UNIVERSITY OF CAPE COAST

PERCEPTION OF THE USAGE OF WHATSAPP FOR INSTRUCTION IN SCHOOLS: A CASE STUDY OF TEACHERS IN SENIOR HIGH SCHOOLS IN THE TEMA METROPOLIS

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:……...…… Date:……..…….

Name: Frederick Owusu-Boakye

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature:…… Date:……

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ABSTRACT

The purpose of this research is to find out the perception of teachers on the usage of Whatsapp for instruction in senior high schools. The increase in enrollment numbers resulted in the adoption of the double track system (DTS) that necessitated the need to divide students and staff into two tracks, thus the Green Track of students to be at school for a semester and the Gold track followed during the Green Track students' vacation on the academic calendar.

WhatsApp, an instant messaging application is viewed in literature as a compelling tool in the instruction process that enables quick, interactive multimedia communication in closed groups, as well as one-on-one interactions between selected group members. Yet, it usage is not well documented thoroughly, and the extent to which it affects teacher-student interactions in the DTS, especially from the teachers' perspective.

The methodology combines questionnaires and focus groups within Tema Metropolis senior high school teachers (N=125) in the study. The research revealed that, perceived effectiveness (PE) account for the intended usage of WhatsApp Messenger for instruction.

The present study adds to the expanding body of empirical research on social media use in educational settings by specifically focusing on under-exposed popular instant messaging application, WhatsApp.

Recommendations have been developed for reforms on regular stakeholder's consultations to understand the concept of using WhatsApp Messenger for instruction.

KEYWORDS

Instruction

Double track system (DTS)

WhatsApp

Education

Social Media

Teacher

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DEDICATION

To My Late Mother Agnes Boakye, aka Yaa Akyaa

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CHAPTER ONE

INTRODUCTION

Background to the Study

It is no shrouded reality that digital technology has assumed control over the society in recent years. Everybody is utilizing digital technology, from youngsters to adolescents, to grown-ups, and older folks (Bouhnik & Deshen, 2014; Devi, Gouthami, & Lakshmi, 2019). Utilizing digital technology has changed our methods for imparting, mingling, playing, shopping, to mention a few. Digital technologies are electronic tools, systems, devices and resources that generate store or process data. Well known examples include social media, online games, multimedia and mobile phones. Shankar et al. (2011) sees digital technology as: "related developments such as the rise of powerful search engines, advanced mobile devices and interfaces, peer-to-peer communication vehicles, and online social networks have extended marketers' ability to reach shoppers through new touch points" (p. 30).

For the past decade, the world is encountering correspondence insurgency through technological headway and it is very evident in the educational systems of the world. Using online networking applications like WhatsApp messaging application, Facebook, Imo application, Twitter, YouTube, to mention a few remain prudent as advanced gadgets for teaching and learning. The impact of the new correspondence innovation in the 21st Century has re-imagined how students learn and the method of instructional conveyance by the educators which is reiterated by Mynbayeva and Sadvakassova, (2018) who are of the view that the

utilization of digital technology is believed will revolutionize the teaching profession. This is on the grounds that teachers would now be able to connect with students utilizing any accessible online networking channels at their very own pace (Mynbayeva & Sadvakassova, 2018). For the purpose of education, social media networking systems encourage discussion between and among students and their instructors, and also address administrative issues (Adamson, 2012; Moran, Seaman, & Tinti-Kane, 2011). Social media networking systems have the ability to enable instructors and learners to collaborate and share information at any time convenient to them and from any place in the world (Adamson, 2012).

WhatsApp, a cross-platform mobile messaging Smartphone application (Cynthia, 2015), has been viewed as a compelling correspondence community-oriented tool in the instruction and learning process because of its favorable circumstances over different types of online networking devices. WhatsApp messaging application encourages information sharing among peers, improve students' manipulative abilities, encourage the learning procedure and cultivate assessment process (Barhoumi, 2015). WhatsApp messaging application is uniquely intended for instructive exercises which improve correspondence, imagination, basic reasoning and critical thinking aptitudes among students (Namaziandost, Rahimi, Esfahani & Ahmadi, 2019). It is utilized by a dominant part of individuals, particularly, young people and grown-up students, for the motivations behind correspondence and remains associated (Devi et al., 2019). Numerous students are happy to utilize writings and texts as specialized

instruments for scholarly purposes as they are perfect for instructive learning situations (Lauricella, Sharon & Kay, 2010). Along these lines, WhatsApp messaging application has become the "correspondence gateway" for social organizing, which has quickly changed the manner in which individuals impart (Susilo, 2014).

In the Ghanaian educational setting, provisions in the Chapter 5 of Ghana's 1992 Constitution, Clause 1(b), Partey as cited in (Deho, & Agangiba, 2019) asserted that "Secondary education in its different forms, including technical and vocational education shall be made available and accessible to all by every appropriate means, and in particular, by the progressive introduction of free education" (p. 51). Therefore, Ghana's government in January 2017 revealed a free Senior High School (SHS) arrangement: an activity which tries to get rid of money related boundaries thwarting access to secondary cycle education. The free SHS arrangement made enrolment soar by 33.2% as students who generally could have not gone to SHS because of monetary requirements could now do so (Partey, 2018). The large enrolment put a lot of weight on the current resources available (Deho & Agangiba, 2019). An endeavor to continue and keep the free SHS approach running at that point prompted the definition of the two-fold track instruction framework (Mensah, 2019). The double track system (DTS) divides the total student population and staff into two tracks. This arrangement necessitates that the whole students and staff be divided into two tracks, with the end goal that, while one track is in school, the other is on vacation (Mensah,

2019). However, the outcry of this system has the period at which students spend at home and some parents are prompted to seek extra classes for their children.

The researcher is of the view that promoting outreach to students on holidays with learning opportunities through technology (WhatsApp messaging application) could put parents at ease. At the SHS level of Ghana, the Ministry of Education (MOE) and Ghana Education Service (GES) have begun to coordinate in full (ICT) as a subject of concentrate in the educational plan. Recently, there has been a call on the introduction of an electronic learning programme to complement the double-track system (DTS) introduced in the country's SHS (Graphic Online, 2018). The advocate added that the programme should afford students the opportunity to access recorded lectures on various topics and soft copies of other educative materials on a public online portal to prevent students from losing focus on their academic agenda (Graphic Online, 2018).

While there is a great deal of knowledge about how WhatsApp messaging application as a lever is used for having access to cooperatively-created resources, heightening on assignment conduct and promoting important context-free learning (Rambe & Chipunza, 2013), little or no research has been done on WhatsApp messaging application being diffused and used by professionally trained teachers in Ghanaian SHS to create instruction for learners of double track system (DTS) education. There is the need to find less costly, efficient and effective innovative ways to make our students occupied while they are at home. It is very easy, in this day of advancement in digital technology. The Internet is there for us and we must take advantage of it. WhatsApp messaging application, one of the internet-

based social media networking system has immediately gotten universal and well known among school and college students. The quick reception of WhatsApp messaging application among tertiary learners flags that web-based social networking advancements are experiencing a change in perspective. As noted by Bere in 2013 (as cited in Bouhnik & Deshen, 2014). "an examination of the use of WhatsApp in a South African university class registered positive feedback from students who claimed that it was an easier way to communicate with their teachers and the rest of the class, that it was productive of fruitful discourse on relevant issues in an informal environment where students could learn intimately and authentically, and that it was also fun" (p. 219)

Schools and colleges have investigated the capability of WhatsApp messaging application for building up a solid nearness via web-based networking media among students. The widespread use of WhatsApp by students in many educational settings (Bouhnik & Deshen, 2014) and with the masses coupled with the double track system introduced in the Ghanaian SHS system has gained attention from the researcher. There is a need to find out how WhatsApp messaging application currently are being used to create instruction for learners while at home and elsewhere by focusing on the perceptions of usage by the teacher. In order to determine the largely educational benefits of WhatsApp messaging application for creating instruction, the current research emphasizes the attitudes and perceptions of the professionally trained teachers towards WhatsApp mobile learning.

Statement of the Problem

Many articles have emphasized the positive benefits of WhatsApp mobile learning. Rambe and Chipunza (2013) in their study suggest that there is a positive correlation between the use of WhatsApp and students use for retrieving various resources for teaching and learning processes, also it aids in the promotion of students on task behaviour and peer to peer collaboration and communication. WhatsApp on a Smartphone is "always with you on your Smartphone and offers television, Facebook, navigation, chatting and calling in one", Bauman noted (as cited in Ling 2016, p. 9). She again agreed that there is collaboration between peers when using WhatsApp for a group chat without the teacher being included in the group with the explanation that the students sees a teacher in the group as an intrusion to personal life since the teacher can post assignment anytime in the group chat for students consumption. Again these researchers, Bouhnik and Deshen (2014) mentioned in their study that the initiation of a WhatsApp group by high school teachers with their students is aimed at achieving four goals: "communicating with students, grooming a positive atmosphere and a sense of belonging in the class, creating a dialogue and using and sharing a learning platform."(p. 228).

According to (Cynthia,2015),in her work "Esoko and WhatsApp Communication in Ghana" that "WhatsApp Messenger, a cross-platform mobile messaging Smartphone application allows users to exchange messages without having to pay for short message service (SMS), through the internet."(p. 4). According to (Yeboah et al, 2014), WhatsApp has become one of the dominantly used mobile instant messaging (MIM) applications in Ghana.

