

UNIVERSITY OF EDUCATION, WINNEBA

**AN INVESTIGATION OF CONTEXTUAL FACTORS FOR THE ADOPTION
OF ICT BY HEADTEACHERS OF BASIC SCHOOLS**

EPHRAIM QUAYNOR TEYE



MASTER OF SCIENCE

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**A Dissertation in the Department of Information Technology Education,
Faculty of Technical Education, submitted to the School of Graduate Studies in
partial fulfillment
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Master of Science
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DECLARATION

STUDENT'S DECLARATION

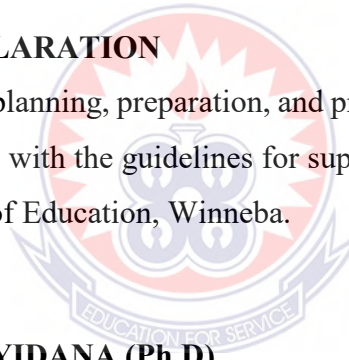
I, **EPHRAIM QUAYNOR TEYE**, declare that this dissertation with the exception of quotation and references contained in published works which all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE:.....

DATE:.....

SUPERVISOR'S DECLARATION

I hereby declare that the planning, preparation, and presentation of this dissertation was supervised in accordance with the guidelines for supervision of the dissertation as laid down by the University of Education, Winneba.



PROFESSOR ISSIFU YIDANA (Ph.D)

SIGNATURE:.....

DATE:.....

DEDICATION

To my family and friends.



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I am deeply grateful to my supervisor, Alhaji Professor Issifu Yidana for all the encouragement, inspiration and guidance. To Dr. Samuel Adu Gyamfi and all the faculty members at the Department of ICT Education, College of Technology Education, UEW. I am very grateful for your wonderful support and guidance. Also, I express my deepest gratitude to my family. I would have never come this far without their encouragement and financial support. Again, I thank all my colleagues, especially Ms. Bernice Duah, Mr. Kennedy Afram-Asare, Mr. Jesse Atuah and Mr. Sampson Nkrumah, for the constant motivation and assistance. To my bosses at work, Mr. Raymond Bentum Boison, Mr. Titus Nii Aryeetey, Mr. Ferdison Delasi Anku, and Mrs. Ann Ofei-Asiedu, may God bless you. Finally, to my closest friends and loved ones, Mrs. Gyamfuaah Takyi Sarpong and Ms. Deborah Patience Ashiokor Ashietey, I am deeply grateful for the help you have offered me. No deed, no matter the size has gone unnoticed. God bless you.

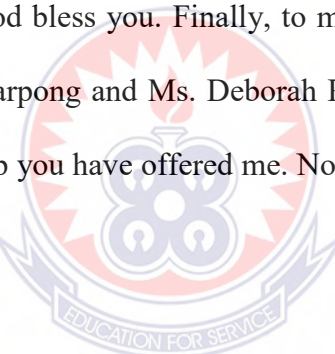


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ABSTRACT

This quantitative study was carried out to find out how contextual factors relate to ICT adoption for school administration by headteachers of basic schools. The study adopted the cross-sectional survey design, and used the census sampling technique to collect data from 69 participants, and analyzed using multiple linear regression, frequency, percentage, mean, and standard deviation, as well as independent samples *t*-test. The study found that attitude, perceived usefulness, access and availability of ICT tools, training and technical support, as well as motivation and incentives were the major contextual factors that relate to headteachers' adoption of ICT for school administration. Also, the study revealed that the perceived impact of ICT adoption on school administration related to enhanced access to information, improved efficiency in decision-making, as well as enhanced productivity. Furthermore, the study showed that there was no significant difference in the readiness to adopt ICT among headteachers of private schools and those in public schools ($p=0.895$). It was recommended that headteachers should be given the necessary training and support, as well as motivation and incentives, in order to concretize the adoption of ICT for school administration.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the introduction of the dissertation. It covers the background to the study, statement of the problem, purpose of the study, and the objectives of the study. Other areas include research questions, significance of the study, delimitation of the study, as well as the definition of terms, and the outline of the study.

1.2 Background to the Study

The ICT revolution has changed the way business is conducted in the 21st century, including school administration and management. As a result, most educational institutions have integrated ICT into their work with the view of achieving higher efficiency and improving productivity, which in turn leads to higher profitability (Loogma, Kruusvall & Umarik, 2012). However, according to Laudon and Laudon (2010), significant investment in ICT does not necessarily guarantee higher returns, agreeing with Gulbahar (2007) who noted that despite huge educational ICT investments in teaching and learning, there is little evidence of their adoption and use. Laudon and Laudon further assert the investment must be supported with some necessary complementary assets such as incentives for management innovation, teamwork and collaborative work environment.

The presence or availability of these incentives, coupled with other external variables, including an enabling work environment, availability of tools and attendant resources, training, as well as the availability of technical support holds promise to

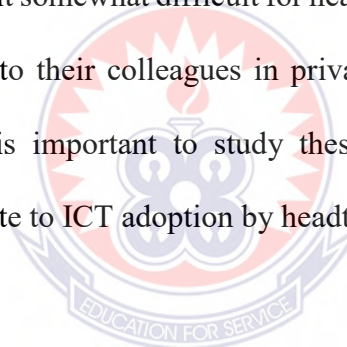
influence the perception of potential ICT users of the ease of use and the usefulness of the technology. These perceptions, whether positive or negative have also been noted as being important determinants of the attitudes that potential users form about ICT, and in turn has a huge influence of behavioural intentions for ICT adoption and use (Davis, 1989).

For headteachers of basic schools, the importance of ICT cannot be underestimated. It enhances productivity in activities such as word-processing, preparation of class lists, keeping and accessing student records, examination processing, preparation of timetable, preparation of report cards, keeping of inventory records, and budgeting and processing of finance records (Menjo & Boit, 2010). Therefore, it is critical to assess the attitudes of headteachers of basic schools towards ICT, to determine their behavioural intentions as far as ICT adoption and use are concerned. Also, the perception of how easy or difficult, as well as how useful it is to adopt and use of ICT by headteachers is important to note. This is because the various administrative tasks performed by headteachers are activities that can be done efficiently and effectively with ICT tools.

Again, the perception of how impactful ICT would be when adopted and used is critical in determining whether individuals would adopt and use them. As a result, several studies have been conducted on determine the impact of ICT on specific work environments or concepts (de Wet, Koekemoer & Nel, 2016), with most of these studies focusing mainly on how technology can be used to improve outcomes in the school environment (Kumar & Prasad, 2014; Leask & Pachler, 2013; Lindquist, 2013; Tolani-Brown, 2010; Van der Knaap, 2014). Research have shown that ICT use positively impacts individual work productivity (Al-Dabbagh, 2015). Therefore, for headteachers to adopt and use ICT for their school administration functions, they must hold the

perception that ICT would have a certain level of impact on their work. However, some researchers have questioned the impact of ICT on an individual's work output (Ou & Davison, 2011; Pitt, Berthon & Robson, 2011; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2007; Venkatesh, Bala & Sykes, 2010), and has presented evidence which shows that the impact of ICT on work output will vary depending upon several influential factors such as social pressures and organizational support.

Furthermore, the type of school a headteacher works with (private or public) is an essential variable in deciding to adopt and use ICT for work-related activities. This is because many public basic schools in Ghana lack the necessary infrastructure and facilities, such as electricity supply and internet connectivity to enhance the smooth use of ICT tools. This makes it somewhat difficult for headteachers of such schools to adopt and use ICT, compared to their colleagues in private basic schools who have these facilities. Therefore, it is important to study these contextual factors in order to understand how they relate to ICT adoption by headteachers for school administration.



1.3 Statement of the Problem

The use of ICT has become one of the basic building blocks of modern society (Daniels, 2002). As a result, many developing countries are integrating ICT in their education systems. Also, the adoption and use of ICT in schools has changed from the acquisition of basic computer skills to the use of ICT tools as an aid to enhance teaching and learning (Ahmed, 2016). Furthermore, ICT use in education has attracted interest from several researchers in the recent past, particularly in the area of ICT adoption. However, despite the existence of research studies that underline the factors that relate to ICT adoption in educational settings, there is little research that specifically focuses on examining the factors that determine the adoption and use of ICT by headteachers

for administrative functions like managing school-wide databases, using office automation systems, and using spreadsheet applications for budgeting and school enrolments projections, as well as communication and collaboration (Picciano, 2002).

From a cursory observation, it appears there are several factors that relate to the adoption and use of ICT by headteachers. Among these factors are the attitudes toward ICT, the perceived ease of use of ICT, as well as the perceived usefulness of ICT. Furthermore, it appears that factors such as lack of technological competence, lack of training and technical support, inadequacy of ICT facilities and tools, technical difficulties, cost, as well as low levels of motivation and incentives for end-users also play a significant role in influencing the adoption and use of ICT (Farrell, 2007; Tedla, 2012). This exploratory study therefore sought to examine the factors that relate to the adoption of ICT by headteachers of basic schools in the Effutu municipality of Ghana.

1.4 Purpose of the Study

This study was to investigate the contextual factors that relate to ICT adoption for school administration by headteachers of basic schools in the Effutu municipality, for the purpose of conscientizing headteachers about the importance of adopting ICT, as well as to promote ICT use to enhance their school administrative functions.

1.5 Objectives of the Study

The objectives of the study were to:

- investigate the contextual factors that relate to ICT adoption for school administration functions.
- explore the perceived impact of ICT adoption on school administration functions.

- find out the difference in readiness to adopt ICT among headteachers of private and public school.

1.6 Research Questions

The following research questions were raised to guide the study:

1. What are the contextual factors that relate to the adoption of ICT for school administration by headteachers of basic schools in the Effutu municipality?
2. What is the perceived impact of ICT adoption on school administration functions by headteachers of basic schools in the Effutu municipality?
3. Is there any difference in the readiness to adopt ICT among headteachers of private and public schools in the Effutu municipality?

1.7 Significance of the Study

The findings of this study would provide some baseline information about ICT adoption by headteachers of basic schools in the Effutu municipality of Ghana. In this regard, the study could inform policy decisions on the allocation and provision of ICT facilities for headteachers of basic schools. The study would reveal the training needs of headteachers so that in-service training workshops would factor these training needs at workshops. It could also alert decision-makers, on the infrastructural needs for basic schools in the municipality. Also, the study would help understand the viewpoint of headteachers with respect to the decision to adopt ICT for school administration. Additionally, the findings of the study would add to the body of knowledge on the factors that relate to ICT adoption for academic and school-related administrative purposes. Also, headteachers will reflect on the uses of ICT in school administrations.

1.8 Delimitations of the Study

Even though basic schools include both primary and Junior High Schools, this study focused only on the Junior High Schools. Again, although there are headteachers of Junior High Schools in several metropolises, municipalities and districts in Ghana, this study focused only on those in the Effutu municipality. This is due to the proximity of the research site to the researcher. Also, the scope of the study was limited to perceived factors that relate to ICT adoption for school administration, rather than actual use.

1.9 Operational Definition of Terms

- **Attitude:** The exhibition of an individual's beliefs and perception.
- **ICT Adoption:** The migration from manual systems to automation of work-related activities by use of ICT tools and devices such as computers.
- **School Administration Functions:** The day to day planning, organizing, directing, and coordinating of human and material resources towards achieving set goals and objectives.

