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Technology Acceptance: Examining the Intentions of Ghanaian Teachers to Use Computer for Teaching

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Abstract

Technology is seen as a key enabler of modern education. The Government of Ghana recognises information and communication technology (ICT) as an engine of national growth, and it is investing ICT into teaching and learning. However, most teachers still feel reluctant to use computer for teaching. Therefore, the purpose of this study is to examine the factors that influence teachers to use computer for teaching purposes. The research model developed in this study was based on the Technology Acceptance Model. Questionnaire was used to collect data from one hundred and five teachers in the New Juaben Municipality, Eastern region of the Republic of Ghana. Partial Least Square (PLS) was used as the statistical technique to analyse the data. The study found that perceived barrier, attitude, perceived ease of use, perceived usefulness and relevance to job had a positive significant effect on teachers' intentions to use computer. The effect of self-efficacy was not supported.

Keywords: Perceived Usefulness, PEOU, Self-Efficacy, Attitude, Perceived Barrier, Technology Acceptance

Introduction

Technology, specifically computer, is identified as an enabler, facilitator and a promoter of quality teaching. Computer is seen to provide accessibility, connectivity, mobility and storage of information to its users. Previously, teaching was performed by using blackboard and chalk but the computer has opened new opportunities for teachers to use projectors to display synopses of their materials, keep records, conduct research, and even communicate with their students. Providing computers and its peripherals to all teachers and students is seen as a long term goal by the central government of Ghana. The Millennium Challenge Goal of Ghana considers the introduction of the computer into teaching and learning as a critical platform for sustainable educational development. In 2013, the government instituted ICT Accelerated Development programme to harness accessibility to information for educational development, training, providing modern techniques of teaching and to encourage knowledge sharing within the educational sector for national development (Government of Ghana, 2013).

The recent report by GES (2002) revealed that the Ghana educational curriculum emphasises the integration of technology into teaching and learning. The government working under The Better Ghana Agenda ICT Project has made it a priority to distribute laptops and to train every teacher in the schools on how to use computer. These initiatives serve as a source of motivation for teachers to use computer at work. The benefits of using computers, coupled with the government interventions, necessitate the exploration of critical determinants

of the usage of computers in Ghana for teaching and learning purposes. This study therefore investigates the intention of teachers to use computers for teaching. The significance of this study lies in the fact that although lot of research has been conducted to investigate the adoption and the use of ICT in education, the findings of existing studies reveal that there has been limited studies on this domain, particularly in the African context. In addition, many researchers (Harindranath et al., 2008; Levy, 2006; Boakye and Banini, 2008; Hussain and Safdar, 2008) acknowledge the need for further studies to be conducted in this domain.

Review of ICT Adoption and Teaching in Ghana

The government of Ghana, since independence has been striving to improve the quality of education. About 30 percent of the annual budget goes to investments in secondary and tertiary education. To leverage ICT in education, the government has started providing computer laboratories and laptops to teachers as one of its aims in realising the Millennium Development Goal Challenge in education. According to Edumadze and Owusu (2013), the introduction of ICT and its incorporation into the Ghanaian educational system are aimed at improving the teaching and learning processes. Many researchers have made an effort to examine the way teachers in Ghana use computer for teaching. Agyemang (2012) found that Ghanaian teachers acknowledge the benefit associated with the use of technology or computer for teaching. In another study, Amenyedzi et al. (2011) investigated how teachers and students use computer for teaching and learning respectively. The study involved teachers and students from senior secondary schools in the Tema Metropolis, Ghana. They found that about 30 per cent of the teachers mainly used computer and Internet for research. However, they found no indication that teachers were using ICT to communicate with their students.

In a related study, Boakye and Banini (2008) examined teachers' readiness to use ICT at secondary schools in Benin, Cameroon, Ghana and Mali with the objective of determining whether teachers were involved in the process of integrating ICT into education in these countries. Teachers were asked about their skills with regard to ICT and use of ICT in their pedagogical practices. From the teachers studied, 71% had never used the computer in class; while 10% used it for classroom activities. About 44% had never used the computer in preparing lesson notes, while 49% did. A third of those who used it in preparing lessons did so "always" and the rest "occasionally". The use includes using the computer for searching content on the Internet, typing out lesson notes, and designing teaching and learning materials. About 60% of the teachers considered themselves as having knowledge of web browsing, with 71% of them using email. Most of the teachers (78%) learnt on their own how to use computers. Despite the fact that some teachers did not use ICT at all, they agreed generally that the computer had changed the way students learn.

On the skills of teachers to integrate and adopt technology in teaching, Boakye and Banini (2008) noted that training geared towards pedagogical integration of ICT in Ghana is minimal. The Ministry of Education MOE (2009) reported that teaching methods used by teachers in Ghana have marginally reflected technology integration because the teachers lack pedagogical skills of technology integration. The e-readiness of teachers for pedagogical integration of technology in schools in Ghana is currently less than 10% (MOE 2009). Buabeng-Andoh (2012) who recently explored teachers' skills, perceptions, and practices about ICT in secondary schools institutions in Ghana found that about 68% of the 231 teachers used some ICT peripheral in teaching. Even though a study by Apeantin (2010) provided inkling that prospective mathematics teachers have background knowledge of some software for teaching mathematics, identified that most teachers lack knowledge about the ways to integrate ICT in lessons delivery (Agyei and Voogt, 2011). They further noted that there was lack of training opportunities for these teachers to acquire knowledge on how to integrate ICT into their teaching lessons. Based on these issues and, particularly, the low level of ICT usage among Ghanaian teachers, this study attempts to investigate the factors that could influence Ghanaian teachers' intention to use computer based on the theoretical foundation of the Technology Acceptance Model.