Despite the numerous advantages and low cost of using the WhatsApp messaging software identified by previous researchers, its integration for educational purposes among trained teachers for instruction at the SHS within the Tema Metropolis is not well documented to serve as a favorable digital tool to learning in schools. Little or no research has been done on WhatsApp messaging application being diffused and used by professionally trained teachers in Ghanaian SHS to create instruction for learners of double track system education. The current educational system where one group is at home while the other stays on, parents are prompted to seek extra classes for their wards that burdens them financially. Secondly, with the current COVID-19, usage of the software could promote further interaction with students and their teachers as students have been sent home as a result of the pandemic. The researcher is of the view that promoting outreach to students on holidays with learning opportunities through WhatsApp mobile learning could put parents at ease financially in addition to granting students at home the opportunity to interact with both their teachers and colleagues.

Purpose of the Study

The current study therefore seeks to determine SHS professional teachers' perceptions about the usage of WhatsApp instant messaging application for instruction in Tema Metropolis. The specific objectives are to:

1. Determine teachers' intentions to use WhatsApp Messenger for teaching based on gender.

2. Determine teachers' intentions to use WhatsApp messenger for teaching based on the number of years of WhatsApp Messenger usage.
3. Determine the correlation between the latent variables and the number of years of WhatsApp messenger usage.
4. Examine the predictors that best explains a significant portion of teacher's intention to use WhatsApp Messenger for teaching.

Research Questions

Social media is a technology that is computer-based which helps in the sharing of ideas, thoughts, and information through the building of virtual networks and communities. Social media is very useful in supporting students learning processes and it also help teachers in evaluating their students easily and efficiently (Devi et al., 2019). Rambe and Chipunza (2013) in their study suggest that there is a positive correlation between the use of WhatsApp and students use for retrieving various resources for teaching and learning processes, also it aids in the promotion of students on task behaviour and peer to peer collaboration and communication. According to (Yeboah et al, 2014), WhatsApp has become one of the dominantly used mobile instant messaging (MIM) applications in Ghana.

Following the wide spread and use of Social media, especially, WhatsApp, the following research questions were proposed to guide the study:

1. What are teachers' intentions to use WhatsApp Messenger for teaching based on gender?

2. What are teachers' intentions to use WhatsApp Messenger for teaching based on the number of years of WhatsApp Messenger usage?
3. What is the correlation between the latent variables and the number of years of WhatsApp messenger usage?
4. Which of the predictors (PE, PCo, PU, PC, & PT) best explains a significant portion of teachers' intention to use WhatsApp Messenger for teaching?

Research Hypotheses

The research will be guided by the following hypotheses:

i. There is a statistically significant difference in teachers' intentions to use WhatsApp Messenger for teaching based on gender?
ii. Teachers' intentions to use WhatsApp Messenger for teaching has no statistically significant effect based on the number of years of WhatsApp Messenger usage
iii. There is a correlation between the latent variables and the number of years of WhatsApp Messenger usage?

Significance of the Study

This modern world which is also now seen as a global village (Asiri & Momani, 2017) is coupled with doing everything very fast and quick including teaching and learning in all facets of education of which secondary education cannot be left out. Social media help a great deal especially for self-study and /or peer to peer studies (Asiri & Momani, 2017) especially when these senior high

school students who belong to the double track system and are given varied time restrictions as much as three or more months as they are on holidays

The study expects to come out with some useful findings that can reveal the usage of WhatsApp instant messaging application to enhance quality teaching and learning in Ghana's education system. This will enable policy makers and other stakeholders understand, formulate, develop strategies and improve the national ICT policy in SHS, particularly, strategies that catapult the adoption of WhatsApp messaging application in secondary education classrooms.

The results of this study would also be significant since it would help students that are on vacation to revise their previous learnt topics and new topics to be learnt in their upcoming semesters.

The study will again be significant to teachers, since they will know their students are up to date on readings and assignments, which takes pressure off them.

Further, the worries of parents will be minimized, since there will not be the need for extra classes that burdens them financially and also the worries of getting the right qualified teacher to teach their children will be over.

Apart from adding to related literature, government could add as a policy to intensify the use of technology for teaching, students could be allowed to use phones in schools with some monitoring and increase of technological resources for schools.It will also help parents to facilitate the provision of digital tools for their wards purposely for teaching and learning. The National inspectorate team

as part of their routine inspection works will use the outcome of the research to measure teacher-learner online presence output, all adding up to the quality education Ghana aspire to achieve.

Delimitation of the Study

The scope of this study was limited to only four hundred and eight (408) professionally trained teachers in six (6) public SHS in Tema Metropolitan Area.. The included SHS in the study are as follows;

1. Tema SHS (Temasco), located at Community Five
2. Chemu SHS located at Community Four
3. Tema Methodist Day SHS located at Community Eleven
4. Presbyterian SHS located at Community Eleven
5. Our lady of SHS (OLAMS) located at Community One
6. Manhean SHS located at Tema New Town

The study was focused on the use of WhatsApp messaging application as a tool for instruction among double track system SHS professionally trained teachers in Tema Metropolis and did not cover other sections of the Ghanaian educational system teachers, such as untrained SHS teachers, JHS and private educational institutions. Findings, conclusions and recommendations were not extended beyond the population.

Limitation

The research was limited to descriptive methodology where questionnaire and documentary analysis will be used to collect data from respondents. Due to time constraints and the nature of the research, the researcher used homogenous

purposive sampling technique in selecting the sample for the study. Therefore, different methodologies might produce different results. Not all teachers from the SHS will be available to take part in the research and the results obtained might affect the generality of the findings of this study. Also, there may be delays in answering research instruments, collection of questionnaires, resulting in missing data and uncompleted responses from the research participants and this may also affect the results of the study.

Definition of Terms

Digital Technology (DT): Digital technology can also be associated with information technology, or technology that focuses particularly on obtaining and understanding vast amounts of useful data (Schmidt, & Cohen, 2013).

Information Communications Technology (ICT): ICT refers to technologies that provide access to information through telecommunications. (Christensson, 2010)

Instruction: Any intentional effort to stimulate learning by the deliberate arrangement of experiences to help learners achieve a desirable change in capability. (Smaldino, Lowther, Russell, and Mims 2015)

WhatsApp mobile learning: Education or training conducted by means of portable computing devices such as Smartphone or tablet computers through WhatsApp application. (Amry, 2014)

Second cycle education: Three years – consisting of senior high school grammar and technical education, as well as other post basic skills-development programmes, including the National Apprenticeship Programme. (Aheto-Tsegah, 2011).

Tool: A tool is a device or object used in information and communication technology ex; - computer, cell phones, cell phone towers, video conferencing, software, radio, television. (Millea, Green, & Putland, 2005).

Web based networking media: a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content. (Kaplan & Haenlein, 2010)

WhatsApp: A Smartphone application for instant messaging that operates on nearly all current types of devices and operating systems (Bouhnik & Deshen, 2014).

Organization of the Study

The study consists of five chapters. Chapter one presents the background to the study, statement of the problem, purpose of the study, research question, research hypotheses, significance of the study, delimitation of the study and limitations. Chapter two will review literature related to the study.

Chapter three covered the methodology of the study which comprises; the research design, study area, population, sampling procedure, data collection instrumentations, data collection procedures and data processing and analysis.

The fourth chapter details the analysis and discussion of data. It unfolds the emerging trends from the data using descriptive statistics to bring out the key findings of the study. Chapter five gives the summary, conclusions, recommendations and suggestions for future research.

Chapter four presents result and discussion of the study. Chapter five entails the summary of the study, conclusions, recommendations and, suggestion for future research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter will review related literature on the study. Related literature will be reviewed under the following headings:

1. The Concept of Information, Technology and Communication (ICT) in Education
2. The Concept of Social Media (SM)
3. The Concept of Application of Social Media in Education
4. The Concept of CoVID-19 Pandemic and Modes of Educational Delivery at Schools
5. Theorethecal Framework/ Review
   i. Technology Acceptance Model (TAM)
6. Empirical Framework/Review
7. Conceptual Framework

The Concept of Information, Technology and Communication in Education (ICT)

Teachers are a key component of any education system, and quality teaching is a pre-requisite for success (World Bank, 2012). As noted by Pelgrum in 2001 (as cited in Ainooson-Noonoo, 2016), "teachers are the most important agents of change on the educational work floor" (p. 7). The government of Ghana recognizes that quality teacher is critical to the provision of quality education (MOE, 2017). The Medium Term Expenditure Framework (MTEF) for 2017-

2019 for Ghana's MOE states that "Our policy to improve educational outcomes will therefore be teacher centered" (p. 13).

Today's teachers and students are changing ways of learning, interacting, communicating and working collectively (Lai, 2015). Many research studies have revealed that successful integration of ICT into teaching depends, to a large extent, on teachers' self-confidence, competence, access to computers, leadership support, values and beliefs (Irfan & Noor, 2012). Several valuable reasons have been advanced and listed by Barhoumi (2015), Bhagwat (2016) for the adoption of WhatsApp instant messaging application in the classroom by educators. They reason that teachers can use the group chat to make possible discussions with the students outside their classrooms, students can also make use of the group chat to solve problems arising from teachers' homework by asking and clarifying issues. Further, WhatsApp instant messaging application can be used to create both text-based messages and audio-based lessons for students, which can be made available directly to them.