1.10 Outline of the Study

This study was organized into six chapters. Chapter one is the introduction to the study which focused on the background to the study, the statement of the problem, the purpose of the study, and research questions. Also, the significance of the study, delimitation of the study, the operational definition of terms, as well as the outline of the study were stated in this chapter. Chapter two presented the theoretical framework for the study and the literature review, which was based on the key themes raised from the research questions. Chapter three covers the methodology, materials and method

used for the study. This include the study area, research approach, research design, population, sample size and sampling techniques, as well as instrumentation, procedure for data collection, validity and reliability of the instrument. Also, the data collection procedure, ethical considerations, and methods of data analyses were presented in this chapter. Chapter four focused on the results/findings of the study, while chapter five covered the discussion. The general overview of the study, summary of major findings, implications of findings to practitioners, conclusions and recommendations of the study, as well as contribution to knowledge and suggestions for future research were also presented in chapter six.



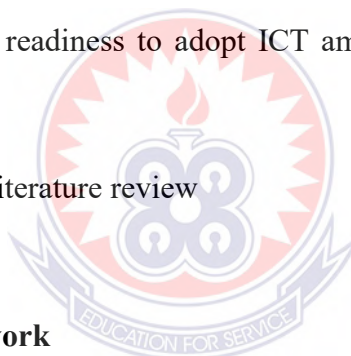
CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter presents the literature review for the study. It is covered the following sub-headings:

1. Theoretical framework
2. Implication of the theory to the study
3. Contextual factors that relate to ICT adoption for school administration
4. Perceived impact of ICT adoption on school administration
5. Difference in readiness to adopt ICT among headteachers of private and public school
6. Summary of literature review



2.2 Theoretical Framework

Several theories are relevant to a study on the determinants of ICT adoption for school administration by headteachers of basic schools. However, this study was underpinned by the Technology Acceptance Model [TAM]. The Technology Acceptance Model (Davis, Bagozzi & Warshaw, 1989) was developed to predict the likelihood of an individual to accept new technology in a workplace environment. The model posits that a person's beliefs determine their behavioral intentions, which in turn determines their behavior. TAM asserts that the influence of external variables upon user behavior is mediated through user beliefs and attitudes. The model further holds that users will make an adoption decision based on the outcome of their evaluation of

the difficulty of using the technology (Perceived Ease of Use), and their belief that using the technology will increase their job performance (Perceived Usefulness).

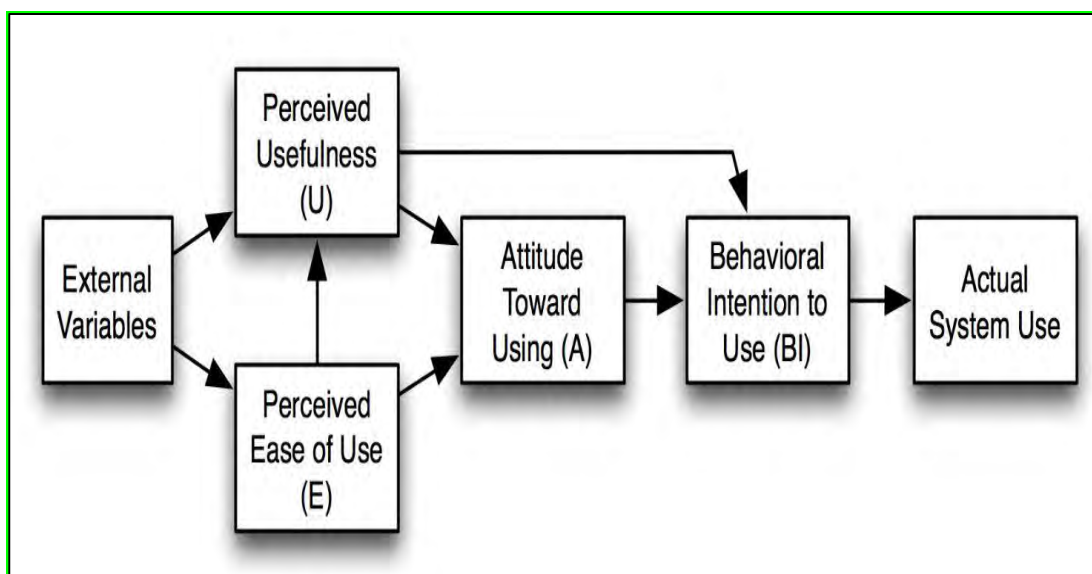


Figure 1: Technology Acceptance Model

2.3 Implication of the Theory to the Study

Using the Technology Acceptance Model, this study was placed within a context that made it possible to explore the contextual factors that relate to ICT adoption by headteachers for school administration functions. The model supported the indication that the adoption of ICT is underpinned by key variables – perceived usefulness, perceived ease of use, and attitude – which are also influenced by other external variables. The combination of these factors thereby results in an individual’s behavioural intention to adopt ICT, which in turn results in actual use. This understanding informed the direction of the study by ensuring that the various factors that relate to ICT adoption were not considered as independent entities, but rather as components of a system that combine to predict how individuals decide to adopt ICT. Furthermore, the theory provided a framework for the discussion of the findings and recommendations on how decisions are made about ICT adoption. This was expressed

by the proposition that, at all times, the decision to implement policies on ICT adoption for school administration should be based on several factors which relate to ensure smooth adoption.

2.4 Contextual Factors that Relate to ICT Adoption by Headteachers

There are several factors that relate to the adoption of ICT, according to TAM. Among these are the attitudes individuals have towards ICT, the perception of how easy it is to use ICT (Perceived Ease of Use), and the perception of the usefulness of ICT (Perceived Usefulness) (Davis, Bagozzi & Warshaw, 1989; Singh & Muniandi, 2012). It is important to explore the interdependence of the factors, and how they relate to the adoption and use of ICT by headteachers for school administration.

2.4.1 Attitude towards ICT for school administration

Attitude is one of the pre-determining factors in predicting people's behaviour towards an object or phenomenon. This indicates that an understanding of a person's attitude towards an object can help in predicting the person's pattern of behavior towards the object (Yushau, 2006). According to Yushau, attitude is a learned predisposition to respond positively or negatively to a specific object, situation, institution, or person, which reflects what they are, and how they form behavioural patterns. Smith, Caputi and Rawstorne (2000) also defined attitude towards ICT as a person's general evaluation or feeling of favour or antipathy toward ICT and related activities.

Several research studies have highlighted the influence of attitude on users' decision to adopt ICT for work-related activities. Cazares (2010), Jegede and Owolabi (2005) as well as Kim and Davis (2008) suggested that attitude towards ICT is

significantly related to users' performance in the use of ICT for work-related activities. For instance, Abedalaziz, Jamaluddin and Hai leong, (2013) surveyed 289 students in a study which aimed at investigating and measuring postgraduate students' attitudes toward computer use. The outcome indicated that the students largely used computers for their academic work due to their positive attitudes toward computers.

In similar fashion, Teo (2008) conducted a survey on attitudes toward the use of computers among 139 pre-service teachers in Singapore. The results of the study revealed that the participants were positive about their behavioral intention to use computers. Generally, the result indicated that the participants held a positive attitude towards computers. The findings also agreed with the popular notion that individuals normally develop positive attitudes towards things or events they perceive to be useful to them, and thereby make use of such things.

Also, Isman, Caglar, Dabaj, Altinay, and Altinay (2004) surveyed 155 students in Cyprus, to determine their attitudes towards computer use. A five-point likert-scale questionnaire was used to collect data, which was analyzed according to gender, education level of parents, access to computers at home, previous education or knowledge on computers, and position of the students. The study revealed that students hold positive attitudes towards computers as a part of their life because it helps them to organize their academic activities efficiently. It further concluded that the students held positive attitudes towards computer use as a result of previous knowledge on computers. This outcome confirmed an earlier research by Khorammi-Arani (2001), who studied the computer self-efficacy of high school students and discovered that students' attitudes towards computers and their degree of confidence in using computers was high, and therefore greatly influenced their use of computers for academic work.

Similarly, Usun (2004) conducted a study to determine the attitudes of 156 Turkish students on the use of computers in education. A five-point likert scale questionnaire was used to collect data. The results showed that students' attitudes on the use of computers in education were positive. It also indicated that the students strongly agreed that computers individualized their learning, making them better understand concepts, and influence their dependence on the technology. This outcome was validated by Huang and Liaw (2005), who asserted that peoples' attitudes towards technology influence their acceptance of its usefulness and integration in other activities. This gives an indication that when users form positive attitudes about ICT tools, they appreciate the idea of its usefulness in their everyday activities.

Furthermore, Kubiatio, Halakova, Nagyova and Nagy (2011) investigated the attitude of Slovakian 659 students towards computers, based on age and gender. Using a likert-type questionnaire to collect data, the researchers found out that younger students and females had positive attitudes towards computers compared to older students. This finding is consistent with existing literature on the influence of age on attitudes towards ICT, which states that younger users regard computers as useful tools and important for everyday life (Bovee, Voogt & Meelissen, 2007; Pektas & Erkip, 2006; Teo, 2006). However, the finding on the influence of gender was inconsistent with other studies known in literature. Whereas Kubiatio et al. reported that females have more positive attitudes than males, several previous studies indicated that males demonstrated more positive attitudes toward ICT than females (Adebowale, Adewale & Oyeniram, 2010; Graff, 2003; Meelissen & Drent, 2008).

In another study, Larbi-Apau and Moseley (2012) examined the validity of a computer attitude scale and its implication for technology-based performance in three public universities in Ghana. A likert-type questionnaire was used to collect data from

167 participants who were randomly sampled. The results indicated that teaching staff in these universities have positive attitudes toward computer technology and ICT because it helps them to organize their work in a more efficient and productive manner. This outcome compared favorably with Yushau's (2006) study of teachers' attitude towards pedagogical usefulness of computers. Also, it supports the claim by Rogers (2003) that perceiving an innovation as useful can influence its potential adoption.

From the aforementioned studies, it was observed that the attitudes towards ICT play a key role in determining the decision of users to adopt it for work-related activities. However, whereas there is extensive literature on the subject, with reference to different categories of users within the educational setup, very little is known about the attitudes of headteachers towards the use of ICT for the purpose of school administration. This current study therefore is set apart from the other studies highlighted above, with respect to the nature of the participants, as well as the specific uses of ICT for their work-related activities.

2.4.2 Perceived Ease of Use of ICT for school administration

Perception is the resultant condition of a person's gaining of knowledge through the human senses (Akinde & Adetimirin, 2017). Defined within the context of ease of use, perception is the believe of a person that using a technology will not require so much effort (Davis, 1989). A number of researchers, including Buabeng-Andoh (2012) have defined perceived ease of use to mean the simplicity of procedures for completing a service requirement with the technological tool. Therefore, in the context of this study, headteachers' perceived ease of use toward ICT is viewed as a determining factor in respect to its adoption for the purpose of school administration. Teeroovengadam, Heeraman and Jugurnath (2017, as cited in Watson, 1993) stated that perceived ease of

use of ICT is users' ability, skills and competencies in using computer technology for ICT-related tasks that render its usage much easier.