Theoretical Framework

The Technology Acceptance Model (TAM) is attributed to Davis doctoral thesis where he examined the acceptance of computer technology by comparing TAM and Theory of Reasoned Action (TRA) (Ajzen, 1991; Ajzen and Fishbein, 1980). TAM has been vastly used across various technological settings and has been found as a significant model to predict technology use, in particular, computer usage (Taylor and Todd, 1995; Venkatesh and Davis, 2000). Empirical studies have confirmed that TAM explains about 40% variance in predicting the intention to use computer (Teo, 2009). The Technology Acceptance Model postulates that individuals' attitude of a behaviour influence individuals' behavioural intention to use a specific technology. TAM focuses on only two variables, namely perceived usefulness (PU) and perceived ease of use (PEOU) (Davis, 1989). According to this model, the dual factors of perceived usefulness and ease of use have an effect on the attitude of individuals towards the use of technology, while attitude and perceived usefulness of the technology affects individual's intention to use the technology.

TAM has been deployed in many studies to predict individuals' behavioural intention of using technologies such as office automation tools, software development tools, and business application tools (Legris, Ingham and Collerette 2002), on Internet banking (Md Nor, Sutanonpaiboon and Mastor, 2010), on computer usage (Teo, 2009; Teo, Lee and Chai, 2008; Pierce and Ball, 2009), and Internet shopping (Liao and Cheung, 2001). Figure 1 shows the technology acceptance model.

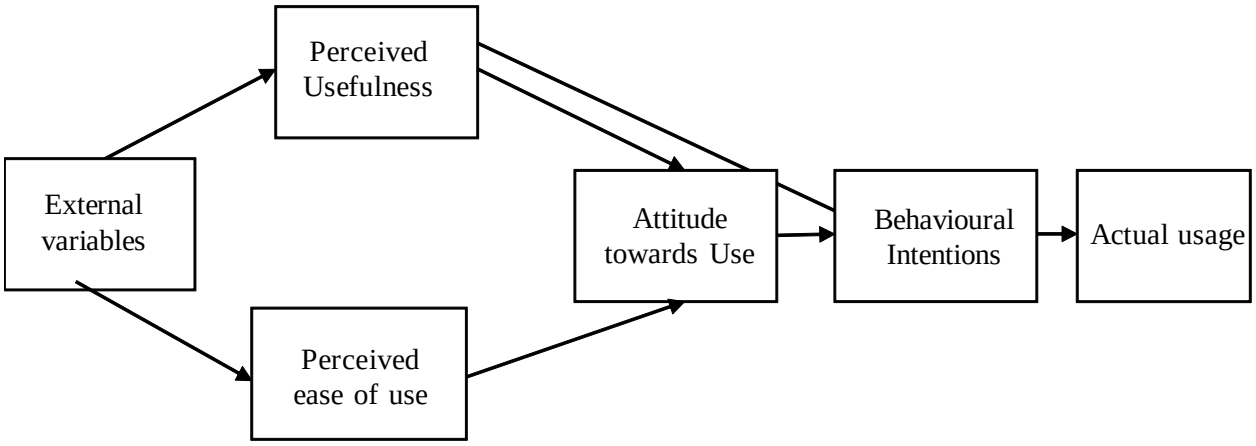

Figure 1: Technology Acceptance Model (Source: Davis 1989)

Research Framework

The central tenet of technology acceptance model centres on individuals' acceptance and use of a technology. The model suggests that when individuals are presented with a new technology, two factors influence their decision on whether to use it or not. These factors are perceived usefulness which is the degree to which the individuals believe that using that technology would enhance their job performance and perceived ease of use which is the degree to which the individuals believe that using that technology would be free from effort (Davis, 1989).

Based on the review of literature, many researchers have utilised the model in their studies since its emergence in 1989. The model has been subjected to constant expansion; notably the TAM 2 model (Venkatesh and Davis, 2000; Venkatesh, 1999) and the Unified Theory of Acceptance and Use of Technology or UTAUT (Venkatesh, Morris, Davis and Davis, 2003). The TAM 3 model has also been proposed in the context of e-commerce with an inclusion of the effects of trust and perceived risk on

system use (Venkatesh and Bala, 2008) and most recently UTAUT 2 model (Venkatesh et al, 2003). While the contributions of these scholars have advanced the original model, important variables that could influence individuals' behavioural intentions may still be missing. For example, in behavioural research domain, variables such as self-efficacy have been found to influence individuals' behavioural intentions (Bock, Zmud, Kim and Lee, 2005; Kankanhalli, Tan and Wei, 2005; Wasko and Faraj, 2005). In this study, three variables, namely self-efficacy, perceived barrier and relevance to job constructs which have been found to significantly influence behavioural intentions in other related research domain, were incorporated into the original TAM model (refer to Figure 2) to examine the context of teachers' intention to use computers in Ghana.