Technology-enhanced approaches, (specifically, the use of WhatsApp instant messaging application) due to their characteristics of access, connectivity, interaction between students and instructional resources or between students and teachers, and self-learning through specific applications (web and mobile), have transformed the traditional pedagogical practices (Kurt, 2014). Communication between teachers, their students and other stakeholders in the school environment has become popular during the last decade through various channels: Email, SMS, Facebook groups, Twitter, and recently WhatsApp. Each one of these tools has

different characteristics that influence its suitability for learning purposes (Calvo, Arbiol & Iglesias, 2014).

Educational innovation is considered as a top priority all over the world, and the potential of ICT to foster it increasingly is recognized (Pandolfini, 2016). The procedure of education involves the exchange of knowledge and skills from one point (source) to another (beneficiary). The educating and learning process as dependent upon the Chalk and Talk strategy however now has experienced an extreme change through the use of smart classrooms(completely well prepared electronic web) have been created. In the 21st Century, education cannot be separated from technology (Buabeng-Andoh, & Yidana, 2015). Quick development in ICT has made the world knowledge-driven. It is necessary for citizens of nations to be highly competent in the use of the technology as ICT continues to reshape and influence economies. The effort of integrating ICT has received great attention in educational systems in many nations. This means that at secondary school level ICTs should be adopted as a matter of urgency to enable teachers and learners to access this new direction in internet technology and application delivery (Le Roux & Evans, 2011). ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses mainly on communication technologies. Yekini & Lawal (2012) sees ICT as: "a powerful collection of elements which include computer hardware, software, telecommunication networks, workstations, robotics and smart chips, which is also at the root of information systems" (p. 11).

Education policymakers across the globe have recognized that improved and quality access to ICT in educational system can help individuals to compete in a global economy by creating a skilled work force and facilitating social mobility. UNESCO emphasize that ICT in education has a multiplier effect throughout the education system, by enhancing learning and providing students with new sets of skills; by reaching students with poor or no access (especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimizing costs associated with the delivery of instruction (UNESCO, 2014).

The social movements that arose in 2011 in the Arab States have demonstrated the potential of ICT to play a catalytic role. Arguably, the Arab Spring ranks among the most significant informal ICT-assisted "learning" phenomena in (2011), whereby thousands of youth used SM – accessed via their mobile phones – as a space for self-identification, self-assertion, contestation and mobilization around democracy, human rights and civil liberties (UNESCO, 2012a). For almost four decades, education policymakers have been formalizing all-inclusive ICT policies as part of educational renewal and reform. At the international level, policy for integrating ICT for development was first formulated in the Millennium Development Goals (MDGs) Target 8.F, which emphasizes on cooperation with the private sector, make available the benefits of new technologies, especially information and communications (United Nations, 2014).Furthermore, the World Summit on the Information Society (WSIS), held in 2003 and 2005, resulted in a clear commitment by governments to foster the

achievement of an inclusive information society. To this end, the WSIS Plan of Action identified ten targets to be achieved by 2015 – two of which are related to education. These include Target 2: Connecting all primary and secondary schools to ICT, which is a precondition to Target 7: Adapting all primary and secondary school curricula to meet the challenges of the information society (Partnership on Measuring ICT for Development, 2011).

Many researches have indicated that ICT assists in transforming a teaching environment into a learner-centered one. Since learners are actively involved in the learning processes in ICT classrooms, they are authorized by the teacher to make decisions, plans, and so forth (Lu, Hou, & Huang 2010). By using ICT, students' creativity can be optimized. They may discover new multimedia tools and create materials in the styles readily available to them through games (Gee, 2011), CDs, and television. Technology should be used for more than just support of traditional teaching methods (Tezci, 2011a). According to Tezci (2011a), teachers should learn not only how to use technology to enhance traditional teaching or increase productivity, but also should learn from a student centered perspective how ICT can be integrated into classroom activities in order to promote student learning. It is imperative that teachers learn new teaching strategies to adapt to the new instruments when teaching with technology.

Several internal factors influence technology integration outcomes (Sang et al., 2011). Internal factors related to teachers include: understanding of ICT use; beliefs, which may conflict with the application of ICT; attitudes toward technology integration; perceptions, including intention or motivation to use ICT;

self-confidence and knowledge; technology skills; readiness to use ICT; and technology self-efficacy (Sang et al. 2011; Tezci, 2011a) found that the differences between the men and women have been studied in various areas such as electronic mail, information retrieval, e-learning, communication technologies and online purchasing behaviour and majorly, the studies revealed more favorably towards men as compared to women. Further researchers reported that males had more positive attitudes towards technology than do females (Chou, Wu, & Chen, 2011).

It is worth determining how WhattsApp instant messaging application preparation courses or programs change teachers' intentions and actions. Since WhatsApp instant messaging application is relatively a new phenomenon, little research exists regarding its influence on interpersonal communication in general, and between high school teachers and their students in particular (Church & de Oliveira, 2013). Ward and Parr (2010) stated that teachers need to feel confident in their ability to facilitate student learning with technology in order to integrate technology into their classrooms. To achieve this goal, more professional development is required with a focus on increasing teachers' skills so that they are able to overcome apprehensions associated with using technology. Such cooperation was felt to bridge gaps in knowledge and physical distance. Overall, WhatsApp instant messaging application has become a shared platform that enhances accessibility, encourages cooperation, and intensifies motivation to take an active part in academic assignments (Rambe, & Bere, 2013).

The Concept of Social Media (SM)

The greatest phenomenon that had influenced media and education is the proliferation of digital and e-learning technologies. The field of Information Systems (IS) is concerned with the investigation of Information Technologies (IT) impacts on individual, organisational and societal levels (Lucas, Agarwal, Clemons, El Sawy & Weber, 2013). One of the recent most impactful IT phenomena is the emergence and spread of a sub-set of IT technologies referred to as SM. (Kapoor et al., 2017). SM has taken on various implications and interpretations, and it is continually revaluating itself. However, social networking exists so as to provide communication among people regardless of the distance, making it open to people easily share information, files and pictures and videos, create blogs and send messages, and conduct real-time conversations (Devi et al., 2019).

Social media is a system that is computer-based which helps in the sharing of ideas, thoughts, and information through the building of virtual networks and communities These systems are referred to as social, simply because they allow communication with buddies and co-workers so easily and effectively (Devi et al., 2019). The favourites in the realm of internet sites are Facebook, Twitter, blogs, YouTube, Instagram, google doc and others. These websites and social forums are ways of communicating directly with other people socially and in the media. According to Devi et al, (2019) these SM are playing a large and influential role decision-making in the occasions from the global world economically, politically, socially and educationally. SM sites like Facebook, Twitter, etc. connect people around the world in ways Marshall McLuhan could

not have dreamed of when he popularized the term "global village" back in the 1960's (Devi et al., 2019).

Kaplan and Haenlein (2010, pp. 59-68) believe that "Social media consists of Internet-based applications, that build on web 2.0 (which describes the technical platform) and allows the creation and exchange of contents (which are generated by users)". Nair (2011), defines social media as "online tools, and the core concepts are the sharing of content, opinions, perspectives, insights, media, relationships and connections between users and companies"(pp. 45-51). In line with Davis et al (2012), we can talk about "Social Media Technology (SMT) as "web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content in digital environments through multi-way communication" (p. 10). Kapoor et al (2017) see SM as a "set of information technologies which facilitate interactions and networking". These definitions highlight the "social" nature of SM and focus on interpersonal communication and information exchange independent of technological platforms involved. These views lean towards the formative view, concentrating on what the platforms are used for rather than what the technology was intended to support. The trend of creating new and updating old definitions continues, as does the development, use and adoption of SM (Kapoor et al., 2017). As evidenced in so many facets of our daily communication habits, SM has established itself as one of the more preeminent communication vehicles. Studies show that 75% of internet users are accessing a social network or blog when they go online (Johnston, 2010). It has also been reported that greater

percentage of these active users constitute students, thereby given the conclusion that students are mostly and actively caught up on social networking sites. Their emergence has impacted significantly how students learn and the way instructors teach (Griesemer, 2012)

According to (Bouhnik & Deshen, 2014), WhatsApp instant messaging application can be viewed as a social network that allows people to access a great deal of information rapidly. He states that "the simple operation scheme makes the program accessible to a variety of people of different ages and back-grounds" (Bouhnik & Deshen, 2014 p. 2). It is worth to find out how WhattsApp instant messaging application preparation courses or programs change teachers' intentions and actions. Since WhatsApp is seen as SM, (Bouhnik & Deshen, 2014), and a is relatively a new phenomenon, little research exists regarding its influence on interpersonal communication in general, and between high school teachers and their students in particular.

The Concept of Application of Social Media in Education

Humans for decades have been concerned about how to interact with friends and families across long distances, and as social animals, they rely profoundly on communication to strengthen their communal relationships. In spite of the limitations of face-to-face interactions, humans have devised means of proffering solutions. Consequently, the advances in technology have empowered several methods of doing things quite different from the conventional methods. SM technology usage has increased in the past five years due to a combination of factors that entails affordability of the mobile devices and increased internet

bandwidth amongst the consumers (Selwyn, 2012). Several scholars have theorized the pedagogical potential of using social media, such as social network sites, for learning (Halverson 2011; Manca & Ranieri 2013). The present day college students are exposed to existing, new and emerging technologies in many aspects of their lives (Browning, Gerlich, & Westermann, 2011). They use the following devices on daily basis: e-readers, tablets, desktop computers, laptops, and cell phones/mobile devices to actively engage in social networking, text messaging, blogging, content sharing, online learning, and much more (Cassidy, Griffin, Manolovitz, Shen, & Turney, 2011).