Research results have expressly suggested that if a system is relatively easy to use, individuals will be more willing to learn about its features and finally intend to continue using it (Chui & Wang, 2008; Hamid, Razak, Bakar & Abdullah, 2016). This implies that perceived ease of use of ICT is positively correlated with behavioural intention to adopt and continuously use ICT for job performance. Similarly, Chong, Sharaf and Jacob's (2005) research on secondary school teachers revealed that the perception of the ease of use of majority of the teachers directly lead to the adoption of technology in the teaching process. Furthermore, Askar, Usluel and Mumcu (2006) conduct a survey about the impact of perceived ease of use of ICT on the use of ICT for preparation of teaching materials among 416 secondary school teachers in Turkey. Their findings indicated that tutors' perceived ease of use of ICT was a highly determining factor in respect to the preparation of teaching materials in school.

In the same breadth, other empirical studies concluded that in order for educators to successfully integrate ICT in their diffusion of knowledge, they first had to perceive technology as being easy to use (Buabeng-Andoh, 2012; Franklin, 2007; Wozney, Venkatesh & Abrami, 2006; Simonson, 2004). These outcomes and conclusions give support to the claim and observation that perceived ease of use of ICT is directly linked to user decisions to adopt and integrate ICT for job performances. However, there is a dearth of research on the real effect of the perception of ease of use of ICT on the decision of headteachers to adopt ICT for school administration. It is therefore imperative to focus on this group of professionals, to understand and to determine the effect of perceived ease of use on their adoption decisions.

2.4.3 Perceived Usefulness of ICT for school administration

The perception of the usefulness of ICT is the immediate or intuitive recognition, understanding or insight of the value of ICT adoption (Bluff, 2011). It can also be expressed as the ability of potential ICT users to conceive, realize or understand the value, relevance, and impact (or otherwise) of ICTs in enhancing the job performance (Akinde & Adetimirin, 2017).

In the educational sector, several research reports have shown that the perception of the usefulness of technology is influential and important in determining its acceptance, adoption and use (Ataran & Nami, 2011; Aypay, Çelik, Aypay & Sever, 2012; Ke, Sun & Yang, 2012). For instance, Hu, Clark and Ma (2003) investigated the impact of perceived usefulness on the use of educational technologies by teachers in Hong Kong and found out that there were significant positive results between perception of usefulness and use of educational technologies. Similarly, Tella, Tella, Toyobo, Adika and Adeyinka (2007) examined teachers' use of ICTs and implications for further development of ICT use in Nigerian schools, with a sample of 700 teachers, and established that teachers will be inclined to use technology if they perceive it to be useful.

Also, Kumar, Che and D'Silva (2008) investigated the effects of technology acceptance constructs on actual usage of computer among 318 teachers in Malaysia and reported a significant positive effect between perceived usefulness and actual use of computers by the teachers. The positive effect points out that as there is a positive correlation between perceived usefulness of computers and actual use amongst teachers. This implied that as teachers find the application of computer technology to be more useful, they would be determined to use it more.

For school administrators, the perceived usefulness of ICT is equally important, if not more, for adoption decisions. This is because whereas a lot of the research on ICT adoption, integration and use in education has focused on teaching and learning, very little work exists that emphatically discussed the issue of using ICT for school administration and management (K. Ansong-Gyimah, personal communication, August 8, 2018). Perhaps, the paucity of literature on ICT adoption by school administrators could be a result of the lack of willingness to adopt ICT, coupled with the view of some people that ICT is not so useful after all.

According to Bennett and Bennett (2003), the most important barriers that educators face while using technology is their lack of willingness and their belief that technology is not useful. In the same vein, Hennessy, Harrison and Wamakote (2010) indicated that educators in Sub-Saharan Africa saw ICT tools as dehumanizing, isolating, prone to error and data loss, and possibly as a violation of their right to privacy, although they did not feel that their jobs were threatened by computers. Similarly, Phelps and Maddison (2008) submitted that visual arts teachers in Australia feel that technology makes their jobs so much more demanding and at times, stifled student creativity or take away their natural ability. These outcomes indicate that not everybody in the education sector perceives ICT to be useful in their job performance. Therefore, it is relevant and crucial to find out what the perceptions of headteachers of basic schools are, relative to the adoption of ICT for their job performance.

2.4.4 Access and availability of ICT for school administration

One of the important variables of ICT adoption and integration in schools is the availability of ICT facilities. To effectively integrate ICT into school administration, it is critical to ensure the accessibility and availability of ICT resources such as hardware

and software (Mbatia, 2014). As Ottesen (2006) reveals, the lack of computer facilities is one fundamental problem facing ICT integration in schools. This viewpoint is acknowledged by the Government of Ghana's ICT in education policy document, which states that "the expected impact on end-users (learners, teachers, managers and administrators) will very much depend on affordable and continuous access to hardware, software and connectivity." (Ministry of Education, Ghana, 2015, p. 21). This is evident that the success of any ICT adoption and integration policy hinges to a very large extent on the availability of ICT facilities.

For school administrators and managers, the lack of ICT facilities has been a major inhibiting factor for ICT adoption. A number of studies have highlighted these issues particularly in the developing world (Mbatia, 2014; Oloo, 2009; Plomp, Anderson, Law & Quale, 2009). For instance, in Kenya, the reasons for such inaccessibility and non-availability of the ICT facilities has included inadequate number of computers (Oloo, 2009), lack of internet connectivity (Menda, 2006; Oyedemi, 2015), political interference (Ayodo, 2009), and high levels of poverty, limited electrification and frequent power disruptions (Farrel, 2007). These reasons are very prevailing in many developing countries where ICT adoption for school administration remains a very critical factor in ensuring smooth and efficient school administration and management,

In Ghana, there is sufficient evidence suggesting that headteachers of basic schools are faced with fundamental challenges of accessibility and availability of ICT facilities for school administration. This is evident in a report presented by the Connect for Change Education Ghana Alliance (2014), which indicated that there is an inadequacy of computers at basic schools in Ghana for school administration purposes. Specifically, the report showed that only 4% of ICT facilities in basic schools are

dedicated for administrative purposes. This inadequacy of ICT tools for administrative reasons significantly slows down ICT communication between schools and the outside world, and eventually affects decision making and implementation of education related activities at schools (Connect for Change Education Ghana Alliance, 2014).

It is obvious from the literature review that issues of accessibility and availability of ICT facilities for school administration need to be addressed holistically in order to bring effectiveness into school administration by ensuring efficiency in effective planning so as to achieve set goals for schools. Whereas much of the literature significantly focuses on ICT adoption for school administration in secondary schools and higher educational institutions, this current study focused on the adoption of ICT for school administration by headteachers of basic schools, thereby setting the study apart from other previous empirical investigations.

2.4.5 Training and technical support in the use of ICT for school administration

Training in the use of ICT for school administration refers to the provision of knowledge and competences in the use of ICT facilities by an expert, to school administrators who may lack the necessary ICT soft skills for their professional functions. These ICT soft skills may include typing of documents, admission processing, preparation of class lists, keeping a database of staff and students' records, examination processing, preparation of school timetables, preparation of terminal report cards, keeping of inventory and disciplinary records, budgeting and processing of finance records, tracking teachers' attendance to school, monitoring classroom activities, communication and sharing of information, as well as announcement of upcoming events and programmes.

Effective training has been identified as one of the most frequently cited factors that underpin ICT adoption decisions (Albirini, 2006; Ozden, 2007; Toprakci, 2006; Ghavifekr & Wan Athirah, 2015). According to BECTA (2004), it is important to consider several components to ensure the effectiveness of training, since it is a complex phenomenon. Among the components that must be looked at are the time of training, nature of training, and skills training (Ghavifekr, Kunjappan, Ramasamy & Anthony, 2016). In this regard, it has been reported that training programmes which did not take into consideration these components have not been helpful in the adoption and use of ICT facilities in educational practices (Gomes, 2005). It is therefore important to look at the training regimes that are deployed for headteachers of basic schools for school administration purposes. This is to ensure that the training is effective and useful in ensuring the adoption of ICT facilities for their professional functions.

Similar to effective training, is the availability of technical support. According to Resta (2002), technical support is a specialized service that is provided to support and assist end-users in implementing technology-based solutions by skilled personnel. Dexter, Anderson and Ronnkvist (2002) noted that ICT technical support involves the provision of access, as well as the operation and troubleshooting of hardware, software and network resources. Technical support includes internal helpdesks that are provided within the organization or educational institution. Technical support has been identified as one of the factors that has significant impact on ICT adoption and use (Moses, Khambari & Luan 2008). Therefore, it is essential to provide technical support services as part of efforts to promote ICT adoption (Haslaman, Mumcu & Usluel, 2008).

Also, technical support is required in order to overcome the several challenges that school administrators encounter (Resta, 2002), especially in the developing countries such as Ghana, since it is evident that technical support is important to

headteachers of basic schools. Therefore, technical support is required in schools to facilitate the headteachers' adoption and effective use of ICT facilities in their administrative practices.

2.4.6 Motivation and incentives for the use of ICT for school administration

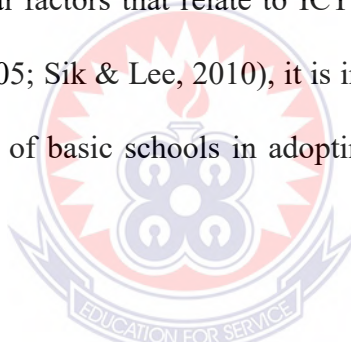
Motivation refers to reasons that inspire a particular behaviour, and is characterized by willingness and volition, and tends to vary across subject areas among individuals (Lai, 2011). According to the George Washington University Center on Education Policy (2012), motivation is a complex concept that helps in understanding factors that can diminish or strengthen the behaviour of an individual. Researchers have outlined two major types of motivation – intrinsic and extrinsic. For instance, Pintrich (2003) have opined that intrinsic motivation is the desire to do or achieve something because the individual truly wants to, and takes pleasure or sees value in doing so, while extrinsic motivation is the desire to do or achieve something not for the enjoyment of the thing itself, but because doing so leads to a certain result.

Relating the concept of motivation to the adoption and use of ICT for school administration, Gasaymeh, Al-Hassanat, Kraishan and Abytayeh (2017) reported that the most significant motivational factors for ICT adoption in education were internal and personal ones (intrinsic) that related to enhancing teaching and learning practices, and also improving their job satisfaction. External factors such as physical and moral motivational factors, support systems, and encouragement or incentives had a moderate influence on ICT adoption for educational purposes.

This viewpoint is in contrast to the views of several researchers who have reported that extrinsic motivation significantly influences individuals' decision to adopt and use ICT facilities. For example, Fung and Yuen (2012) indicated that extrinsic

factors encourage technology adoption and use decisions. Similarly, Fisher (2003) opined that there is no job excellence without offering some motivation and incentives. Fisher suggested that for headteachers to adopt and use ICT facilities for school administration functions, they must be offered some form of incentives and recognition, if excellence in the performance of such functions are expected. Again, Gautreau (2011) have noted among the most important forms of motivation for ICT adoption are performance recognition and financial incentives, suggesting that proper incentive packages for headteachers and school administrators would be necessary for their adoption of ICT.

Considering the overwhelming evidence that supports the idea that motivation and incentives are critical factors that relate to ICT adoption (Lee, Cheung & Chen, 2005; Saade & Bahli, 2005; Sik & Lee, 2010), it is important to study its effect on the decision of headteachers of basic schools in adopting ICT for school administration functions.