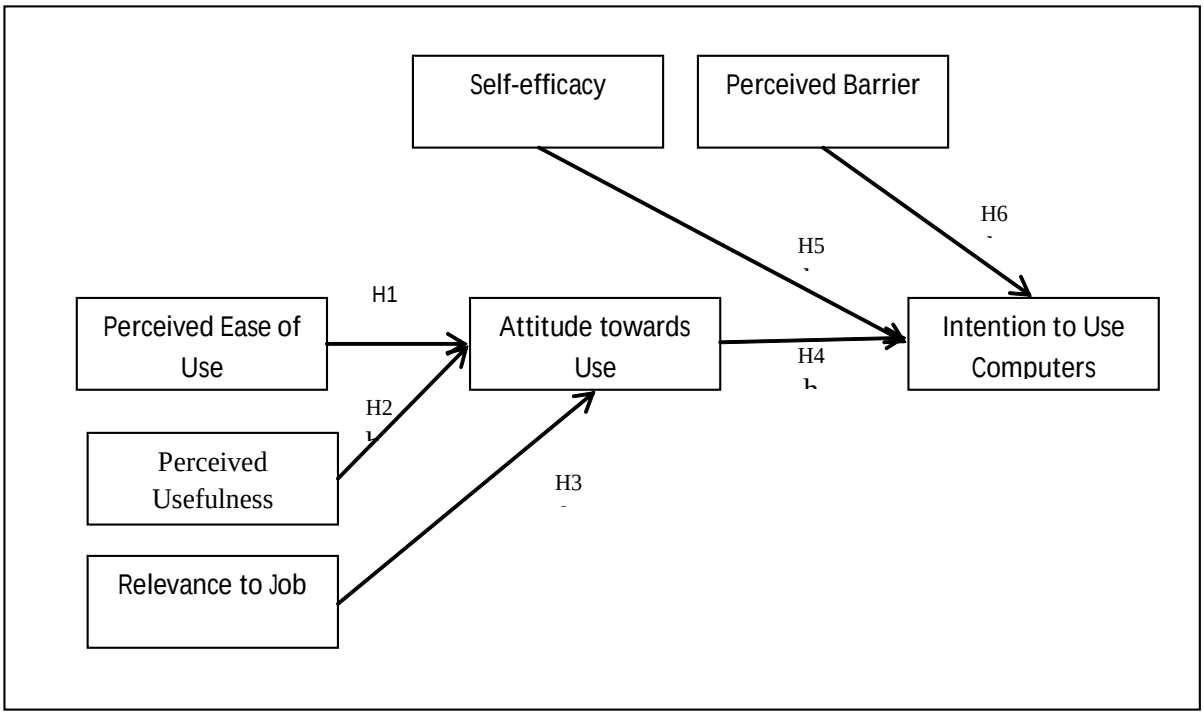

Figure 2: Research Model

Hypothesis Development

H_{o1}: *Perceived ease of use has a positive significant influence of teachers' attitude to use computer.*

According to Davis (1989), perceived ease of use can be defined as "the degree to which a person believes that using a particular system would be free of physical and mental effort". That is, the technology is free from difficulty and requires less effort to operate. For instance, the teacher may be influenced to use computer for teaching when he/she perceives the use of computer to be easy. However, in a situation where computer is perceived to be too difficult to use, teachers may resist using it for teaching. Therefore, a teacher may formulate a positive attitude to use computer when he/she perceives computer to be easy to use. Several studies have confirmed that perceived ease of use has an effect on individuals' attitude towards usage and behavioural intention (Šumak, Hericko, Pusnik, and Polancic, 2011; Teo, 2011; Wong and Teo, 2009). A research conducted by Wong and Teo (2009) concludes that perceived ease of use has a positive significant influence on individuals' attitude to use computer. Thus, the first hypothesis is stated as:

H_{o2}: *Perceived usefulness has a positive significant influence on teachers' attitude to use computer.*

With regard to perceived usefulness Davis et al. (1989), it is the degree to which a person believes that using a particular technology would enhance job performance. If a user believes that using a specific technology can enhance his or her job performance, then that application would be considered as useful. The individual would tend to use a system considering the positive effect that a particular system would have on his or her job performance. Davis (1989) argued that a person who perceives a certain technology to be useful could also consider the difficulty attached to using it. Users would change their minds only when the gain of using the system supersedes the difficulty of using it. Perceived usefulness can be considered as a type of external motivation as the benefit expected of using the system would propel the person to use or continue using the system (Davis, Bagozzi, and Warshaw, 1992). Teo et al. (2008) found perceived usefulness to have a significant influence on attitude towards computer use among pre-service teachers in Singapore. In another study, Teo (2009) concludes that perceived usefulness has an effect on the behavioural attitude which influence, the intention of teachers to use computer. Thus, the third hypothesis is stated as:

H_{o3}: *Job Relevance has a positive significant influence on teachers' attitude to use computer.*

This study has also incorporated the variable job relevance into TAM. Venkatesh and Davis (1996) defined job relevance as "an individual's perception regarding the degree to which the target system is applicable to his or her job". An individual who holds the belief that a particular system is applicable to his or her work may form a positive attitude towards the system. The relevance of the system towards the individual's work may motivate him or her to use the system. Essentially, it is based on the users' perception of the relevance of the system towards his or her job demand and the applicability of the system or technology (Ducey, 2013). A person may perceive technology to be relevant when he or she perceives that the system is used to perform most of the functions at work. Venkatesh and Davis (1996) posit that job relevance has a direct influence on individual's attitude to use a technology.