The 21st Century which is characterised by digital technologies allows teachers to become facilitators or guides since learners have come into play to be very active and hence regulate their self-learning scenarios (Devi, et al. 2019). In recent times, especially in the developed countries, the frequent use of educational mobile technologies in online teaching and learning, particularly in tertiary institutions is gaining much ground worldwide, and it gives students increased choices and opportunities in the context of online instruction (Rambe & Bere,2013). Paliktzoglou and Suhonen (2014) argued that concept behind SM tools were not a new phenomenon as interfaces such as chat rooms, internet forums, message boards, web communities and blogs were being used since the revolution of internet.

While there are disputed claims as to who coined the term "social media," the term appears to have emerged in the early 1990s in reference to emerging web-based communication tools that facilitated online interaction (Bercovici

2010). However, providing a single definition that encompasses all of the technologies and activities associated with social media is extremely difficult, in part because social media is not defined by any specific scope, format, topic, audience, or source. This potential expansive definition of social media is demonstrated by Trottier and Fuchs (2015), who note that when considering the nature of social media theorists could reasonably adopt any of three forms of sociality as a focal point: a) cognition, b) communication, or c) cooperation. Following this approach, Kietzmann et al. (2011) defined social media with a broad stroke in that social media "employ[s] mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content" (p. 241). Kane, Alavi, Labianca and Borgatti (2014) focus on social media networks and argue they are defined by a digital profile authored by users, the ability to search content and restrict others from viewing content, means of displaying relational ties, and network transparency that reveals the connections of other users. With slight variations, these definitions of social media commonly focus on three attributes: 1) they are web-based, 2) they provides a means for individuals to connect and interact with content and other users, and 3) they provide the means for users to generate and distribute content on the respective platforms. "Students use of blogs, wikis, and social bookmarking has been of particular interest to educators who perceive these technologies as beneficial in higher education" (Kumar & Vigil, 2011, p. 145). Their emergence has impacted significantly how students learn and the way instructors teach (Griesemer, 2012). The under-listed scholars

have advanced the advantages of using these technologies in the learning process. For instance, Bouhnik and Deshen (2014), Church and de Oliveira (2013), Nguyen and Fussell (2016) have conducted researches on WhatsApp and noted that the application could be a useful tool within the scope of learning anytime and anywhere, and collaborative learning.

WhatsApp as one of the instant messaging platforms in education has been ascribed to have the potential to increase learning. In addition to learners' being active in their studies, Cifuentes and Lents (2010) also established that it facilitates interaction and engagements level between instructors and students. In view of the aforesaid importance placed on mobile technologies, especially WhatsApp instant messaging appplication, Dunn (2013) has declared that great emphasis must be placed in using technologies within learning process. In spite of WhatsApp instant messaging application being relatively a new phenomenon, little research and documentations exists among SHS teachers in Tema Metropolis regarding its influence as a tool for instruction for students in the double track system of education.

The Concept of CoVID-19 Pandemic and Modes of Education Delivery at Schools

Enormous scope flare-ups of pandemic sickness, catastrophic event, or genuine air contamination occurred in the worldwide, influencing not exclusively people's wellbeing, yet additionally the education sector. For many years school closures have been used as a social distancing measure to control the transmission of infectious viruses among children (Potter et al., 2012). Muhammed, (2020)

asserts that “Closing schools is one of the social distancing strategies which several epidemiological and modeling studies have been used to estimate the impact of the action in decreasing the transmission of the pandemics mainly among school populations in primary, secondary and high schools, and then in communities outside these settings” (p. 2) . For instance in 2009, the outbreak of H1N1 Flu affected several people around the world, causing school closures in many countries and areas, such as Bulgaria, China, France, Italy, Japan, New Zealand, Serbia, South Africa, Thailand, United Kingdom, and the United States (Cauchemez et al., 2014). During the swine flu epidemic in 2009 in the United Kingdom, in an article titled "Closure of schools during an influenza pandemic" that was issued in the Lancet Infectious Diseases, a collection of epidemiologists recommended the closing of schools so that the course of the infection could be interrupt, slow further spread and also buy time to research and come out with a vaccine (Upoalkpajor, & Upoalkpajor 2020).

Few months ago, the outbreak of the corona virus disease in 2019, also known as COVID-19 was declared on 30th January 2020, by the Director General of World Health Organization (World Health Organization, 2020). COVID-19) is an infectious disease caused by a new corona virus belonging to the SARS-COV family. Most people infested with COVID-19 will feel mild to moderate respiratory illness and may recover without special treatment (World Health Organization, 2020). Symptoms of this novel corona virus can range from mild (asymptomatic) to severe illness (symptomatic). The World Bank teams helping client countries mitigate adverse impacts of COVID19 pandemic through an

education-specific response in its report in March,2020 affirms that "COVID19 is primarily affecting public health, spillover effects can already be observed in education, stemming largely from extended school closures". UNESCO estimated that 107 countries had implemented national school closure related to COVID-19 by 18th March 2020 affecting 862 million children and young people, roughly half the global student population. Even more seriously, Bozkurt and Sharma (2020) reported that more than 1.5 billion learners of all ages from around the globe are affected due to the school and university closure owing to COVID-19 pandemic. The affected number of students equal 90% of the world's enrolled students and the shutting down of schools have widened learning inequalities and hurt vulnerable children and youth disproportionately.

Following the identification of positive cases of COVID-19 in Ghana, the Government of Ghana introduced a partial lockdown and mandated the closure of all schools, colleges and universities on March 16, 2020 (Nantwi & Boateng, 2020). Ghana COVID-19 Accelerated Funding Request cover note in 29th May,2020 asserts that the closure affect an estimated 9.2 million students in KG to SHS for both public and private schools, as well as 0.5 million tertiary education students and 450,000 teachers in public and private institutions.

COVID-19 pandemic has become one of the biggest hindering threats to education service delivery worldwide which requires innovative solutions to overcome this situation and deliver education services to learners. International organizations have paid particular attention to the issue of "Education Response in Crises and Emergencies". UNESCO (2015) stated in the Education 2030

Incheon Declaration and Framework for Action that countries should "provide alternative modes of learning and education for children and adolescents who are not in school at both the primary and secondary levels, and put in place equivalency and bridging programmes, recognized and accredited by the state, to ensure flexible learning in both formal and non-formal settings, including in emergency situations" (p. 38). Specifically in China, to contain the COVID-19, the Chinese government has banned most-face-to-face activities, including teaching.

The Chinese Ministry of Education has launched an initiative entitled "Disrupted Classes, Undisrupted Learning" to provide flexible online learning to hundreds of millions students from their homes (UNESCO-INRULED, 2020). As per the assessment of the researchers, it is uncertain to get back to normal teaching anytime soon. These circumstances make us realize that scenario planning is an urgent need for academic institutions (Rieley, 2020). This is a situation that demands humanity and unity. There is an urgent need to protect and save our students, faculty, academic staff, communities, societies, and the nation as a whole. Large-scale, national efforts to utilize technology in support of remote learning, distance education and online learning during the COVID-19 pandemic are emerging and evolving quickly. Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning,… etc.) have in common the ability to use a computer connected to a network, that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means" (Cojocariu et al., 2014).

Online learning can be termed as a tool that can make the teaching–learning process more student-centred, more innovative, and even more flexible. Online learning is defined as "learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students" (Singh & Thurman, 2019). There is a requirement of a quick shift to online learning mode; therefore, the products by Google can be really useful under such problematic situations; they are (a) Gmail, (b) Google Forms, (c) Calendars, (d) G-Drive, (e) Google Hangouts, (f) Google Jam board and Drawings, (g) Google Classroom, and (h) Open Board Software (not a Google product, helps in recording meetings in the form of files). These tools can successfully be used as an alternative for face-to-face classes (Basilaia et al., 2020). During this tough time, the concern is not about whether online teaching–learning methods can provide quality education; it is rather how academic institutions will be able to adopt online learning in such a massive manner (Carey, 2020). Amidst this deadly virus spread, such online platforms are needed where (a) video conferencing with at least 40 to 50 students is possible, (b) discussions with students can be done to keep classes organic, (c) internet connections are good, (d) lectures are accessible in mobile phones also and not just laptops, (e) possibility of watching already recorded lectures, and (f) instant feedback from students can be achieved and assignments can be taken (Basilaia et al., 2020).

On the other hand, extended interrupted education that disengages students from the learning process has the potential cost of reversing gains in learning results. School closings also impact labour supply as they increase the burden on parents, who need to stay home or find new arrangements if children have to stay at home (even worse if playground and children centres are closed). During the present pandemic crisis when the entire globe is sailing amid the storm, technology has played a pivotal role. Especially in the education system E-learning has been found to be a significant tool for effectively continuing the teaching-learning process during the lockdown. The web has become one of the important mediums of learning that opens the door for people around the world to access education easily at free or lesser cost (Noor-Ul-amin, 2013). Some countries are simply putting resources on their website, and making available more products, but not necessarily online classes. WhatsApp instant messaging application is relatively a new phenomenon, little research exists regarding its influence as a tool for instruction among teachers in SHS in Tema Metropolis.