2.5 Perceived Impact of ICT Adoption on School Administration

The perception that ICT adoption will enhance efficiency and productivity in the workplace is very pronounced in literature (Jarvenpaa & Lang, 2005). This is because several studies have outlined and explained how the adoption of ICT in the workplace has been perceived by employees to be impactful on their productivity (Al-Dabbagh, 2015). For instance, Fuller, Hardin and Davison (2007), and Pitt, Berthon and Robson (2011) have all illustrated how ICT tools such as the Internet, laptops, and smartphones are widely embraced in organizations, primarily due to the perception that these wide range of choices of ICTs such as social media, instant messaging and email help in enhancing work output in organizations (Ou & Davison, 2011; Skeels & Grudin,

2009). Also, it is perceived that an individual's decision-making abilities can be enhanced when information is accessed through ICT tools (Davis, 2002; Mazmanian, 2013), and these has led to the believe that the adoption of ICTs in the workplace will make workers more productive.

However, other studies have suggested that the adoption of ICT can hinder positive effects on individuals' work productivity (Al-Dabbagh, 2015). According to Harmon and Mazmanian (2013) and Rose (2013), the increase in reach gained by the adoption and use of ICT in the work place raises the levels of expectation for workers to respond to demands such as replying to emails and producing essential documentations much quicker than they did previously. This new demand for quick response adds to the workload of workers, and can interrupt the workers' focus and attention on their assignments, leading to decline in productivity (Carr & Lu, 2007). Again, Derks and Bakker (2010) reported that while the adoption of ICT can increase productivity among workers, the use of ICT usually facilitates long work hours, thus resulting in higher stress among workers, which may subsequently lead to significant reduction in productivity.

Whereas the phenomenon of ICT adoption and its impact on productivity has been studied widely in other workplace environments, headteachers' perception of the impact of ICT on school administration has not received such attention. Therefore, it is critical to explore the perception of headteachers about the impact of using ICT for activities such as admission processing, keeping a database of students' records and inventory, budgeting and processing of finance records, as well as communicating with stakeholders.

2.6 Difference in Readiness to adopt ICT among Headteachers of Private and Public Schools

The impact of the use of ICT in the education sector has been touted for its numerous advantages, including its ability to promote collaboration and improve access to information (Khan, Hasan & Clement, 2012), as well as its influence on teaching, learning and research (Yusuf, 2005). However, in spite of the benefits that come with using ICT in schools, there has been a divide between two categories of people – those in private schools and public schools – with those in private schools being more favoured than their counterparts in public schools (Malero, Ismail & Manyilizu, 2015).

This phenomenon of an ever-growing digital divide has persisted for several years now. For instance, the 1996 national survey on computer education in the Philippines (New Educational Technologies Foundation, Inc., 1996) reported that the number of computers owned by private schools is two times higher than the number owned by public schools. A similar study by Nchunge, Sakwa and Mwangi (2013) in Kenya suggests that the situation has not changed much. Their study revealed that private schools are far better than public schools in terms of internet connectivity and the existence of an ICT policy.

These results were likely due to the relatively high effort and willingness of private schools to invest in ICT, compared to public schools. This suggests that when the management of a school is willing to invest in ICT, the adoption rate may likely be enhanced. However, it is important to note that it is not the investment in ICT or the availability of the technology that matters, but instead it is how it is deployed (Unwin, 2007). It appears that private schools have deployed ICTs much more effectively than public schools, hence the seeming gap in the difference between the two categories.

Nonetheless, although studies abound in literature on the differences between ICT adoption by private and public schools, there is a dearth of research studies that compare the readiness to adopt ICT by headteachers of private and public schools for administration. This study is set apart from the others reviewed above in terms of the nature and type of the study participants, as well as the variables of interest to the research.

2.7 Summary of Literature Review

Related literature was reviewed on variables that help to determine the decision of users to adopt ICT. Several studies which formed part of the literature review acknowledged that the attitudes of users towards ICT, the perceived ease of use of ICT, as well as the perceived usefulness of ICT were vital to users' decision and behavioural intention to adopt ICT. It was found that the attitude of users towards ICT was generally positive, although there were some inconsistencies which needed to be investigated further. Similar inconsistencies were observed in the literature with respect to the perceived usefulness of ICT. Also, the literature review brought to the fore some very critical issues that relate to ICT adoption. These included the perceived impact of ICT on work output, and how it affects users' decision to adopt ICT in their work environment. The review showed that workers held divergent views on the perceived impact of ICT on work output. Also, several studies have indicated that the type of school (private or public) plays a significant role in ICT adoption in education. Overall, the review revealed that there is a dearth of literature on ICT adoption for school administration, a gap which this study seeks to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter presents the methods used in this study. The areas covered were study area, research approach, research design, population, sample size, sampling technique, instrumentation, validity of the instrument, reliability of instrument, data collection procedure, ethical considerations, and the methods of data analysis.

3.2 Study Area

The Effutu Municipality is in the Central region of Ghana. The Municipality lies between the Gomoa East District to western, northern and eastern flanks. On the southern flank is the Gulf of Guinea and covers an area of 417.3 square kilometers (163 sq miles). The administrative capital is Winneba, a town renowned for its cultural festivals and education. The main occupation among the natives is fishing. Aboakyir deer-hunting festival and its New Year fancy dress carnival/masquerading festival and rich musical tradition (Effutu Municipal Assembly, n.d). Data from the 2010 Population and Housing Census indicated that the Municipality has a population of 68,597 which represents 3.1 percent of the population of the Central region (Ansah, 2018; Ghana Statistical Service, 2010).

The Effutu Municipality is one of the very few administrative districts in Ghana that has both public and private educational institutions ranging from pre-school, through to tertiary institutions. These include: 78 Basic Schools, five Senior High/Vocational/Technical Schools, one Police Command and Staff College, one

College of Community Health Nursing, and one public University. Figure 2 below is a geographical map of the Effutu Municipal Assembly:

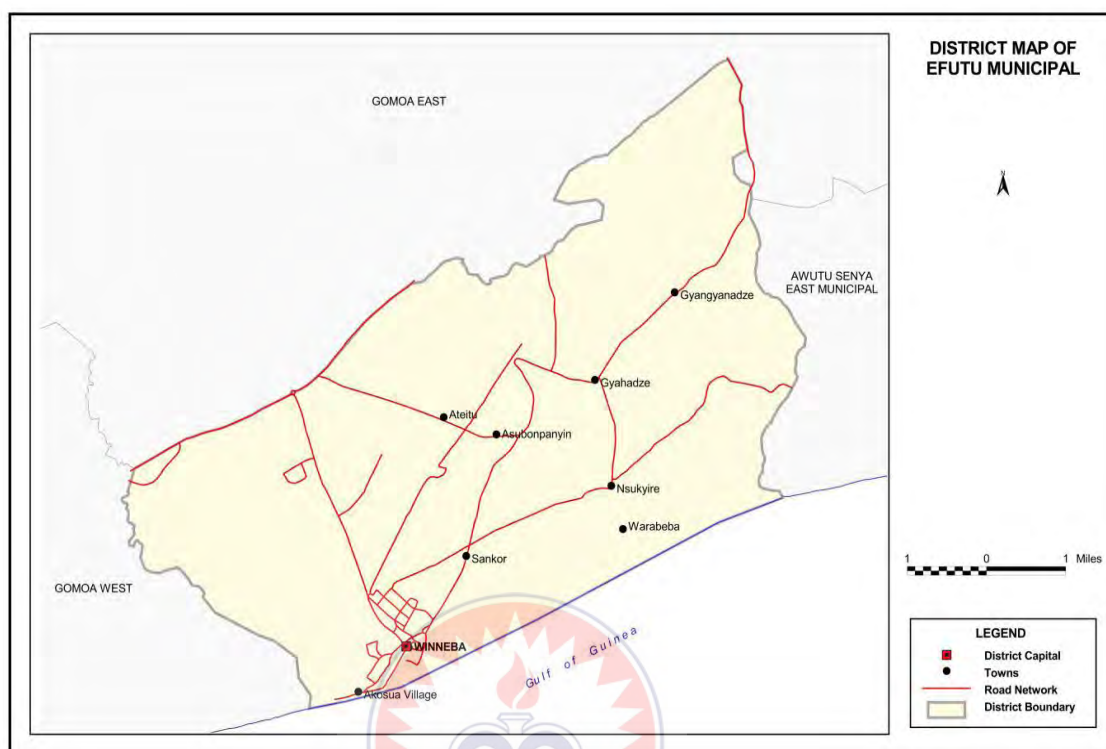


Figure 2: District Map of Effutu Municipal Assembly

3.3 Research Approach

This study used the quantitative method of research. Quantitative research is an approach of inquiry used to answer questions about relationships among measured variables, with the purpose of explaining, predicting, and controlling certain phenomena. It is also defined as the collection and analysis of numerical data to describe, explain or predict a phenomenon of interest (Gay, Mills & Airasian, 2009). Its intent is to confirm and validate relationships, and to develop generalizations that contribute to theory. It involves the choice of methods that allow for objective measurement of variables of interest, in order to have the ability to draw unbiased conclusions (Leedy & Ormrod, 2005). Also, in quantitative studies, specific methods

of measuring each variable are identified, developed, and standardized, with attention to the validity and reliability of the measurement instruments.

The analysis of quantitative data relies heavily on deductive reasoning which begins with certain premises (hypotheses or theories) and draw logical conclusions from them (Bryman, 2012). Again, the level of objectivity of quantitative data analysis is very high, because the analysis is done by conducting predetermined statistical procedures and using objective criteria to evaluate the outcomes of those procedures. Also, the findings of quantitative studies are reported by reducing the data to means, medians, correlations and other summarizing statistics that make it easy to read and understand.

The choice of the quantitative methodology for this study is based on the fact that it provides a framework which supports the determination of relationships between the variables of the study (Babbie, 2010). Again, the quantitative method of inquiry is justified for this study because it allows for greater objectivity and accuracy of results, and largely provides summaries of data that support generalizations about the phenomenon under study (Singh, 2007). In order to accomplish this, quantitative research usually involves few variables and many cases, and employs prescribed procedures to ensure validity and reliability (McNabb, 2008). To the extent that this study conforms to these standards, it is therefore justified in using the quantitative method of research.

3.4 Research Design

The cross-sectional survey design was used for the study. This is because the study sampled attitudes and perceptions of headteachers on issues relating to their adoption of ICT for their work-related activities. A cross-sectional survey is one in which data are collected from selected individuals at a particular point in time (Cohen,

Manion & Morrison, 2007), with the knowledge that the information could change later on. It also involves collecting data at just one point in time from a sample that has been drawn from a predetermined population by administering a questionnaire to individuals, to find out specific characteristics of the group (Fraenkel & Wallen, 2000; Owens, 2002). They are also known to be very effective for providing a snapshot of the current behaviours, attitudes, beliefs, and perceptions of the population about a given phenomenon (Cohen et al. 2007).

This design was adopted for the study because it allows for quicker collection of large amounts of quantifiable data from all members of the sample at a reasonably lower cost (Muijs, 2004). Another reason for choosing this design is that it makes it easier to guarantee respondents' anonymity and confidentiality, especially with the use of questionnaires for data collection. Also, it gives the respondents the opportunity to complete questionnaires in their own time (O'Leary, 2004), thereby obtaining data which could be described as accurate and authentic. Again, the cross-sectional survey design was chosen for the study because it provides all respondents with standardized questions which make measurement more precise, and also eliminates the researcher's own biases and prejudices (Sincero, 2012).

3.5 Population

The population for the study includes all headteachers of basic schools in the Effutu municipality. The total number of headteachers Table 1 shows a breakdown of the population for the study.