H_{o4}: *Attitude has a positive significant relationship with teachers' intentions to use computer.*

Ajzen and Fishbein (2005) defined attitude as the manner in which an individual responds to something or an object. It can also be defined as a person's positive or negative feelings toward taking certain actions (Ajzen, 1991). One's attitude towards an object could be positive or negative, as people may see things from different perspective. Sustainable use of any technology in the school would depend on the attitude of teachers towards that technology. If the teachers have negative attitude towards the computer, they are likely not to use it for teaching and learning. According to Yildrim (2000), it is difficult to see teachers with negative attitudes toward computers encouraging their students to use computers. Therefore, one can infer that the degree to which teachers would use computer for teaching and learning would depend on the attitude of teachers toward it (Liaw and Huang, 2003). A study conducted by Teo and Lee (2010) concluded that attitude of pre-service teachers has a positive significant influence on their intentions to use computer. In an earlier study, Teo (2009) had found attitude to have a positive significant effect on teachers' intentions to use computer. Therefore, this study argues that, individual teacher's favourable attitude would have a positive significant effect on his/her intention to use computer. Thus, the next hypothesis is stated as:

H_{o5}: *Self-efficacy has a positive significant influence on teachers' intentions to use computer.*

Self-efficacy, on the other hand, is peoples' judgment of their ability to undertake an action (Bandura, 1997). This is not about the skills one has but understanding of what one can do with the skills. This means that self-efficacy is the likelihood of a person's appraising himself/herself on whether an action will be executed successfully or not. Bandura (1997) postulates that individual's self-efficacy determination may influence the willingness of a person to perform certain

activities, such as the effort that may be applied on the activity and how long the behaviour would be performed. Clearly, the individual's willingness to accept technology may have a direct relevance to self-efficacy. In their study, Endres, Chowdhury and Alam (2007) argue that employees appraise their strength and their surroundings before they take action. Therefore, this study argues that teachers with a higher self-efficacy on computer usage may willingly accept the use of computer for teaching than those with low self-efficacy. Thus, the last hypothesis is proposed as follows:

H_6: *Perceived barrier has a negative significant influence on teachers' intentions to use computer.*

Perceived barrier variable can be defined as the degree to which a person may believe that something would hinder the use of a technology. In this study, perceived barrier is defined as the degree to which a person evaluates resources, accessibility, time, training, and technical problems to hinder the use of a technology. Individuals may want to use a particular technology or system but their intentions could be undermined when they perceive a certain barrier on the way. These barriers have been acknowledged in prior research (Flores, 2002; Earle, 2002; and Brinkerhoff, 2006). According to Jones (2004), teachers find it difficult to use computer for teaching due to lack of resource and accessibility, lack of time, inadequate training towards the use of the system, technical problems, and age of the teachers. In another study, Ertmer (1999) found lack of computers, lack of quality software, lack of time, technical problems, inadequate funds, resistance to change, poor administrative support, lack of computer skill, poor fit with curriculum, scheduling time and inconsistencies, and inadequate training affect individuals' intention to use computer for teaching and learning. In Ghana, a study conducted by Agyei and Voogt (2011) suggested that lack of knowledge about ways to integrate ICT in lesson and lack of training opportunities for ICT integration knowledge acquisition are some of the barriers hindering teachers from using computers in the classroom. In this study, we argue that perceived barrier may influence the intentions of teachers to use computer.

Methodology

A questionnaire was used as the instrument to collect the data. The questionnaire consists of part A and part B. Part A solicits the demographic characteristics of the respondents, which includes: age, gender, tenure, level of education and status. Part B consists of 35 Likert scale items that measure the study's variables. Five items were used to measure perceived usefulness, self-efficacy, perceived barrier and the dependent variable, such as intentions to use computer. Four items were used to measure perceived ease of use, while three items were used to measure job relevance.

In this study, intentions to use computer was operationalised as the perception or intentions of teachers to use computer at work. Perceived usefulness was operationalised as the degree to which a person believes that using a particular technology would enhance his or her job performance. Perceived ease of use was operationalised as the degree to which a person may believe that using a system would be less difficult. Attitude was operationalised as a person's positive and negative feeling towards using computer. Perceived barrier was operationalised as the extent to which a person believes that something may hinder his/her effort in using computer. Job relevance was operationalised as the extent to which a person believes using computer is relevant to his/her job. Self-efficacy is operationalised as the level of confidence of a person to use computer at work. The items used in measuring the constructs were adapted and modified from Davis et al. (1989), Taylor and Todd (1995), and Campeau and Higgins (1995). One hundred and eighty (180) copies of the questionnaire designed for this study were distributed to teachers from twenty (20) seniors' high schools from New Juabeng Municipality, Koforidua, Ghana from June 2015 to July 2015. One hundred and five (105) copies were collected and thus achieving at 58.3 percent response rate. The data was collected during an annual West African Examination Council (WAEC) script marking exercise at the Zone C of the Koforidua centre, Ghana.

Findings

Respondents' demographic profile (refer to Table 1) indicates that about 51 percent were male. The

majority of the respondents were aged between 20 and 29 years. The educational background of the respondents as depicted in Table 1 consisted of 2.9 percent with diploma, 79.1 per cent with a bachelor's degree, 16 per cent with Master's degree, and 2.9 per cent with PhD. In relation to the length of service, about 23.8 per cent had served 1-2 years; 36.2 per cent 2-3 years; 20 per cent 4-6 years; and 20 per cent 7 years and above.