Theorethecal Review

i. Technology Acceptance Model (TAM)

In the area of research to investigate the individual acceptance behaviour on information technology and information systems, many models were suggested. According to Nikola and Granic (cited in Durodolu, 2016) states that "to come to a better understanding of the circumstances surrounding the evolution of many models of technology acceptance, a concise narrative of theories and models preceding its manifestation is essential; most especially now that the use

of technology has permeated every aspect of human life, which makes it imperative to understand why technology is rejected or accepted" (p. 9). These models include the Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT).

TRA developed by Martin Fishbein and Icek Ajzen in 1975, allows the prediction of intentions and behavior (Nguyen, Lobo, & Greenland (2017), and it has been widely used in related sustainability research. Recent, studies have applied TRA for energy, green IT technology (Mishra, Akman, & Mishra, (2014).

Icek Ajzen's in 1988 developed TPB that provided a solid framework for exploring faculty intentions of online teaching. Ajzen's model has received substantial research support in recent years from social scientists (Ajzen, 2011).

UTAUT developed by Venkatesh in 2003, was founded with integration of eight theoretical models: (i) Motivational Model, (ii) TPB, (iii) TAM, (iv) TRA, (v) Model of PC Utilization, (vi) Innovation Diffusion Theory, (vii) Combined TAM-TPB, and (viii) Social Cognitive Theory (Slade et al., 2015; Šumak & Šorgo, 2016; Liebenberg et al., 2018).

The TAM, TRA, TPB, and UTAUT have been used over the years by various researchers to explain the adoption technology systems. These studies provide different context and methodology measuring different variables using different models in different settings. Thus, the comparisons of the study confirmed that TAM was easy to apply across different research settings. Lai and

Zainal (2015) noted that using TAM capability was favourable compared with TRA and TPB.

According to Durodolu (2016), TAM is gaining popularity for understanding the relationship between humans and technology through Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), Figure 1. In fact, "TAM has been used extensively in literature especially when it comes to understanding user acceptance and usage of new technology" (Darko-Adjei, 2018 p. 13). TAM was originally developed to help understand user acceptance of a new technology, particularly learning management system. The perceived usefulness factor and perceived ease of use factors are major factors in computer use behaviours based on Technology acceptance model. There have been a number of researchers addressing the consumers' adoption of new technologies (Lai & Zainal, 2015).

TAM is an expansion of Ajzen and Fishbein's TRA (Priyanka & Kumar, 2013 p. 144) which was a theory initiated by Davis (1986) and since then has gone through several modifications and validation. The aim of the theory is to describe factors that determine technology acceptance, information technology usage behaviour and to provide a parsimonious theoretical explanatory model Ducey (2013 p.3). Ducey (2013 p. 20) explains that TAM includes PEOU and PU which are the important determinants of technology acceptance and user behaviour. Teo (2013, p. 81) identified various factors that promote the use and acceptance of technology. He enumerates individual differences, social influences, beliefs, attitudes and situational influences as factors that promote the intention to use technology and promote the ability to accept or reject it. In

addition, Teo (2013 p. 81) posited that an individual's behaviour is influenced by an intention to perform the behaviour, in other words, the real performance of the behaviour is heralded by a person's behavioural intention to engage in the activity. TAM is a prominent theory that seeks to investigate the attributes that influence technology adoption. Ducey (2013, p. 3) also described it as a parsimonious theory of technology adoption in an establishment which intends that individual responses toward a technology can trigger intentions or curiosity to use the technology, which in due course can influence actual usage. Also important to TAM is intention which can also be used to envisage and predict the eagerness and motivation to perform behaviour and a number of skills. Such intention is determined by three factors: the first is personal in nature which reflects human attitude, the second is a subjective norm which shows social influence and the third is called perceived behavioural control (Huda et al., 2012, p. 272). Therefore, peoples' intention to adopt a particular skill can be anchored on the three important factors stated above.

Previous research has confirmed that TAM is a valid model that represents an important theoretical framework to explain and predict technology acceptance behaviour (Al-Gahtani, 2016). For example, Aypay et al. (2012 p. 264) tested the theory in predicting the intensity of technology acceptance among pre-service teachers and results indicated that there is a relationship between the model and information acquisition. TAM is a theory that has been extensively used in Information System (IS) research and regardless of the wide acceptability; however the model has a number of limitations. Khan and Woosley (2011, p. 713)

identified certain noticeable limitations of the TAM and conclude that most of the studies validating it involved students in academic atmospheres not business environments, the types of applications studied were predominantly introduction of office software or development applications rather than business applications, and the problem of self-reporting. The TAM measures the variance in self-reported use, which is not necessarily precise. Factors measured in the adaption of Information Technology are also influenced by organization dynamics that are not included in the TAM and also studies only 40% of IT usage. Khan and Woosley (2011, p. 713) recommended that there is need to expand the TAM to embrace social and human factors. Priyanka and Kumar (2013, p. 147) observed the "theory include questionable heuristic value, limited explanatory and predictive power, triviality, and lack of any practical value".

TAM attempts to help researchers and practitioners to distinguish why a particular technology or system may be acceptable or unacceptable and take up suitable measures by explanation besides providing prediction. Even though TAM has been tested widely with different samples in different situations and proved to be valid and reliable model explaining information system acceptance and use. The many extensions to the TAM have been proposed and tested (Lai & Zainal, 2015). The direct influence of perceived ease of use(PEOU) and perceived usefulness (PU) on attitude and again these perceived ease of use and perceived usefulness have also influenced the intention to use and use indirectly mediated by them as indicated in Figure 1. As a result, this study will recommend a model by adding PE, PCo, PC and PT to PU and PEOU to assess the teachers'

perception on the usage of WhatsApp mobile learning in SHS where perception is treated to be similar to intention to use.

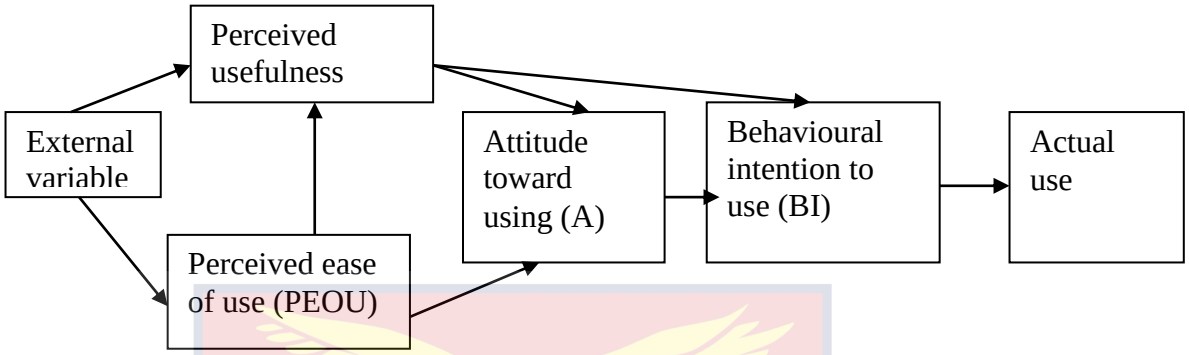

Figure 1: TAM

Source: Davis et al. (1989) User Acceptance of Computer Technology: A Comparison of two theoretical models," Man*agement Science* (35:8), p.982-1003.

Perceived usefulness (PU)

Perceived Usefulness (PU) has proven to be a very important factor for technology adoption in most recent studies (Yeh & Teng 2012, p. 525). According to Davis (cited in Darko-Adjei, 2018, p. 14), "PU is defined as the degree to which a person believes that using a particular system would enhance his or her job performance". In TAM framework, Figure.1, PU is hypothesized to be the direct predictor of behavioural intention to use (BI) of the technology of interest (Park, et al., 2014). Previous studies indicate that PU is positively associated with continuance intention in the context of e-text (Baker-Eveleth & Stone, 2015), instant messaging (Wang, Ngai, & Wei, 2011), e-learning (Lin & Wang, 2012) blog learning (Tang, Tang, & Chiang, 2014). As a result, this study will recommend a model by dropping PU to assess the teachers' perception on the

usage of WhatsApp mobile learning in SHS where perception is treated to be similar to intention to use.

Perceived Convenience (PCo)

In terms of user evaluation of service experiences, the term convenience refers to an individual's preference for convenient product and services (Hsu & Chang, 2013).There are few researches exploring the factors that affect (English) mobile learning (Park, Nam & Cha, 2011), so the purpose of the present study was to extend the TAM, proposed by Davis, with another external factor (PCo), Figure. 2, which is one of the features of mobile learning. A recent study on investigating English learning through Personal Digital Assistants (PDAs) done by Chang et al. (2012) showed significantly positive effects of PEOU on PCo, PCo on PU, PCo on attitude toward using PDAs. On the basis of studies of Chang et al. (2012), we define three dimensions of PCo, namely, place, time, and execution, in the present study. Chang et al. (2012) found that PEOU had a positive influence on users' perception of convenience in their studies. As a result, this study will recommend a model by dropping PCo to assess the teachers' perception on the usage of WhatsApp mobile learning in SHS where perception is treated to be similar to intention to use.