Table 1: Population of the study

Type of School	Frequency	Percentage (%)
Public Schools	25	32.1
Private Schools	53	67.9
Total	78	100.0

Source: Field Data (2019)

3.6 Sample Size

Sample refers to a group on which information is obtained (Creswell, 2005). The number of headteachers of basic schools in the Effutu municipality is relatively small. Therefore, all members of the population form part of the sample for the study. This is in adherence to the recommendation by Cohen, et al., (2007, as cited in Krejcie & Morgan, 1970) that where the population of the study is few (up to 100) then it is appropriate to include the whole of the wider population as the sample. However, only 69 members of the population accepted to participate in the study. Therefore, the sample size for the study was 69, representing a response rate of 88.5%.

3.7 Sampling Technique

The census approach was used to select the sample for the study. A census study according to Creswell (2012) permits researchers to draw conclusions about the entire population. The census approach was used as the sampling technique for the study because the size of the population was small. Also, it was chosen because it allows for simply reporting descriptive statistics about the entire population (Creswell). Also, the use of this technique helps researchers to get more information from all the participants concerning the research topic.

3.8 Instrument

After a careful review of relevant literature and expert judgment, a close-ended questionnaire was chosen as the instrument for data collection (attached as Appendix A). However, two of the items in the questionnaire were open-ended, and were used to probe further into some responses to the close-ended items. The general benefits of a questionnaire which include consistency of presentation of questions to the respondents, the assurance of anonymity for the respondents and the less time it takes to administer (Fraenkel & Wallen, 2000; Muijs, 2004) made it appropriate for this study, which was time bound.

The questionnaire was built on the major variables forming the key themes raised in the research questions. These were: (1) Contextual factors that relate to ICT adoption for school administration, according to the TAM – attitude towards ICT adoption, perceived ease of use of ICT, and perceived usefulness of ICT; (2) Perceived impact of ICT adoption on school administration; and (3) Difference in readiness to adopt ICT by headteachers of private and public school. The response levels of the questionnaires ranged from Strongly Agree (SA) = 5, Agree (A) = 4, Neither Agree nor Disagree (NAD) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1.

3.9 Validity of the Instrument

The validity of a data collection instrument is the extent to which the instrument serves the use for which it is intended (Seidu, 2006). For the purpose of this study, the instrument was tested for face validity, content validity and construct validity. Face validity was tested by sending out the instrument to colleagues to proof-read and to offer the necessary suggestions which ensured that the instrument measured what it was meant to measure. Also, content validity in the instrument was checked by giving out the instrument to the research supervisor to determine the suitability of the items before

piloting. All the necessary corrections in the items were made and declared valid by the research supervisor. Finally, construct validity was also ensured by critically developing the instrument by following established frameworks for designing questionnaires.

3.10 Reliability of the Instrument

The reliability of an instrument is the consistency of the instrument in producing the same or similar results given the same condition on different occasions (Seidu, 2007). To ensure reliability of the instrument, the questionnaire was pilot tested with 16 headteachers who were enrolled in graduate programmes at the University of Education, Winneba. The test-retest technique was used to determine the reliability of the instrument, where the same 16 headteachers were asked to respond to the questionnaire after a period of three days. The reliability coefficient was calculated for the two sets of results. The first test yielded a reliability coefficient value of 0.860 while the second test also resulted in a score of 0.791. Since both scores were greater than the accepted standard value of 0.70 for social science research (Field, 2009; Hof, 2012), the instrument was deemed to be reliable for the study. Therefore, it was used to collect data for the study.

3.11 Data Collection Procedure

The questionnaires were administered personally. Also, the research constructs on which the questionnaire items were based were explained to the respondents to ensure that they understood clearly what the questions sought to find out. The questionnaire was collected as soon as it was completed by the respondents, to help improve the response rate.

However, some of the respondents were not available to receive the paper questionnaire. For these respondents, an electronic version of the questionnaires was administered online, using the Google Forms web application. This made it possible for the respondents to fill out the questionnaire on their laptops and smartphones, thereby ensuring that the data collection process was smooth. Some of the respondents who could not fill the online questionnaire sought help for the process.

3.12 Ethical Considerations

Ethical issues are of high importance in research and therefore require due diligence and consideration. The ethical concern in research is about creating a relationship which upholds mutual respect and responsibility, in which respondents are pleased to candidly give out accurate data, in order to obtain valid results for the study. Considering the above, approval was sought from the respondents to participate in the study. Also, the purpose and the nature of the study was explained to the respondents, after which they were assured of the necessary confidentiality and anonymity before the commencement of the data collection. The respondents were also informed of their right to withdraw from the study at any point in time, if they deemed it necessary.

3.13 Data Analysis

The analysis of the data was in twofold. The first phase focused on entering the data into the IBM SPSS software version 21, and subsequently screening the data to ensure that all entries are accurate. To do this, the data was coded and entered personally to be sure that the SPSS data file was error-free. Also, the variables in the data file were reviewed to ensure that all values, labels, and measurement levels were valid. In the

second phase of the data analysis, frequency counts and percentages of the responses were calculated and used to describe the data obtained from the respondents. Also, mean scores were calculated and interpreted as a cumulative average of the responses obtained. In answering the research questions, different statistical tools were used. For research question one, the standard multiple linear regression analysis was conducted and used to answer the question. Research question two was answered using the frequency, percentage, mean and standard deviation scores, while the independent samples *t*-test was conducted to answer research question three.



CHAPTER FOUR

FINDINGS

4.1 Overview

This chapter presents the findings of the study. It covered the limitations of the study, as well as the findings of the study, based on the research questions raised.

4.2 Demographic Information of Respondents

The study collected demographic information from the respondents. These data included details about the age, gender, highest educational qualification, and the type of school the respondents work with. Table 2 shows the demographic information of the respondents.

Table 2: Demographic Information of the Respondents (n=69)

Variable		Frequency	Percentage (%)
Age	20 – 29 years	4	5.8
	30 – 39 years	28	40.6
	40 – 49 years	31	44.9
	50+ years	6	8.7
Gender	Male	48	69.6
	Female	21	30.4
Highest Education Qualification	HND/Diploma	0	0.0
	Bachelor's Degree	55	79.7
	Master's Degree	14	20.3
Type of School	Private	28	40.6
	Public	41	59.4
Level of ICT Usage	Non or Low User	18	26.1
	Medium User	38	55.1
	High User	13	18.8
Onset of ICT usage	Pre-tertiary	24	34.8
	Tertiary	45	65.2
	Post-tertiary	0	0.0
Total		69	100.0

Source: Result of SPSS Analysis (2019).

Table 2 shows the result of the analysis of the demographic data of respondents. The table shows that 44.9% of the respondents, who formed the majority, were between 40 and 49 years, while 5.8% were between 20 and 29 years, and formed the minority. Also, 69.6% of the respondents were male, and 79.7% of the respondents had a bachelor's degrees. Furthermore, 59.4% of the respondents were from public schools. A majority of 55.1% were medium users of ICT. Finally, 65.2% of the respondents first used ICT at the tertiary level of their education.

4.3 Contextual Factors that Relate to ICT Adoption by Headteachers for School

Administration

This section answers research question 1: What are the contextual factors that relate to the adoption of ICT for school administration by headteachers of basic schools in the Effutu municipality?

Several contextual factors relate to ICT adoption. For the purpose of this study, the factors that were analyzed included *Attitude towards ICT*, *Perceived Usefulness of ICT*, *Perceived Ease of Use of ICT*, *Access and Availability of ICT*, *Training and Technical Support*, as well as *Motivation and Incentives*. In order to determine how these factors related to ICT adoption, the standard multiple linear regression analysis was conducted to test the null hypothesis ($\alpha p < 0.05$) that these factors do not relate to the adoption of ICT by headteachers, individually and in linear combination.

In order to use this model, a test of assumptions for multiple linear regression was conducted. These assumptions include linearity and homoscedasticity, multivariate normality, and multicollinearity.

4.3.1 Linearity and Homoscedasticity

Multiple linear regression analysis requires that the relationship between the independent variables and the dependent variable should be linear. Also, Homoscedasticity requires that there should be no clear pattern in the distribution. These assumptions were tested by generating scatterplots. Figure 3 shows the scatterplot diagram used for testing the assumption of linearity, as well as homoscedasticity.

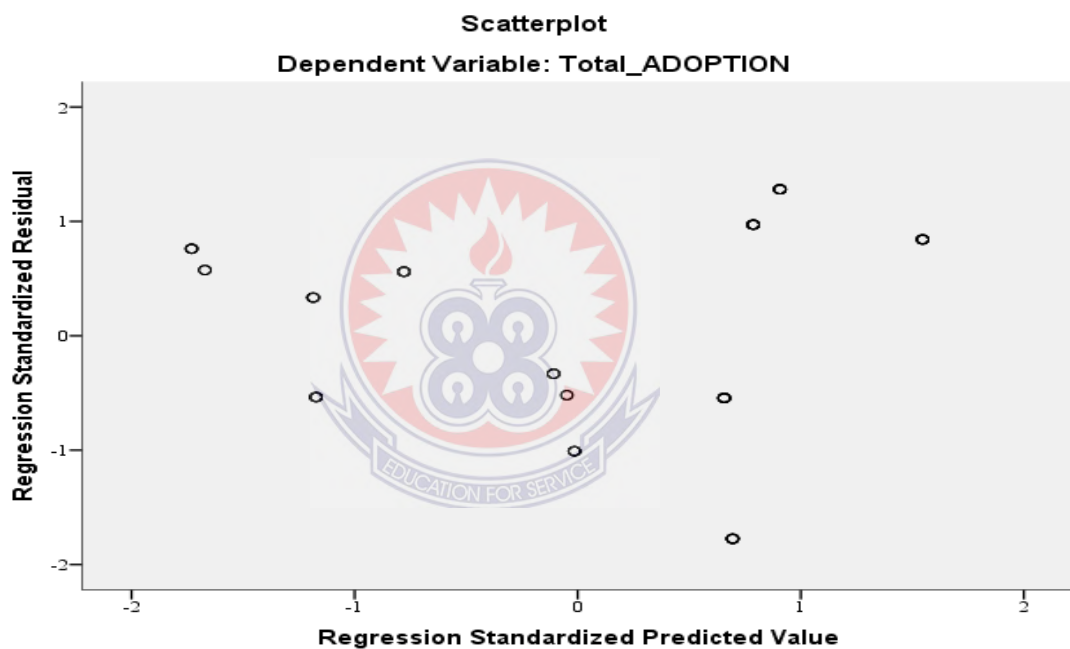


Figure 3: Scatterplot for testing the Linearity Assumption

Figure 3 shows that the residuals are roughly distributed, implying that there is a linear relationship between the independent variables and the dependent variable (Pallant, 2005). Therefore, the assumption of linearity and homoscedasticity was satisfied.

4.3.2 Multivariate Normality

Multiple linear regression analysis requires that the residuals of the regression, that is, the errors between the predicted values and the observed values should be normally distributed. In order to test for multivariate normality, the Q-Q plot was generated. The result showed that the residuals were normally distributed, hence the assumption of multivariate normality was satisfied. The output is presented in Figure 4.