Table 1: Demographic Profiles (N=105)

Demography	Category	Frequency	Percentage
Gender	*Male*	*54*	*51.4*
	Female	46	48.6
Age	20-29	59	58.2
	30-39	28	26.7
	40-49	10	9.5
	50-59	08	6.7
Education	Diploma	04	3.8
	Bachelors	82	78.1
	Master's	16	15.2
	PhD	3	2.9
Tenure	0-1 year	25	23.8
	2-3 years	38	36.2
	4-6 years	21	20.0
	> 7years	21	20.0

Measurement Model

In this study, structural equation modelling (SEM) approach using Smart PLS statistical software (Ringle et al., 2005) was employed to test the hypotheses. Before the final analysis was conducted, the data collected were subjected to convergent and discriminant validity analysis. Factor loadings, composite reliability and average variance extracted were examined to assess the convergence validity. The convergent validity was performed to evaluate the degree of relatedness of the items measuring the same concept (see Table 2). The loadings for all items (except two items, i.e., SE12 and IUC1) exceeded the recommended value of 0.6 (Chin, Gopal and Salisbury, 1997). Although items SE12 and IUC1 were below 0.6, they were maintained in the analysis because their average variance extract (AVE) was satisfactory (Hair, Black, Babin and Anderson, 2010). Composite reliability values, which showed the degree to which the items indicated the latent construct, exceeded the recommended value of 0.7 (Hair et al., 2010). The average variance extracted is in the range of 0.507 and 0.684, which is also exceeded the recommended value of 0.5 (Hair et al., 2010).

Next, the discriminant validity was conducted to confirm that the constructs are not correlated. Discriminant validity is a measure to determine that a construct does not reflect another construct within the same framework, and it is determined through the calculation of the square root of AVE (Fornell and Larcke, 1981). The square root of AVE results indicated low correlations among the constructs (see Table 3). Thus, the overall measurement model demonstrated adequate convergent and discriminant validity.

Table 2: Factor Loadings and Reliability

Construct	Items	Loading	CR	AVE
Intention to Use Computer	IUC1	0.480	0.837	0.573
	IUC2	0.874		
	IUC3	0.808		
	IUC4	0.802		
Attitude	PA16	0.679	0.853	0.594
	PA17	0.748		
	PA18	0.804		
	PA19	0.843		
Perceived Barrier	PB20	0.946	0.841	0.643
	PB21	0.685		
	PB22	0.751		
Perceived Ease of Use	PEU16	0.865	0.896	0.684
	PEU17	0.867		
	PEU18	0.861		
	PEU19	0.703		
Perceived Usefulness	PU6	0.808	0.886	0.609
	PU7	0.815		
	PU8	0.774		
	PU9	0.816		
	PU10	0.681		
Relevance to Job	RJ16	0.840	0.887	0.663
	RJ17	0.867		
	RJ18	0.773		
	RJ19	0.773		
Self-Efficacy	SE11	0.849	0.798	0.507
	SE12	0.504		
	SE14	0.816		
	SE15	0.623		

Note: CR = Composite reliability, AVE = Average Variance Extracted

Table 3: Inter-construct Correlation

Construct	1	2	3	4	5	6	7
Intention to Use Computer	**0.757**						
Attitude	0.517	**0.771**					
Perceived Barrier	-0.176	0.045	**0.802**				
Perceived Ease of Use	0.536	0.531	-0.032	**0.827**			
Perceived Usefulness	0.390	0.487	0.148	0.351	**0.780**		
Job Relevance	0.489	0.534	0.183	0.555	0.612	**0.814**	
Self-Efficacy	0.258	0.353	0.262	0.472	0.227	0.385	**0.712**

Note: Diagonal elements are the square root of the AVE score.

Structural Model

The structural model, which includes the estimates of the path coefficients and the R^2 value, determines the predictive power of the model (Sang, Lee and Lee, 2010). The R^2 path coefficients indicate how well the data support the hypothesised model (Chin, 1998; Sang *et al*., 2010). Table 4 and Fig. 3 show the results of the structural model from the PLS output. Perceived ease of use ($\beta = 0.335$, $p < 0.05$), perceived usefulness ($\beta = 0.250$, $p < 0.05$), and relevance to job ($= 0.195$, $p < 0.05$) were significant and positively related to attitude, thus supporting H1, H2 and H3 of this study. Furthermore, both attitude ($\beta = 0.474$, $p < 0.05$) and perceived barrier ($\beta = -0.237$, $p < 0.05$) were significantly related to intention to use computer, explaining 32.6 % of the variance therefore supporting H4 and H6. However, self-efficacy was not a significant predictor of intention to use computer, thus H5 was not supported.