Perceived Effectiveness (PE)

ICT plays a vital role in the development of any nation. It has been an instrument for achieving social, economic, educational, scientific and technological development (Adedeji, 2010). The application ICT is not only emphasised in corporative business and the industrial sector, but it is an essential

part of education at all levels (Allen, 2011). Greater access to and demand for technology has presented unique opportunities and challenges for many industries, some of which have thrived by effectively digitizing their operations and services (e.g., finance, media) and others that have struggled to keep up with the pace of technological innovation (e.g. education, healthcare) (Gandhi, Khanna, & Ramaswamy, 2016). Integrating technology into teaching and learning is not a new challenge for universities. Since the 1900s, administrators and faculty have grappled with how to effectively use technical innovations such as video and audio recordings, email, and teleconferencing to augment or replace traditional instructional delivery methods (Kaware & Sain, 2015; Westera, 2015).

However, in most schools, technical difficulties sought to become a major problem and a source of frustration for students and teachers and cause interruptions in teaching and learning process. If there is lack of technical assistance and no repair on it, teachers are not able to use the computer for temporarily. The effect, as seen in Figure. 2, is that teachers will be discouraged from using computers because of fear of equipment failure since they are not given any assistance on the issue. Türel and Johnson's study (2012) revealed that technical problems become a major barrier for teachers. These problems include low connectivity, virus attack and printer not functioning. However, there are a few exceptions. Schools in the countries like Netherland, United Kingdom and Malta have recognized the importance of technical support to assist teachers to use ICT in the classroom. According to Winzenried, Dalgarno and Tinkler (2010) teachers who have gone through ICT course are more effective in teaching by

using technology tools as opposed to those that have no experience in such training. As a result, this study will recommend a model by adding PE to the existing model to assess the teachers' perception on the usage of WhatsApp mobile learning in SHS where perception is treated to be similar to intention to use as shown in Figure. 2.

Perceived Cost (PC)

According to Davis (as cited Zainab, Awais Bhatti, and Alshagawi,2017, p. 2), TAM was adapted from TRA to evaluate elements that can influence either the rejection or adoption of technology. The theoretical base of TAM is the TRA which is done to postulate the fundamental linkage between PEOU and PU, individual attitudes, behavioral intentions and technology usage. The determinants of attitude in TRA are substituted with PU and PEOU in TAM. PEOU and PU are the two vital variables of TAM. Studies have used TAM in the prediction of technology acceptance (Park, Kim, & Kim 2014; Purnomo & Lee, 2013) as the model has been validated and believed to be prominent in the examination of technology adoption. TAM has been further extended with several sets of acceptance determinants for developing subsequent prominent models capable of better predicting user's behavior across different fields of application (Venkatesh et al., 2012). Cost, inadequate infrastructure and human capabilities have been identified as other variables of TAM (Harfoushi & Obiedat 2011; Nneka Eke, 2010).

PC is the cost that is incurred in the process of technology adoption (Machogu & Okiko, 2012). The standard of electronic training platforms to be

provided is contended to be affected by cost (Özbek et al. 2015). According to Ogunseye, and Sharma (as cited in Zainab, Awais Bhatti & Alshagawi 2017) "PC involves cost of hardware, stable supply of power, employment and retaining technicians as well as cost of e-training continuity" In addition, cost can arise from planning, organizing and putting the new system into practice (Machogu & Okiko, 2012). Although PC has been argued to be a barrier to technology adoption (Machogu & Okiko, 2012) an organization can invest in technology adoption if returns on investment are attractive (Harfoushi & Obiedat, 2011).

Studies have argued that perceived cost is usually considered as a barrier to system usage and adoption (Machogu & Okiko, 2012). Cost can arise from the new way of operation which includes organizational cost spent on planning, organizing and putting the new system into practice. This was further buttressed by Machogu & Okiko (2012) when they stated that perceived cost involves the cost of technology acquisition as well as savings that will be derived from system usage by the organizations. These relative costs are likely to influence the adoption of the new system (Machogu & Okiko 2012).

Perceived Trust (PT)

Trust is an idea related to the self-confidence, hope, reliability, dependence, integrity, and capacity of an entity. The main problem for a user is a basis of trust in something. Issues of trust and acceptance become critical for the customer. According to Liébana-Cabanillas et al. (2014) mobile payments using Virtual Social Networks (VSN), other important factors arise which have to be added to the payment model such as: external influences, ease of use, usefulness,

attitude, trust and risk as they might increase the intention of use by the customer. Many research works on trust according to Gefen (as cited in Maqableh, 2015) showed that trust and familiarity influence E-commerce. Based on a survey study, two main aspects of book selling on the internet were highly affected by the trust and familiarity of the internet vendor. Customer trust was highly supported to have a critical role in hindering fears related to using mobile internet services as well as motivating customers to adopt such systems. (Hollingsworth & Dembla, 2013).Other studies to mention a few, Aloudat et al., 2014) were also able to support the role of trust in shaping a positive customer perception about the values and benefits of using mobile internet. As a result, this study will recommend a model by dropping PC to assess the teachers' perception on the usage of WhatsApp mobile learning in SHS where perception is treated to be similar to intention to use.

Empirical Review

There are many literatures that highlight the impact of Whatsapp in teaching and learning. For instance, a study conducted in Uyo, Akwa Ibom State by Etim, Idongesit & Ema (2016) on Whatsapp utilization and academic performance of Geography students, revealed a significant influence of WhatsApp module utilization on geography students' academic performance.

A study conducted by Steel and Levy (2013) charted language students and their evolving uses of technologies over the five year period from 2006 to 2011. They found that over half the students that were surveyed used online dictionaries, translators, YouTube, social networking, phone applications,

listening tools and language games to supplement and improve their language learning (Steel & Levy, 2013). Indeed, the list of resources is becoming increasingly abundant; however, a widespread function commonly used by native English speaking students and language learners is an online dictionary. Steel and Levy found that the electronic dictionary function available on mobile devices was particularly popular with students because of its usefulness and functional ease.

In their study, Church and de Oliveira (2013) emphasize this fact and state that WhatsApp has grown in popularity due to its benefits such as, being able to send real-time messages to an individual or groups of friends simultaneously, low-cost, and privacy.

According to Echeverría et al. (2011), Mobile Instant Messaging (MIM), especially WhatsApp Messenger, presents multiple academic opportunities to both high school and tertiary students. However, it remains one of the least exploited functionalities of mobile devices both in schools and tertiary institutions (Rambe and Chipunza 2013; Naidoo 2015b). Some of the reasons for this limited exploitation include the perceived nature of text-based messages, limited academic conceptualization of how textual resources may be integrated into mainstream instructional practices, and uncertainties about the academic rigor of discussions generated via text messages (Rambe and Bere 2012).

Conceptual Framework

A conceptual framework is a system of concepts, assumptions, expectations, beliefs, and theories that supports and informs research (Robson,

2011). In a statistical perspective, the conceptual framework describes the relationship between the main concepts of a study. It is arranged in a logical structure to aid provide a picture or visual display of how ideas in a study relate to one another (Osanloo, & Grant, 2016).The framework makes it easier for the researcher to easily specify and define the concepts within the problem of the study (Luse, Mennecke & Townsend, 2012). The conceptual framework offers many benefits to a research. For instance, it assists the researcher in identifying and constructing his/her worldview on the phenomenon to be investigated (Osanloo, & Grant 2014).

The most important constructs in TAM are PEOU and PU (Durodolu, 2016). This current study modifies the TAM by adding PCo, PE, PT, and PC to PU and PEOU of the TAM to determine whether these factors could contribute to the perceived intention of teachers to use WhatsApp for instruction in SHS in the Tema Metropolis. Figure 2 shows the conceptualized TAM modified.

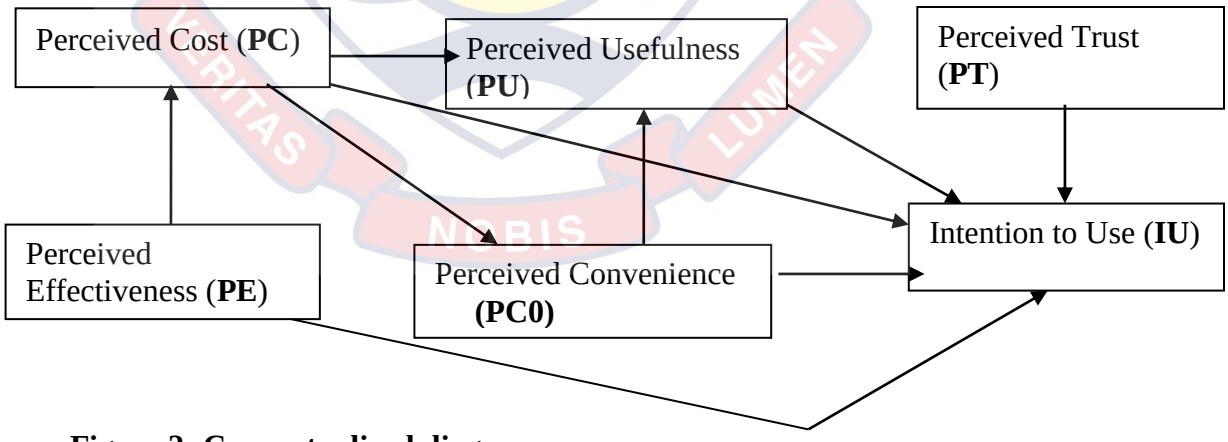

Figure 2: Conceptualized diagram

Source: Owusu-Boakye, (2020)

Chapter Summary

The purpose of the study is to determine SHS Teachers' perceptions about the usage of WhatsApp instant messaging application for instruction Tema Metropolis schools. This chapter takes a look at the previous studies about the concept of ICT in Education, the concept of SM, the concept of Application of SM in Education, CoVID-19 Pandemic and Modes of Educational Delivery at Schools and TAM.