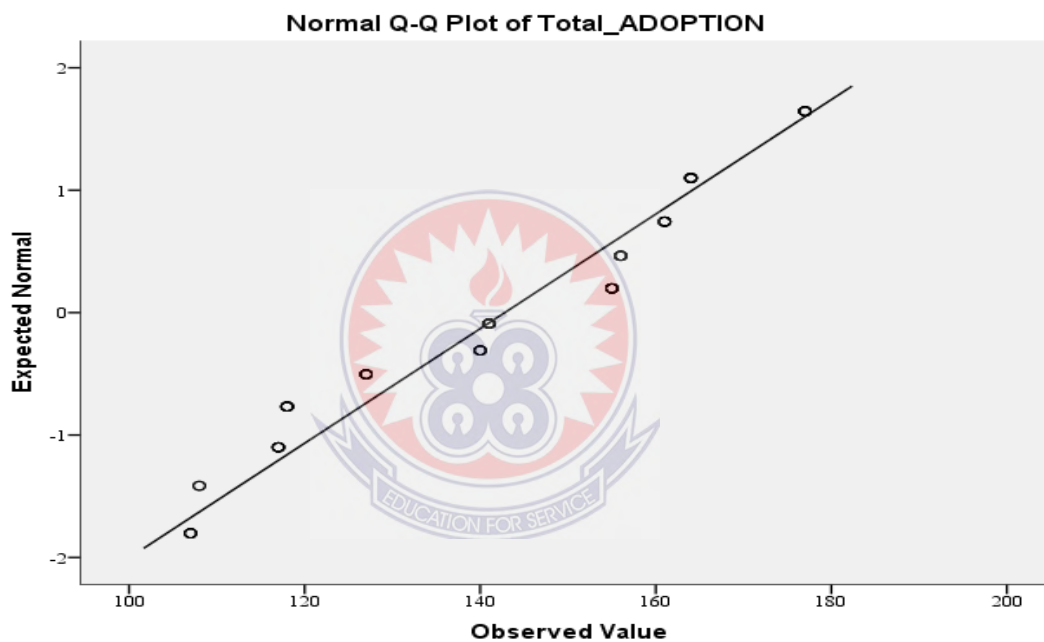


Figure 4: Normal Q-Q Plot

4.3.3 Multicollinearity

Multicollinearity exists when the independent variables are highly correlated with each other ($r = .9$). The Pearson correlation analysis was conducted to check for multicollinearity in the data. The result is presented in Table 3.

Table 3: Pearson bivariate correlation among independent variables

		Attitude	Perceived Usefulness	Perceived Ease of Use	Access and Availability	Training and Technical Support	Motivation and Incentives
Attitude	Pearson Correlation	1	.706**	.904**	.694**	-.075	.809**
	Sig. (2-tailed)		.000	.000	.000	.539	.000
Perceived Usefulness	Pearson Correlation	.706**	1	.821**	.611**	.365**	.733**
	Sig. (2-tailed)	.000		.000	.000	.002	.000
Perceived Ease of Use	Pearson Correlation	.904**	.821**	1	.737**	.007	.906**
	Sig. (2-tailed)	.000	.000		.000	.956	.000
Access and Availability	Pearson Correlation	.694**	.611**	.737**	1	.016	.757**
	Sig. (2-tailed)	.000	.000	.000		.896	.000
Training and Technical Support	Pearson Correlation	-.075	.365**	.007	.016	1	.227
	Sig. (2-tailed)	.539	.002	.956	.896		.060
Motivation and Incentives	Pearson Correlation	.809**	.733**	.906**	.757**	.227	1
	Sig. (2-tailed)	.000	.000	.000	.000	.060	

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 3, it was noted that the pairwise correlational coefficients of the independent variables were found to be less than 0.90, which shows that they were not strongly related, as required in the assumption of multicollinearity (Pallant, 2005). This implies that the assumption of multicollinearity was not violated. It can be therefore concluded that all the four assumptions for multiple linear regression were found to be met in this study.

4.4 Results of Multiple Linear Regression Analysis

In what now follows, we present the multiple linear regression results ($\alpha = .05$) which was conducted to evaluate the relationship of the independent factors (Attitude towards ICT tools; Perceived Usefulness of ICT; Perceived Ease of Use of ICT; Access and Availability of ICT; Training and Technical Support; Motivation and Incentives) in linear combination and individually, with the dependent factor (ICT Adoption)

4.4.1 Test of significance of the combined factors

Using the Enter method to determine the relationship of a linear combination of the independent factors with ICT adoption, it was found that the test was statistically significant ($F(6, 62) = 2398.83$, $p = .000$ ($p < .05$); $R^2 = .996$; Adjusted $R^2 = .995$) at $\alpha = .05$. The value of the multiple correlation, R , which indicates how well the combination of the independent factors relate with the dependent factor (ICT adoption), was $R = .996$. The adjusted $R^2 = .995$ implies that all the factors, in linear combination, accounted for 99.5% of the variance in the dependent factor (ICT adoption). The results are presented in the Analysis of Variance (ANOVA) table (table 4) and the standard regression model summary table (Table 5).

Table 4: Analysis of Variance (ANOVA^a): Regression Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30923.950	6	5153.992	2398.838	.000 ^b
	Residual	133.209	62	2.149		
	Total	31057.159	68			

a. Dependent Variable: ICT Adoption

b. Predictors: (Constant), Motivation and Incentives, Training and Technical Support, Perceived Usefulness, Access and Availability, Attitude, Perceived Ease of Use

Table 5: Standard Regression Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998 ^a	.996	.995	1.466

a. Predictors: (Constant), Motivation and Incentives, Training and Technical Support, Perceived Usefulness, Access and Availability, Attitude, Perceived Ease of Use

b. Dependent Variable: ICT Adoption

4.4.2 Test of significance of the individual factors

The significance of the regression coefficients of the individual factors (Beta values) were used to test the null hypothesis that each of the factors was not significantly related to ICT adoption by headteachers of basic schools. The results are

presented by Table 6, which gives a breakdown of the coefficient and the significant values.

Table 6: Regression Coefficients of ICT Adoption^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 ¹ (Constant)	3.022	2.482		1.218	.228	-1.939	7.984
Attitude towards ICT tools	5.233	.706	.148	7.407	.000	3.821	6.645
Perceived Usefulness	9.253	1.007	.216	9.191	.000	7.240	11.266
Perceived Ease of Use	-.518	.997	-.023	-.519	.605	-2.510	1.475
Access and Availability	6.370	.376	.233	16.925	.000	5.617	7.122
Training and technical Support	6.155	.768	.129	8.018	.000	4.621	7.689
Motivation and incentives	13.938	.873	.496	15.959	.000	12.192	15.684

a. Dependent Variable: ICT Adoption

For *attitude towards ICT tools*, the test found out that this factor was statistically significant ($t = 7.407$, $Beta = .148$; $p = .000$). Therefore, the null hypothesis that attitude towards ICT tools does not significantly relate to ICT adoption was rejected. This implies that headteachers' attitudes towards ICT tools were significantly related to ICT adoption.

For *perceived usefulness*, it was revealed that the factor was statistically significant ($t = 9.191$, $Beta = .216$; $p = .000$). As a result, the null hypothesis that perceived usefulness does not significantly relate to ICT adoption was rejected. In other words, headteachers' attitudes towards ICT tools were significantly related to ICT adoption.

For *perceived ease of use*, the test revealed that it was not statistically significant ($t = -.519$, $Beta = -.023$; $p = .605$). Therefore, we fail to reject the null hypothesis that perceived ease of use does not significantly relate to ICT adoption. This means that the ICT adoption by headteachers was not significantly related to perceived ease of use of ICT tools. Also, it was found that perceived ease of use related negatively to ICT adoption.

Next, it was found that *access and availability of ICT tools* was statistically significant ($t = 16.925$, $B = .233$; $p = .000$). The null hypothesis that access and Availability of ICT tools does not significantly relate to ICT adoption was therefore rejected. This means that headteachers' ICT adoption was significantly related to access and availability of ICT tools

Training and technical support was also found to be statistically significant ($t = 8.018$, $Beta = .129$; $p = .000$). Therefore, the null hypothesis that training and technical support does not significantly relate to ICT adoption was rejected. In other words, training and technical support were found to be significantly related to headteachers' ICT adoption.

Also, it was found that *motivation and incentives* was statistically significant factor that relates to ICT adoption ($t = 15.959$, $B = .496$; $p = .000$). Therefore, the null hypothesis that motivation and incentives does not significantly relate to ICT adoption was rejected. This means that motivation and incentives is a significant factor that relates to headteachers' adoption of ICT. Again, it emerged that *motivation and incentives* made the strongest unique contribution ($Beta = .496$) to predicting ICT adoption, when the variance explained by all other factors is controlled for.

Therefore, the regression model for this study can be deduced as:

$$\text{Predicted ICT Adoption} = 3.022 + 5.233(\text{attitude towards ICT}) + 9.253(\text{perceived usefulness of ICT}) + 6.370(\text{access and availability of ICT}) + 6.155(\text{training and technical support}) + 13.938(\text{motivation and incentives}).$$

This means that in linear combination, the variation in the adoption of ICT by headteachers can be explained by these factors:

- Attitude towards ICT tools
- Perceived Usefulness of ICT tools
- Access and Availability of ICT tools
- Training and Technical Support
- Motivation and Incentives

4.5 Perceived Impact of ICT Adoption on School Administration

This Section answers research question 2: What is the perceived impact of ICT adoption on school administration functions by headteachers of basic schools in the Effutu municipality?

To determine the perceived impact of ICT adoption on school administration by the respondents, frequency counts, percentages, mean and standard deviation scores were calculated. A likert scale of 1 – 5 (SD = 1, D = 2, NAD = 3, A = 4, SA = 5), was used in the questionnaire. The mean scores lower than 3.0 were interpreted as low perceived impact, while mean scores greater than 3.0 were interpreted as high perceived impact. The results are shown in Table 7.

Table 7: Perceived impact of ICT adoption on school administration (N=69)

Variable	Agree F (%)	Neither Agree nor Disagree F (%)	Disagree F (%)	Mean (SD)	Interpretation
My workload would increase due to the use of ICT tools	43 (62.3)	0	26 (37.7)	3.35 (1.096)	High Perceived Impact
I would be under stress to meet deadlines when I use ICT tools	18 (26.1)	19 (27.5)	32 (46.4)	2.80 (.833)	Low Perceived Impact
ICT tools would enhance my access to information for my work	69 (100.0)	0	0	4.39 (.492)	High Perceived Impact
ICT tools would help me take decisions more efficiently	51 (73.9)	12 (17.4)	6 (8.7)	4.04 (.962)	High Perceived Impact
ICT tools would enhance my productivity	63 (91.3)	6 (8.7)	0	4.30 (.626)	High Perceived Impact

Source: Field Data (2019)

Key: F= Frequency, %=Percentage, SD=Standard Deviation

Table 7 shows that 62.3% of the respondents agree that using ICT would increase their workload, while 37.7% disagreed. This yielded a mean score of 3.35 and standard deviation of 1.096, which suggested that the statement that using ICT would increase their workload is not strongly significant. Also, it was found that 26.1% of the respondents agreed that they would be under stress to meet deadlines when they use ICT tools, while 46.4% disagreed and 27.5% neither agreed nor disagreed. With a mean score of 2.80, and a standard deviation of 0.833, this result showed that the statement that headteachers would be under stress to meet deadlines when using ICT, has a low perceived impact, and is therefore not significant.

