district, the study provides empirical evidence on the relationship between availability of ICT resources and the teaching of Social Studies.

## Conclusion and Recommendation

The paper explored the availability of ICT resources and the extent to which these resources influence the use of ICT in teaching Social Studies. It was concluded that there is low availability of ICT resources in the district and the use of ICT in teaching Social Studies in the district is low. The reason was evident from the low level of ICT resources in the district. Moreover, the study concluded that there is a positive significant relationship between availability of ICT resources and its use in the teaching of Social Studies.

The implication of the low level of availability of ICT resources explains the low level of its use by teachers in the district. The study therefore recommends that the Ghana Education Service (GES) or Ministry of Education (MOH) should

provide ICT resources to high schools within the district to facilitate teaching and learning processes. The recommended ICT resources should include computer systems, interactive boards, overhead projectors, digital cameras, video conferencing rooms, computer educational software etc. It is further recommended that, teachers are given practical skills in basic computer programming, training in the use of ICT resources and the provision of ICT facilitation room or hall for regular interactive sessions. Further studies could expand the model by increasing the variables and also investigate the feasibility of eLearning in the district.

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