A few past research articles have indicated that using ICT, SM as an educational tool for instruction in academic coursework during situations as in the case of DTS of education in Ghana and pandemics in the case of CoVID-19 increases the learning achieved by an individual student. Previous research has confirmed that TAM is a valid model that represents an important theoretical framework to explain and predict technology acceptance behavior. Therefore, this literature review is intended to provide useful insights about teachers' perception for using WhatsApp for instruction or learning. As a result, this study will recommend a model by adding PCo, PE, PT, and PC to PU and PEOU of TAM to determine whether these factors could contribute to the perceived intention of teachers to use WhatsApp instant messaging application for instruction in SHS in the Tema Metropolis, where perception is treated to be similar to intention to use.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter outlines the methods used in the research work. The research design and procedures used in the study are described under the following sub – headings: research design, study area, population, sampling procedures, data collection instruments, data collection procedures , data processing and analysis and chapter summary.

The current study therefore seeks to determine SHS teachers' perceptions on the usage of WhatsApp instant messaging application for instruction in Tema Metropolis schools. The main purpose of the study is to:

1. Determine teachers' intentions to use WhatsApp Messenger for teaching based on gender.
2. Determine teachers' intentions to use WhatsApp messenger for teaching based on the number of years of WhatsApp Messenger usage.
3. Determine the correlation between the latent variables and the number of years of WhatsApp messenger usage.
4. Examine the predictors that best explains a significant portion of teacher's intention to use WhatsApp Messenger for teaching.

Research Design

Creswell (2012) states that a research design is an overall plan for enhancing the researcher's internal and external plan in order to improve the research internal and external validity. Trefry (cited in Darko-Adjei, 2018) posit

that "research methodology is a way to systematically solve a research problem and may also be understood as a science of studying how research is done scientifically" (p. 66). It consists of the research approach, starting from the theoretical underpinning to the collection and analysis of data.

Quantitative description research design is utilized in this research. Descriptive research was used because; the data that was collected examined the perceptions of professional teachers WhatsApp usage for instruction. Descriptive research was deemed most appropriate for the study because it involved the collection of data in order to answer questions concerning current status of the subject matter under study. It was meant to determine and reveal the way things are. The survey method of descriptive research was used to determine and search for information about the situation at hand and included data from questionnaire and the researcher's own observations. Descriptive research was considered equally appropriate in the sense that it gathers numerical data that can be converted and make use of tools such as questionnaires, surveys, measurements and other equipment to manipulate statistical data using computer techniques (Babbie, 2010).

The kind of quantitative design utilized in this research is a survey. A survey is a structured set of questions given to a group of people in order to measure their attitudes, beliefs, values or tendencies to act (Gbeze, 2014). According to Gbeze, (2014), "surveys provide a high level of general capability in representing a large population" (p. 67). As noted by Jaeger, (cited by Yin, 2016) "survey provides accurate data analysis to describe specific characteristics of a

large group of population" (p. 27). Although there are many data collection methods for research, most researchers especially in the social sciences and education prefer the survey method because it is believed to come with many advantages and benefits (Gbeze, 2014). Some of the merits of survey include;

1. "The numerous numbers of research participants who readily answer surveys leads to quite a high percentage of representation of the entire population, hence the attributes that the larger population exhibits will be extracted in a survey.
2. The high representativeness brought about by the survey method; it is often easier to find statistically significant results than other data gathering methods.
3. Surveys can be administered to the participants through a variety of ways hence; the questionnaire can simply be sent via e-mail or fax, or can be administered through the internet.
4. The ability to use surveys in scientific research allow participants with a standardized stimulus. Furthermore, high precision and reliability can be achieved thereby eliminating researchers' biases" (Gbeze, 2014, p. 67).

However, although surveys have a lot of advantages, few disadvantages can be of concern when using surveys for research purposes. These include and not limited to;

1. Any controversies that may occur during survey questions may not be responded too in the right manner hence the truth behind these

controversies may not be relieved as accurately as when using alternative data gathering methods such as face-to-face interviews and focus groups.

2. A demerit to talk of in survey again is that since questions in surveys are normally standardized proceeding the administration of surveys to research participants, the researcher is therefore forced to create questions that are general enough to accommodate the general population. However, these general questions may not be as appropriate for all the participants as they should be. For instance, survey questions focusing on affective variables, or variables that deals with emotions; hence survey design is the most appropriate for this study although it possesses these disadvantages (Gbeze, 2014, p. 68).

Study Area

The research is carried out by the researcher in the Tema Metropolis, the industrial and harbour city in the Greater Accra region of Ghana. Many of the SHS around the city provide higher quality educational learning to the local students. Consequently, SHS in Tema Metropolis is selected by the researcher as the subject of study.

Population

According to Sheldon (cited in Darko-Adjei, 2018, p. 68), a population is an entire group from which information is required. Agbofa (2012) defines it as the "target group which the researcher is interested in gaining information and drawing conclusions is known as the population" (p. 32). Basically, population is the complete number of subjects that a sample will be drawn from. It is for the

benefit of the population that researches are done. Be that as it may, because of the enormous sizes of the population, researchers frequently cannot test each person in the population on the grounds of excessive cost and tedious, exceptionally hard to examine an enormous number of populations at a given time, just to mention a few.

The participants who took part in the research are mainly professionally trained teachers in the Tema Metropolis selected from six (6) public SHS. At the time of the research, four hundred and eight (408) professionally trained teachers from a variety of ethnic backgrounds, academic and professional and language abilities are selected as the population. These teachers were selected for the study because they have been trained in educational pedagogy and methodology of teaching that will help them to provide the needed information to make this research accurate and authentic; and who will in turn train other teachers.

The population was made of 259 males and 149 females, who hold academic and professional qualifications in Diploma, First degree and Master's degree, as well as working experiences of a range up to sixty (60) years. These include professionally trained teachers from the following schools as shown in Table 1:

Table 1: Study Population

S/N	Name of School	Location	Males	Females	Number of Teachers
1.	Tema SHS (Temasco),	Community Five	68	33	101
2.	Chemu SHS	Community 4. Republic Road	54	28	82
3.	Tema Methodist Day SHS	Community Eleven	50	36	86
4.	Presbyterian SHS	Community Eleven	35	25	60
5.	Our lady of Mercy SHS	Baba Yara St. Community One	35	15	50
6.	Manhean SHS	Tema New Town	17	12	29
TOTAL			**259**	**147**	**408**

Source: Field Data, (2020)

Sampling Procedures

A sample is a subset of the population, selected so as to be representative of the larger population (Acharya, Prakash, & Nigam, 2013). Alvi (2014, 2016) defines "sampling as the process through which a sample is extracted from a population" (p. 11). The sample must have adequate size to warrant factual and statistical analysis. The more the sample is representative of the population, the higher is the accuracy of the inferences and better are the results generalizable (Alvi, 2016). Sampling is used usually because it is impossible to test every single individual in the population (Acharya, Prakash, & Nigam, 2013; Alvi, 2016). It is also done to save time, money and effort while conducting the research (Acharya, Prakash, & Nigam, 2013; Alvi, 2016).

There are various kinds of sampling procedures that a researcher can embrace for a research study. These include simple random sampling, convenience sampling, quota sampling, stratified sampling, cluster sampling and purposive sampling, just to mention a few. According to Darko-Adjei, (2018), the accessibility of the proposed subjects and the nature of the research can decide the kind of sampling technique that will be adopted for a study (p. 72).

In this study, the researcher used the homogeneous sampling category of purposive sampling procedure to obtain the sample size. Purposive sampling (also known as judgment, selective or subjective sampling) is a sampling procedure that a researcher relies on his or her own judgment when choosing members of population to participate in the study. According to Arikunto (2010, p. 183), purposive sampling is the process of selecting sample by taking subject that is not based on the level or area, but it is taken based on the specific purpose. Purposive sampling is used by a researcher to subjectively select teachers based on who he/she thinks will be representative of the population (Polit & Beck, 2012). Therefore the researcher adopted the homogeneous sampling category of purposive sampling to obtain One hundred and twenty five (125) teachers within a period of one month from the survey out of the population of 408 professionally trained teachers in the selected six (6) SHS in Tema Metropolis.

According to (Saunders, Lewis & Thornhill, 2012) homogeneous sampling "focuses on one particular subgroup in which all the sample members are similar, such as a particular occupation or level in an organization's hierarchy" (p. 288).With this sample size purposively obtained, the researcher

decided to close the survey from respondents having access. This then guaranteed that the sample chosen was a representative of the total population. In turn, the statistical conclusions drawn from analysis of the sample will be valid (Gbeze, 2014).

Data Collection Instrument(s)

A research instrument is a written list of questions, the answers to which are recorded by respondents. In the works of Darko-Adjie (2018), "instrumentation refers to the tools or means by which investigators attempt to measure variables or items of interest in the data-collection process." (p. 73).