Again, it was noted that all the respondents (100.0%) agreed that using ICT tools would enhance their access to information for their work. This is confirmed by the mean score of 4.39, and a standard deviation of 0.492, which indicates that all the respondents were of the view that the statement was significant. Similarly, majority of the respondents (73.9%) agreed that using ICT tools would help me take decisions more

efficiently. Considering the mean score of 4.04 and standard deviation of .962, it can be concluded that the perceived impact of ICT on efficient decision-making is high.

Finally, the table shows that 91.3% of the respondents agreed that using ICT tools would enhance their productivity. This result agrees with the mean score of 4.30 and standard deviation of .626, which suggests that the respondents perceive that using ICT tools would enhance their productivity, thus making it a significant factor for ICT adoption. From the results, it can be concluded that the adoption of ICT by headteachers have the following impact on their professional practices:

- a) Increased workload due to the use of ICT tools
- b) Enhanced access to information for professional practice
- c) Improved efficiency in decisions-making
- d) Enhanced productivity

4.6 Difference in Readiness to Adopt ICT Tools

This section answers research question 3: Is there any difference in the readiness to adopt ICT among headteachers of private and public schools in the Effutu municipality?

The independent-samples t-test was conducted (at a confidence interval of 95%) to test the null hypothesis that there is no difference in the readiness to adopt ICT between headteachers of private and public schools. The result of the test is presented in Table 8 below.

Table 8: Independent samples t-test for readiness to adopt ICT

Type of School	N	Mean	Standard Deviation	t	df	P-value
Private	28	3.36	0.689	1.510	67	0.895
Public	41	3.10	0.682			

Source: Result of SPSS Analysis (2019)

The result of the t-test shows that there was no statistically significant difference in the scores for headteachers of private schools ($M=3.36$, $SD=0.689$) and headteachers of public schools [$M=3.10$, $SD=0.682$; $t(67) = 1.510$, $p = 0.895$, > 0.05]. Therefore, we fail to reject the null hypothesis.

4.7 Limitations of the Study

The population of the study was too small to allow for the use of random sampling techniques. Therefore, the entire population was sampled to participate in the study. The consequence is that conclusions based on this sample will only be applicable to this specific population. Another limitation of this study relates to the use of the cross-sectional survey, which focuses on headteachers' adoption of ICT at a particular point in time, rather than a longitudinal survey, which takes place over a period of time. As a result, some in-depth reasons or other factors that may relate to headteachers' decision to adopt ICT were not investigated in this study.

Also, the participants of the pilot study were outside the target population. This may have had some adverse effect on the conclusion that the data collection instrument will produce reliable data. Nonetheless, the reliability coefficients of the pilot test showed that the instrument was appropriate for the study. Again, the data for this study was self-reported responses of study participants. Therefore, issues of bias could affect the quality of the data. Again, the data could have been analyzed using second generational tools like Structural Equation Modelling (SEM). However, SEM usually requires a sample size of at least 200 (Nachtigall, Kroehne, Funke & Steyer, 2003). Since the sample size for the study was 69, SEM was not used. Instead, the multiple linear regression model was used for the analysis. Nonetheless, regardless of all these limitations, the outcome of the study was not significantly affected.

CHAPTER FIVE

DISCUSSION

5.1 Overview

This chapter presents the discussion of the major findings in the light of the research questions, the literature sources, theoretical framework, and the research problem.

5.2 Major Findings

The result for research question 1 indicated that the following factors significantly influence headteachers' adoption of ICT in their administration and professional practices: (a) attitude towards ICT tools, (b) perceived usefulness of ICT tools, (c) access and availability of ICT tools, (d) training and technical support, and (e) motivation and incentives.

On research question 2, the data shows that the adoption of ICT by headteachers of both private and public schools made the following impact on their administrative and professional practices: (a) increased workload due to the use of ICT tools, (b) enhanced access to information for professional practice, (c) improved efficiency in decisions-making, and (e) enhanced productivity.

Finally, on research question 3, the result shows that there was no significant difference in the adoption of ICT by private and public headteachers.

5.3 Research Question 1

Contextual factors that relate to the adoption of ICT for school administration by headteachers

The analysis revealed that attitude towards ICT tools is a significant factor in predicting ICT adoption. This result is in agreement with the findings of Cazares (2010), Kim and Davis (2008) and Owolabi (2005), who reported that attitude towards ICT is significantly related to users' performance in the use of ICT tools for work-related activities. Also, this result confirmed the finding of Abedalaziz, et al. (2013) who stated that positive attitude towards ICT influences adoption behaviours. Again, the results of corroborated the finding of Huang and Liaw (2005), which noted that users' attitudes towards ICT influence their acceptance of its usefulness and integration in other activities. The result therefore suggests that the headteachers of basic schools in the Effutu municipality have positive attitudes towards ICT, and consider attitude as a very important factor in ICT adoption. Therefore, they are likely to adopt ICT for the professional practices when all other factors are held constant.

Similarly, the result on perceived usefulness of ICT in predicting ICT adoption confirms the views expressed by Hu, Clark and Ma (2003), who reported that users' perception of the usefulness of ICT tools have a significant positive impact on their decision to adopt ICT for educational purposes. It also agrees with the view that perceived usefulness of ICT has a positive correlation to actual ICT adoption (Kumar, et al, 2008), such that perceived usefulness of ICT is considered a very important factor in deciding to adopt ICT for school administration (K. Ansong-Gyimah, personal communication, August 8, 2018). This outcome implies that users' appreciation of the value or worth of ICT for their professional practices is very paramount for ICT adoption.

Perceived Ease of Use was however found to have no significant influence on ICT adoption. This outcome contradicts the position of Omotayo and Chigbundu (2017), who reported that perceived ease of use is a major factor for predicting ICT adoption. Also, the result contradicts the findings of Smarkola (2007), which indicated that perceived ease of use is a predictor of user acceptance of computer technology. Again, the result of this study contradicts the result of Chong, et al. (2005) which indicated that the perception of the ease of use of ICT tools directly lead to the adoption of ICT. Furthermore, this result is in contrast with the findings of Askar, et al. (2006) which reported that perceived ease of use of ICT is a high determining factor in users' decision to adopt and use ICT. The deviation of this current result from several others (Askar, et al, 2006; Jebelie & Reeve, 2003; Teo, 2008; Tella, et al, 2007) is probably due to the fact that all the respondents in this study owned and use computers, and have also had prior ICT literacy training and exposure to ICT tools. This level of accessibility to ICT tools, and prior experience or training in using ICT may explain why perceived ease of use was not considered as a major factor for predicting ICT adoption by the respondents.

The finding on access and availability of ICT tools was consistent with the position of Miller, Naidoo, van Belle and Chigona (2006), who noted that ICT adoption is affected by availability and accessibility of ICT resources. The result also agrees with the view of Muriithi, Horner and Pemberton (2016), which stated that several factors affect ICT adoption and use practices, including availability and access to ICT resources. These results imply that when headteachers are provided with the requisite ICT tools and resources, they will most likely adopt ICT tools for their professional practices. Therefore, it is imperative that ICT resources are provided to all headteachers. These resources may include Internet connectivity, computers and peripheral devices,

as well as appropriate and relevant software applications that are suitable for school administrative purposes.

Similarly, the result on motivation and incentives as a significant factor for ICT adoption agreed with the findings of Fung and Yuen (2012), which stated that extrinsic factors such as motivation and reward systems increases users' interest and encourages technology use. The result also gives credence to the opinion that there is no job excellence without offering some motivation and incentives (Fisher, 2003). The result confirms the finding of Gautreau (2011) that recognition and financial incentives are the most important factors that would motivate users to adopt and use ICT systems. The result gives an indication that when headteachers are motivated properly for their adoption of ICT, there would be more ICT adoption decisions by other headteachers for school administration functions.

Another major finding from the analysis was that motivation and incentives for using ICT is a major factor that relates to ICT adoption. This outcome corroborates the findings of Saade and Bahli (2005), and Lee, Cheung and Chen (2005), which indicated that motivation plays an important role in explaining the acceptance of users and their behavioral intentions in using ICT. It further confirms the opinion of Sik and Lee (2010) that motivation is a significant factor in influencing the intention to continue using ICT. From this result, it can be observed that motivation and the provision of incentives relates positively to ICT adoption for professional practices. This result may be due to the fact that motivation influences peoples' intentions on their behaviours and actual performance of an activity (Moon & Kim, 2001; Zain, Hanafi, Don, Yaakob & Sailin, 2019).

5.4 Research Question 2

Perceived impact of ICT adoption on school administration by headteachers

The analysis of the data revealed that the respondents perceived that using ICT for their professional practices would increase their workload. This result confirmed the findings of Grainger and Tolhurst (2005), which indicated that while teachers accept the value of ICT applications in principle, they viewed these ICTs as yet another demand on their time, which increases their workload.

However, the result disagrees with the findings of studies by Balanskat, Blamire and Kefala (2006), and British Educational Communications and Technology Agency [BECTA] (2004), which reported that teachers' hold the perception that ICT would reduce their workload. This outcome is significant, considering the fact that ICT has been touted as a tool that helps to reduce the workload of users, and yet some users perceive it to rather increase their workload. Perhaps, the lack of ICT training relative to school administrative functions has contributed to the views of the respondents that ICT adoption for school administration would increase their workload.

Another major finding of the study was that the use of ICT will enhance access to information for professional practices. This result is consistent with the view of Noor-Ul-Amin (2013), that ICT provides opportunities to access a vast amount of information through multiple channels. Also, the result confirms the widely held view that using ICT tools help in ensuring fast and easy access vital information through communication (Khan, Khan, Siraj-u-Din, Ismail, Khattak & Jan, 2015). It is obvious from the result, that applying ICT to school administration practices will be welcome by the respondents, since they agree that it will help them access vast amount of information for their work.

Furthermore, the result showed that the adoption of ICT for school administration would significantly enhance the efficiency in making decisions that would improve the productivity of headteachers. This result gives credence to the views of Davies (2002), as well as Mazmanian (2013), who indicated that the adoption and use of ICT helps in accessing relevant and timely information that leads to enhancing an individual's decision-making abilities in the workplace. It is obvious that headteachers of basic schools need vast amount of relevant information to make important decisions on a daily basis. As such, the perceived impact of ICT adoption in this respect is not out of place, especially when several school administration and management functions such as record-keeping, communication, information management, are largely driven by ICT.

Finally, the study revealed that the adoption of ICT would enhance the productivity of headteachers of basic schools. This result is consistent with the findings of Qehaja and Berisha-Namani (2013), which stated that ICT adoption is associated with increased productivity, quality of work, and effectiveness and efficiency in accomplishing tasks. The result is also consistent with the construct of perceived usefulness in the TAM, which indicates that user will adopt and use technology, when they consider it to be useful or relevant in enhancing the job performance (Akinde & Adetimirin, 2017). Considering that the respondents indicated that ICT use would help them take decisions more efficiently, and also enhance their productivity on their job performance, it can be deduced that the respondents have positive views on the perceived impact of ICT adoption on their job.

5.5 Research Question 3

Difference in the readiness to adopt ICT among headteachers of private and public schools

The study found out that there was no significant difference between headteachers or private schools and those on public schools in terms of readiness to adopt ICT. This was revealed by the results of the independent samples t-test which yielded a p value of 0.895. This result does not support the claim by Malero, et al. (2015) that individuals in private schools are more favoured and likely to use ICT tools compared to their colleagues in public schools. Perhaps the variance in the results could be attributable to the socio-cultural and environmental contexts of the study areas. Whereas, Malero et al. studied the readiness of secondary schools in adopting the use of ICT the Dodoma municipality, which is the capital city of Tanzania, this current study looked at readiness of basic schools in adopting ICT for school administration in the Effutu municipality, which is a fishing community in southern Ghana.