Table 4: Summary of the Structural Model

Hypotheses	Path coefficient	Path Error	Standard	t-value	Results
H1	Perceived Ease of Use -> Attitude	0.335	0.1111	3.014	Supported
H2	Perceived Usefulness -> Attitude	0.250	0.0993	2.521	Supported
H3	Relevance to Job -> Attitude	0.195	0.1138	1.709	Supported
H4	Attitude -> Intention	0.474	0.0875	5.418	Supported
H5	Self-Efficacy -> Intentions	0.153	0.1522	1.005	Not Supported
H6	Perceived Barrier -> Intention	-0.237	0.1123	2.110	Supported

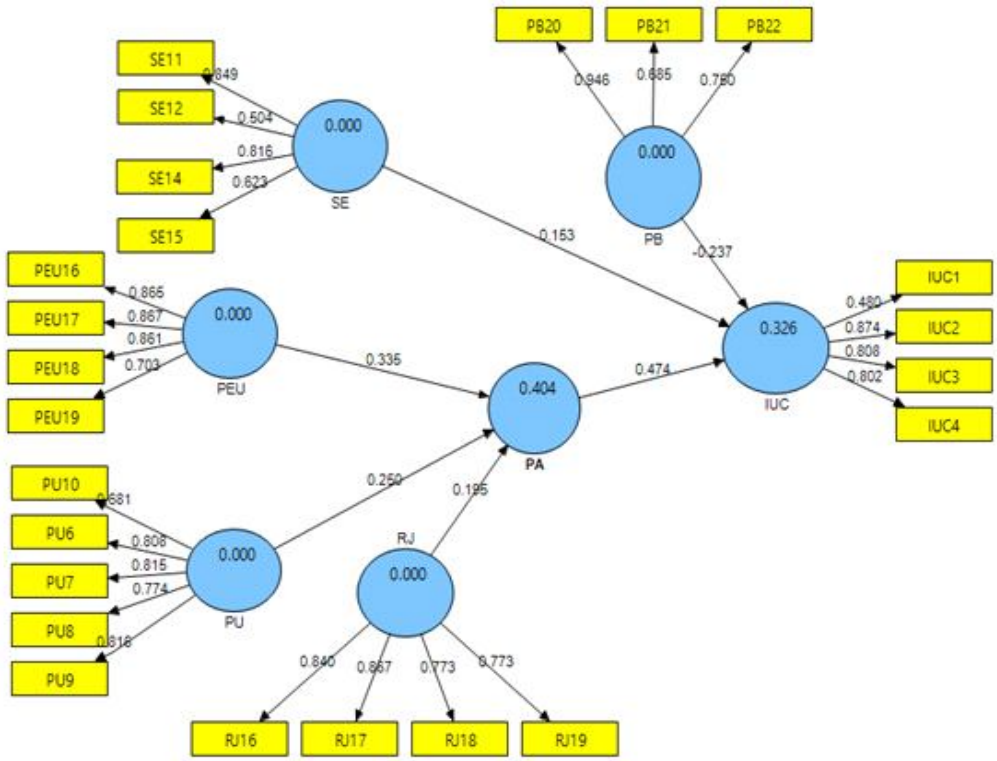

Figure 3: The Structural Model

Note: IUC=Intentions to use computer; PA= Attitude; PB=Perceived barrier; PEU= Perceived ease of use; PU= Perceived usefulness; RJ= Relevance to job; SE=Self-efficacy

Discussion and Implications

This study investigates the extent to which perceived usefulness, perceived ease of use and relevance to job have an influence on teachers' attitude to use computer for teaching. In addition, the study further examines the effect of attitude, self-efficacy and perceived barrier on teachers' intention to use computer for teaching. The study found relevance to job, perceived usefulness, and perceived ease of use to had a positive significant influence on teachers' attitude to use computer. The study also found that perceived barrier and relevance to job had a positive significant influence on teachers' intention to use computer. These results are congruent to prior studies (see Teo, 2009; Teo and Lee, 2010; Davis *et al.*, 1989; Venkatesh and Davis, 1996).

Interestingly, the result shows that self-efficacy was not significant in influencing teachers' intention to use computer for teaching. This result is contrary to the work of many researchers who had found positive significant relationship between the variables (Anderson and Maninger, 2007; Teo, 2009; Zhao, 2009, Sang *et al.*, 2010). Self-efficacy, not having significant relationship with behavioural intention could be attributed to the fact that, the respondents who are senior high school teachers from Ghana even though, may have their own personal computers at home they may execute their teaching tasks such as note taking, assignments, students attendants, marking, and results collating manually. Therefore, they could not vividly determine their confident level of how they could use computer to do their job. This result could also be attributed to the fact that most schools had no computers for the teachers to use and even if they had, teachers were usually not trained on computer proficiency. This is evidential in a study conducted by Agyeman (2012) to examine "the intentions of Ghanaian teachers to use the computer in teaching mathematics" which concluded that most teachers in Ghana did not use computer in the classrooms.

The findings of the study show that perceived ease of use had an influence on teachers' attitude to use computer for teaching and learning. This implies that teachers' attitude to use computer would be influenced if they found the use of computer to be easy. Therefore, it is suggested that administrators, governments and stakeholders should implement the necessary training programmes to enhance teachers' proficiency in computer use. Also, the study found perceived usefulness to have influence on teachers' attitude to use the computer. This implies that teachers' attitude to use the computer would be influenced when they perceive computer to be useful for their job. Hence, we further suggest that governments and managers should provide teachers with computers for practical and modern teaching. In addition, the study found perceived barriers to have a negative influence on teachers' intention to use the computer. This implies that certain obstacles such as lack of laboratory, faulty computer with no maintenance, lack of technical knowhow could prevent teachers from using computers for teaching. Therefore, we suggest that educational policymakers and other stakeholders should make sure all perceived obstacles are solved to motivate teachers in using computer for teaching.