This finding implies that there is no gap in the readiness to adopt ICT by headteachers in private and public schools, and therefore deviates from the conclusions of several studies which suggested that there was a digital gap between private and public schools in terms of readiness to adopt and use ICT (Lorenzo & Lorenzo, 2013; Malero, et al., 2015; Nchunge, et al., 2013; Tepe, 2017).

It can be deduced from the result that several factors contribute to the widening or closing of the digital divide. For this study, it is obvious that factors such as educational level of the respondents (all respondents have at least bachelor's degree), level of ICT usage of the respondents (73.9% of respondents are either medium or high users), the onset of ICT usage of the respondents (all respondents first used ICT at the pre-tertiary and tertiary level), as well as access to, or ownership of ICT tools. It was

noted that all the respondents owned computers, and had all been exposed to computers, at least at the tertiary level. These similarities in background in ICT literacy may be the reasons why there was no significant difference observed.



CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Overview

This chapter presents the general overview of the study, summary of major findings, implication of findings to practitioners, conclusions and the recommendations of the study. It also deals with the contribution to knowledge, and suggestions for future research.

6.2 General Overview of the Study

This study sought to find out the contextual factors that relate to ICT adoption for school administration by headteachers of basic schools in the Effutu municipality, to conscientize them about the impact of adopting ICT for their professional practice. The study was guided by the following objectives:

- To investigate the contextual factors that relate to ICT adoption for school administration functions.
- To explore the perceived impact of ICT adoption on school administration functions.
- To find out the difference in readiness to adopt ICT among headteachers of private and public school.

The study adopted the quantitative methodology, using parametric statistical tools including multiple linear regression and independent sample t-test. A sample size of 69 respondents were used from a total population of 78 headteachers. The TAM was adopted as the theoretical framework for the study.

6.3 Summary of major Findings

The study found out that the attitude of headteachers towards ICT tools, the perceived usefulness of ICT tools, access and availability of ICT tools, training and technical support, as well as motivation and incentives, were important factors that relate to ICT adoption. Again, it emerged from the study that headteachers viewed increased workload, enhanced access to information, improved efficiency in decision-making, and enhanced productivity as the perceived impact of ICT adoption on their job performance. Furthermore, it was observed that there was no significant difference in the readiness to adopt ICT by headteachers of private and public schools.

6.4 Implication of Findings to Practitioners

This study reports that headteachers' attitude towards ICT, their perceived usefulness of ICT, their access to ICT tools, and availability of ICT tools, training and technical support, and motivation and incentives for adoption ICT were factors that significantly related to their adoption of ICT. This implies that headteachers will adopt ICT for their professional practice due to their positive attitude toward ICT. This is because beliefs and attitudes are considered to be principal agents when it comes to making decision to adopt technology (Palak, 2004; Yidana, 2007). Also, the positive perceived usefulness of ICT by the headteachers suggests that they will make ICT adoption decisions, since perceived usefulness it is deemed to be influential in determining ICT adoption and use (Ataran & Nami, 2011; Aypay, et al., 2012; Ke, et al., 2012).

The study also showed that motivation and incentives made the strongest unique contribution to the prediction of ICT adoption by headteachers ($B = .496$). This implies that motivation is a highly significant factor for ICT adoption, such that the

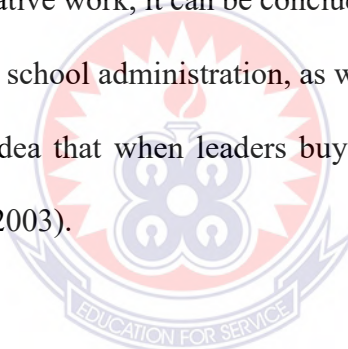
headteachers will adopt ICT if there is motivation and incentives for headteachers who adopt ICT for their professional practices. According to Sik and Lee (2010), motivation is a significant factor in influencing the intention to adopt or continue using ICT, hence the conclusion that motivation and incentives are prerequisites for adopting and sustaining ICT utilization.

Furthermore, the study found that the perceived impact of ICT adoption on job performance by headteachers was high, and related to increased workload due to the use of ICT tools, enhanced access to information for professional practice, improved efficiency in decisions-making, and enhanced productivity. This result shows that the headteachers will make the decision to adopt ICT, since they perceive that it will significantly help in their productivity in their job performance. This is because ICT adoption by practitioners in educational institutions is usually done with the view of achieving higher efficiency and improving productivity (Loogma, et al., 2012).

Finally, the study showed that there was no difference in readiness to adopt ICT by headteachers of private and public schools. This implies that headteachers of basic schools will adopt ICT for their professional practices, regardless of the type of school in which they work. It has been reported that personnel in private schools are more likely to adopt ICT than those in public schools (Malero, et al., 2015; Nchengu, et al., 2013; Unwin, 2007). However, this study shows that if all the necessary resources are made available to headteachers of private and public schools, they will both make the decision to adopt ICT for their professional practices without any significant differences.

6.5 Conclusion

The factors that relate to the adoption of ICT for school administration by headteachers of basic schools are diverse and in different forms. These include attitude towards ICT tools, perceived usefulness, access and availability of ICT tools, training and technical support, as well as motivation and incentives. These factors influence the behavioural intention to adopt ICT, and in turn helps in predicting actual usage. Also, headteachers of both private and public schools are of the opinion that ICT adoption would positively impact their job performance, in terms of enhancing their productivity, and therefore had no significant differences in their readiness to adopt ICT for their professional practices. Since these headteachers have positive views about the impact of ICT on their administrative work, it can be concluded that headteachers will support the integration of ICT for school administration, as well as teaching and learning. This conclusion is based on idea that when leaders buy into an innovation, its diffusion becomes faster (Rogers, 2003).



6.6 Recommendations

The following recommendations were made based on the findings of the study:

- The Ghana Education Service (GES) should organize ICT training workshops, and also offer technical support, as well as motivation and incentives to headteachers who use ICT tools for their professional practices. This will help in concretizing the adoption of ICT for school administration.
- The GES should provide headteachers with all the necessary ICT tools that would help in the adoption of ICT for school administration. This is to help them actualize the perceived impact of ICT on their job performance.

- The GES should provide incentives as a form of motivation to headteachers of both private and public schools, without discrimination, since they all have similar views and levels of readiness to adopt ICT for their professional practices.

6.7 Contribution to Knowledge

There is a plethora of research studies on factors that relate to ICT adoption in diverse work environments. Several of the studies focused on the education sector, and largely reported on ICT adoption by teachers and students, for the purpose of teaching and learning. There are very few studies that actually paid attention to ICT adoption by headteachers for school administration in basic schools, as was the focus of this study. This study revealed that headteachers of basic schools are ready to adopt ICT for school administration. It was also found out that the type of school (public or private) did not have any significant influence on the decision of headteachers to adopt ICT for school administration. This study therefore filled a research gap in the adoption of ICT for educational purposes which must include school managers, headteachers, and administrators.

6.8 Suggestions for Future Research

This study could be scaled up to include administrators and management team members of tertiary institutions. This is because when administrators and management members of tertiary institutions buy into the adoption of ICT for their work, they will be more inclined to provide training and other contextual conditions for the adoption of ICT for teaching and learning. Also, future qualitative research could be conducted to observe the actual use of ICT by headteachers and school administrators.

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APPENDIX

QUESTIONNAIRE

“AN INVESTIGATION OF CONTEXTUAL FACTORS FOR THE ADOPTION OF ICT BY HEADTEACHERS OF BASIC SCHOOLS.”

Introduction

I am a graduate student of the University of Education, Winneba, and I am conducting a survey on the determinants of ICT adoption for school administration by headteachers of basic schools in the Effutu Municipality. Your views and opinion on the subject are very vital to this study, and respectfully request that you participate in the study by filling out this questionnaire.

This questionnaire is designed to collect data for academic purposes only. Your honest and truthful responses will be greatly appreciated. Your name or identification number is not required and will not at any time be associated with your response, which will be kept completely confidential. You are at liberty to withdraw from the study at any time you so desire without any adverse repercussions. Thank you for accepting to participate in this study. Please fill out this questionnaire by ticking the appropriate columns that correspond to your views on the statements under each construct.

Key

SD = Strongly Disagree A = Agree
 D = Disagree SA = Strongly Agree
 NAD = Neither Agree nor Disagree

DEMOGRAPHIC INFORMATION OF RESPONDENTS	
Age:	20 – 29 [] 40 – 49 [] 30 – 39 [] 50 and above []
Gender:	Male [] Female []
Highest Educational Qualification:	HND/Diploma [] Bachelor [] Masters []
Type of School:	Private [] Public []
Level of ICT Usage	Non/Low [] Medium [] High []
At what level of your education did you first use ICT tools	Pre-Tertiary [] Tertiary [] Post-Tertiary []

CONTEXTUAL FACTORS THAT RELATE TO ICT ADOPTION	SD	D	NAD	A	SA
<i>Attitude towards ICT tools</i>					
There are unlimited possibilities that ICT can bring to my work performance					
ICT can eliminate a lot of tedious work					
The use of ICT tools is enhancing our job performance					
The use of ICT is a fast and efficient means of doing my job					
My job will be easier and faster with ICT tools					
<i>Perceived Usefulness of ICT tools</i>					
Using ICT in my job would enable me to accomplish tasks more quickly					
Using ICT would improve my job performance.					
Using ICT in my job would increase my productivity					
Using ICT would enhance my effectiveness on the job.					
I would find ICT useful in my job					
<i>Perceived Ease of Use of ICT tools</i>					
Learning to operate ICT tools would be easy for me.					
I would find it easy to use ICT devices to do what I want it to do.					
My use of ICT tools would be clear and understandable.					
It would be easy for me to become skillful at using ICT tools					
I would find ICT tools easy to use					
<i>Access and Availability of ICT tools</i>					
I have access to computers to work at my school					
I have access to the internet in my school					
Mobile phones are available for use in my school					
I own my personal computer					
I have appropriate application software for my work.					

<i>Training and Technical Support</i>					
There is an ICT coordinator in my school					
There are ICT experts available to help when needed					
I have been trained to use a computer or the Internet for my job					
I have attended In-Service training workshops on using ICT for my job in this current year					
The content of the training is relevant to my professional needs					
<i>Motivation and Incentives</i>					
I feel motivated to use ICT tools for my work					
I am motivated to teach other people to use ICT tools					
I am entitled to get some incentives for using ICT tools in my work					
Using ICT for my job is a factor for my promotion					
My school provides incentives for the use of ICT tools					
The availability of Internet connectivity drives me to use ICT tools for my work					
PERCEIVED IMPACT OF USING ICT TOOLS	SD	D	NAD	A	SA
My workload would increase due to the use of ICT tools					
I would be under stress to meet deadlines when I use ICT tools					
ICT tools would enhance my access to information for my work					
ICT tools would help me take decisions more efficiently					
ICT tools would enhance my productivity					
READINESS TO ADOPT ICT	SD	D	NAD	A	SA
I have skills and knowledge to integrate ICT into my professional practice					
I have been trained in the use of ICT for my professional practices					
I only use ICT for my personal work					
My school has e-resources for my professional practices					