In the effort to motivate and implement computer usage for teaching in Ghana, specifically the senior secondary schools, there is a need for more intriguing interventions than just mere supply of computers to the schools. It was evident in this study that teachers' attitude has an influence on their behavioural intentions to use computers at school. They are used to chalk and blackboard for teaching since their training colleges era. Therefore, the act of transforming from what they have been taught in manual to digital is not an easy task for them - hence the resistance to the use of computers for teaching. This means that the implementation of ICT into teaching in Ghana should start with attitudinal change and mental preparedness since the teachers are stuck with their old ways of teaching methods. In this situation, teachers should be trained on the use of computer for teaching, particularly those in senior secondary schools. To further achieve this target, the teaching environment should be supported with computers for the teachers to have no excuse in using the computers for teaching.

Conclusion

The study has achieved its main objectives of examining the effects of attitude, perceived barrier and self-efficacy on intention of teachers to use computer. In addition, the study investigated the effect of perceived ease of use, perceived usefulness and relevance to job on attitude of teachers to use computer for teaching . The results indicated that attitude was positively and significantly related to teachers' intention to use computer. Perceived barrier was also found to have a negative significant influence on teachers' intention to use computer. Moreover, the study found perceived usefulness, perceived ease of use and relevance to job to have positive significant influence on teachers' intentions to use computer for classroom teaching. However, the result of the study shows that self-efficacy did not significantly influence teachers' intention to use the computer for teaching. Based on the findings, implications for practice and theory, limitation, and future research were presented.

Limitation and Future Research

Similar to other studies, this study is not without limitations. The major limitation is the generalisation of the findings due to the small sample size. Although the sample frame used for this study may be unique but the total number of respondents from which data was collected and utilised for this study was limited. Hence, the results may not provide the general representative of the Ghanaian teachers. Future studies may consider collecting data from a larger sample size of teachers in other geographical areas especially in the capital city.

References

Agyei, D. D. and Voogt, J. (2011). ICT Use in the Professional Development of Pre-Service Teachers in Ghana. *Education and Information Technologies*, 16(4) 423-439.

Agyemang, M. (2012). Technology Use Among Ghanaian Senior School Mathematics Teachers and Students and Factors that Influence IT. University of Education of Unpublished M. Phil Thesis, 2012. [Online]. Available at

www.uew.edu.gh.[Accessed 7 September 2016].

Ajzen, I. (1991). The Theory of Planned Behavior. *Organisational Behavior and Human Decision Processes*, 50: 197-21.

Ajzen, and Fishbein, (1980). Understanding Attitudes and Predicting Social Behavior, Prentice-Hall, Englewood Cliffs, NJ ,

Amenyedzi, W. K. (1997). *Evaluation of Guidance and Counselling Programmes in the Senior High Schools in the Ketu and Keta District.* Unpublished master's thesis, University of Cape Coast, Ghana.

Bandura, A. (1989). Social Cognitive Theory. In: R. Vasta (Ed.), *Annals of Child Development*, 1-60. Greenwich, CT: Jai Press Ltd.

Bandura, A. (1997). Self-efficacy: *The Exercise of Control*. New York: W.H. Freeman.

Bhattacherjee, A. (2002). Individual Trust in Online Firms: Scale Development and Initial Test. *J. Management Information Systems*.18(1) 211-241.

Boakye and Banini (2008). Teacher ICT Readiness in Ghana. In: K. Toure, T.M.S. Tchombe, and T. Karsenti (Eds.), ICT and Changing Mindsets in Education. Bamenda, Cameroon: Langaa; Bamako, Mali: ERNWACA / ROCARE.

Boabeng-andoh. I. (2012). Factors Influencing Teachers' Adoption and Integration of Information and Communication Technology into Teaching: A Review of the Literature. *International Journal of Education and Development using Information and Communication Technology (IJEDICT),* 8 (1) 136-155.

Brinkerhof, J. (2006). Effects of a Long-Duration, Professional Development Academy on Technological Skills, Computer Self-Efficacy, and Technology Integration Beliefs and Practices. Journal *of Research on Technology in Education*, 39 (1) 22-4.

Bock, G. W., Zmud, R. W., Kim, Y. G., and Lee, J. N. (2005). Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, *Social-Psychological Forces, and Organisational Climate, MIS Quarterly*, 29 (1) 87-111.

Campeau, D. R., and Higgins, C. A. (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19, 189-211.

Chin, Gopal, Salisbury 1997. Advancing the Theory of Adaptive Structuration: The Development of a Scale to Measure Faithfulness of Appropriation. *Information System Research* 8(4)342-367.

Chin, M. (1998). Commentary: Issues and Opinion on Structural Equation Modeling.

Management Information Systems Quarterly, 22(1) 7-16.

Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance Information Technology. *MIS Quarterly*,13(3) 319-339.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of two Theoretical Models. *Management Science*, 35, 982-1003.

Ducey, A. J. (2013). Predicting Tablet Computer Use: An Extended Technology Acceptance Model. *Graduate Theses and Dissertations*. http://scholarcommons.usf.edu/etd/4471.

Earle, R. S. (2002). The Integration of Instructional Technology into Public Education: Promises and Challenges. *Educational Technology*, 42 (1) 5-13.

Edumadze, J.K.E and Owusu, A. K. (2013). Use of Information and Communication Technology for Teaching and Learning in Ghanaian Universities: Case of University of Cape Coast. *International Journal of Computing Academic Research.* 2, (6). MEACSE Publications.

Endres, M.L., Endres, S. P., Chowdhury, S. K., and Alam. I. (2007). Tacit Knowledge Sharing, Self Efficacy Theory and Application to the Open Community, *Journal of Knowledge Management*. 11(3) 92-100.

Ertmer, P. A. (1999). Addressing First- and Second-Order Barriers to Change: Strategies for Technology Integration. *Educational Technology Research and Development*, 47(4)

47-61. Field, A. (2005). *Discovering Statistics Using SPSS* (2nd ed.). London: Sage Publication.

Flores, A. (2002). Learning and Teaching Mathematics with Technology. *Teaching Children Mathematics*, 8 (6) 308-325.

Fornell, C and Larcker, D. F. (1981). Evaluating Structural Equation Models With Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1) 39-50.

Giffin, K. 1967. The contribution of Studies of Source Credibility to a Theory of Interpersonal Trust in Communication Process. *Psychological Bulletin*, 68(1) 104-120.

Hair, J. F. Jr., Black, W. C., Babin, B. J., Anderson, R. E., and Tatham, R. L(2006). *Multivariate Data Analysis* (Sixth Edition). New Jersey: Prentice-Hall International.

Hussain, I. and Safdar, M. (2008). Role of Information Technologies in Teaching Learning Process: Perception of the Faculty. *Turkish Online Journal of Distance Education-TOJDE*, 9(2) 46-56.

ICT4 AD Policy (2003). *A Policy Statement for the Realization of the Vision to Transform Ghana into an Information-Rich Knowledge-Based Society and Economy through the Development, Deployment and Exploration of ICT's within the Economy and Society*. Ministry of Education, Accra, Ghana.

Lau, M and Sim, J. (2008). Exploring the extent of ICT Adoption among Secondary School Teachers in Malaysia. *International Journal of Computing and ICT Research*, 2 (2) 19-36.

Legris, P., Ingham, J., and Collerette, P. (2003). Why Do People Use Information Technology? A Critical Review of the Technology Acceptance Model. *Information and Management*, 40(3) 1-14.

Liaw, S. S., and Huang. H. M. (2003). An Investigation of User Attitudes Toward Search Engines as an Information Retrieval Tool. *Computers in Human Behavior*, 19 (1) 751-765.

Kankanhalli, A., Tan, B. C. Y., and Wei, K. K. (2005). Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation. *MIS Quarterly*. 29(1), 113-143.

Md Nor, K , Sutanonpaiboon, J, and Mastor, N. H. (2010). Malay, Chinese, and Internet Banking. *Chinese Management Studies*, 4 (2) 141 - 153.

Ministry of Education. (2009). *Report on E-Readiness Assessment Of Second Cycle Institutions in Ghana*. Accra: ICT in Education Programmes Unit, Ministry of Education.

Nunnally, J. C., and Bernstein I. H. (1994). *Psychometric Theory*. New York: McGraw-Hill, Inc.

Pierce, S and Ball, L., (2009). Perceptions that may affect Teachers' Intention to use Technology in Secondary Mathematics Classes. *Educational Studies in Mathematics*, 71(3) 299-317.

Ringle, C. M. Wende, S and Will, A. (2005). SmartPLS 2.0 University of Hamburg. [Online]. Available from http://www.smartpls.de [Accesed 7 September 2016].

Sang, S. Lee, J and Lee, J. (2010). E?Government Adoption in Cambodia: A Partial Least Squares Approach: Transforming Government. *People, Process and Policy*, 4 (2) 138 - 157.

Sarfo, S. F. and Ansong-Gyimah, K. (2010). The Perceptions of Students, Teachers, and Educational Officers in Ghana on the Role of Computer and the Teacher in Promoting The First Five Principles of Instruction. *The Turkish Online Journal of Educational Technology*, 9 (3)84-95.

Teo, T. (2009). Modeling Technology Acceptance in Education: A study of Pre-service Teachers. *Computers and Education*, 52: 302-312.

Teo, T. Lee, C. B. and Chai, C. S. (2008). Understanding Pre-service Teachers' Computer Attitudes: Applying and Extending the Technology Acceptance Model (TAM). *Journal of Computer Assisted Learning*, 24(2)128-143.

Taylor, S and Todd, P. 1997. Information Technology and Learning: A Never-Ending Beginning. *ACCESS*, 11(1)11-14.

Venkatesh, V.(1999). Creating Favourable User Perceptions: Exploring the Role of Intrinsic Motivation, *MIS Quarterly*, 23 (2) 239- 260.

Venkatesh, V. and Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. Decision Science, 39 (2) 273-312.

Venkatesh, D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Filed, Management Science, 46 (2) 186-204.

Venkatesh, V., Morris, M.G., Davis, F.D. and Davis, G.B. (2003). User Acceptance of Information Technology: Toward a Unified View, *MIS Quarterly*, 27: 425-478.

Wasko, M. M., and Faraj, S. (2005). Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice. *MIS Quarterly.* 29(1) 35-57.

Yildirim, S.(2000). Effects of an Educational Computing Course on Pre-Service and in Service Teachers: A Discussion and Analysis of Attitudes and Use. *Journal of Research on Computing in Education*, 32(4) 479-495.

Zhao, Y. (2007). Social Studies Teachers' Perspectives of Technology Integration. *Journal of Technology and Teacher Education*, 15 (3) 311-333.

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