A questionnaire was constructed and utilized by the researcher to collect data which was relevant to the objectives of the study. The items in the questionnaire arrived out of the literature review, previous studies and researcher's own personal experience. Chandra, (cited in Darko-Adjei, 2018) states that "a questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in by himself" (p.74). The questionnaire is a broadly utilized and useful instrument for collecting survey information providing structures, often numerical data, being able to be administered without the presence of the researcher and often being comparatively straight forward to analyze.

The reasons for the choice of a questionnaire for this study can be evidenced from its characteristics such as saving the researcher's time as each teacher enters his/her responses on the questionnaire loaded on Google Forms online; as compared to the time required to conduct personal interviews. Again it

is very economical as compared to interviews and respondents have the feeling that, they will remain anonymous and this will enable them to give out an objective view as the purpose of a study demands. In spite of the strengths of the questionnaires stated above, it has some challenges associated with it such as not providing an opportunity to collect additional information through observation, probing, prompting and at times the inability to clarify questions while they are being completed. This was evidenced during the lock-down in the peak of Covid-19 epidemic. In spite of these weaknesses, the questionnaire is considered the most suitable for the nature and purpose of this research.

The questionnaire was divided into two main sections or parts, sections A and B. Section A, (questions 1-5) was on demographic information of the respondents. These included age, gender, highest educational qualification, subject area and teaching experience of the respondents. Parts of the questionnaire in section A (questions 6-9) for the study were "Yes" or "No" responses which sought to find the information and communication usage of the respondents.

Section B (questions 10-34) elicited information on the perceptions of SHS teachers in the Tema Metropolis towards the use of WhatsApp for teaching and learning. Section B questionnaire comprised closed-ended questions, and was based on the four-point Likert-type scale, ranging from 1 to 4, where strongly disagree = 1, disagree = 2, agree = 3, and strongly agree = 4 as described by Nemoto and Berlar (2014.) This type of responses has been found to be suitable for the measurement of attitudes and perceptions. This is because it enables

respondents to indicate the degree of their belief in a given statement, Best and Khan (as cited in Agbofa, 2012).

The questionnaire was put into six constructs namely; Perceived Cost (PC), Perceived Usefulness (PU), Perceived Effectiveness (PE), Perceived Convenience (PCo), Perceived Trust (PT) and Intention to Use (IU). Based on that, items 31 and 32 sought information on SHS teachers' PC on the use of WhatsApp for teaching and learning. Items 10 to 14 also sought information on SHS teachers' PU on the use of WhatsApp for teaching and learning. PCo construct was also found in items 15 to 19. Information on SHS teachers' PE on the use of WhatsApp for teaching and learning was asked from questions 20 to 24. Items 33 and 34 asked SHS teachers' perception on the use of WhatsApp for teaching and learning based on PT. Finally the construct, IU produced the questions 25 to 30 from SHS teachers' perception on the use of WhatsApp for teaching and learning. The complete instrument is included as Appendix A.

Validity issues

Validity of a research instrument assesses the extent to which the instrument measures what it is designed to measure (Robson, 2011). It is the degree to which the results are truthful, so that it requires research instrument (questionnaire) to correctly measure the concepts under the study (Pallant 2011).The self-constructed questionnaire was successful based on the purpose of the study, the research questions and the review of related literature. Validity and appropriateness of the questionnaire were supervised by the research supervisor from the University of Cape Coast who examined it and made necessary

corrections in the wording of some items, reframed some questions to the level of respondents to comprehend in order to provide the true answers as the objectives of the study demanded

Reliability issues

Reliability measures what it is expected to measure (Polit & Beck, 2012).). According to Bryman, (as cited in Anaman, 2017, p. 50), "the reliability of scales is at the heart of quantitative methodological research in social science that uses survey". If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable. A reliability analysis test was run to evaluate the internal consistency of survey instruments.

A construct becomes reliable and trustworthy, when the reliability coefficient of the construct is high. Tashakkori Taddlie, (as cited by Darko-Adjei, 2018, p.77), the reliability coefficient should be or above 0.70 in order for it to be considered reliable. The Cronbach alpha coefficient was adopted to check for the reliability of each construct used in the study. The Cronbach alpha coefficient is commonly used for testing reliability; it looks at the internal consistency among the items in the scale (Choga & Kim, 2015). The Cronbach alpha coefficient of 0.909 for 34 items (Appendix B) from 17 respondents for the pilot study which is above 0.70, deemed acceptable, based on the common threshold values recommended by accepted literature (Tashakkori & Taddlie, 2010).The values as shown in Tables 2, 3 and 4 are either close to or above 0.70. For instance, Malhotra in 2004 as cited in (Darko-Adjei, 2020) indicated that all values which

are more than 60% (0.60) should be accepted. Tables 2, 3, and 4 shows the reliability of constructs number of Items Cronbach Alpha acceptable for the questionnaire of the study.

Table 2: Operational Definitions for the Constructs of the Study and Measured Item, PU

Constructs	Cronbach's Alpha (α)	Operational Definition		Measured Items
Perceived Usefulness (PU)	0.84	Extent to which teachers enhance their learning (performance and productivity of the lesson) via WhatsApp	PU01	Using WhatsApp can improve the delivery of my course
			PU02	Using WhatsApp can improve my productivity in my course delivery
			PU03	Using WhatsApp can enable me to have more accurate information for my students
			PU04	Using WhatsApp can make it easier to do my tasks as an instructor
			PU05	Using WhatsApp is useful in my study

Source: Field Data (2020)

Table 3: Operational Definitions for the Constructs of the Study and Measured Item for PE, PCo and PT

Constructs	Cronbach's Alpha (α)	Operational Definition	Measured items
Perceived Effectiveness (PE) 0.83	The extent to which WhatsApp enhanced the delivery of the lesson in terms of organising content and other Technologies	PE01	WhatsApp can make content of the lesson to be well delivered
		PE02	WhatsApp can make organization of the lesson appropriate, logical and clear
		PE03	WhatsApp can ensure that the lesson was well supported by examples
		PE04	The activities within WhatsApp makes me identify the importance of learning with the aid of technology
		PE05	I feel empowered by using WhatsApp
Perceived Convenience (PCo) 0.78	The level of convenience toward time, place and execution that one feels when pursuing a task via the WhatsApp.	PCo01	WhatsApp is easy to use
		PCo02	It is easy to get WhatsApp to do what I want it to
		PCo03	Using WhatsApp can improve my objectives for clear and understandable course delivery
		PCo04	Interacting with WhatsApp does not require a lot of mental effort
		PCo05	It is easy to find information through the usage of WhatsApp.
Perceived Trust (PT) 0.90		PT01	My school would provide means for internet for using WhatsApp messenger for teaching
		PT02	My school would provide means for obtaining an electronic device for teaching

Source: Field Data, (2020)

Table 4: Operational Definitions for the Constructs of the Study and Measured Item for PC,IU

Constructs	Cronbach's Alpha (α)	Operational Definition	Measured Items
Perceived Cost (PC)	0.84	PC01	Using WhatsApp could mean internet cost for me
		PC02	Using WhatsApp could mean obtaining an electronic device
Intention to Use (IU)	0.86	IU01	I can use WhatsApp to get more information from colleagues concerning my subject
		IU02	WhatsApp can provide an attractive working environment
		IU03	Using WhatsApp can be a pleasant experience
		PU04	I believe it will be a good idea to use WhatsApp for teaching my courses
		PU05	Knowing how to use any form of electronic device is a worthwhile skill
		PU06	I have a generally favourable attitude towards using WhatsApp as a cheaper means of instruction

Source: Field Data, (2020)

Pilot Study

My supervisor reviewed the questionnaire to assist in establishing face and content validity, though, face validity by the supervisor may not possess strong evidence of validity. It is relevant to allow an expert to find out if the instrument looks like it is measuring what it is expected to measure (Polit & Beck, 2012). Likewise, the content validity relates to the extent to which a tool is measuring adequately what it intends to measure (Polit & Beck, 2012).

In other to ensure the validity and reliability of the tool for the study, the questionnaire was pre-tested at Tema Technical Institute in the Tema Metropolis that was not selected for the study. The teachers for the pilot study are strongly believed to have same features as those who were selected for the main study. The pre-test was meant to establish the face validity and reliability of the instrument and to improve items, format and the scales. An Online Google Form questionnaire was sent to the teachers WhatsApp group platform. Seventeen (17) teachers as summarized in Table 5, results from the pilot test were then correlated using the Cronbach alpha coefficient that was adopted in reliability testing. The value of the reliability coefficient was 0.731 for 34 items, as shown in Table 6.

The pre-testing of instrument helped the researcher to be conversant with the data collection procedure and to check the incomprehension and ambiguity of the questionnaire items. Through the pre-testing of the instrument, statistical tools for the data analysis were confirmed.

Table 5: Pilot Results

	N	%
Cases Valid	17	100.0
Excluded[a]	0 .0	.0
Total	17	100.0

a.Listwise deletion based on all variables in the procedure.

Table 6: Reliability Statistics

Cronbach's Alpha	N of Items
.731	34

Source: Field Data, (2020)

Data Collection Procedure

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes (Kabir, 2016). While methods vary by discipline, the emphasis on ensuring accurate and honest collection remains the same (Kabir, 2016). The goal for all data collection is to capture quality evidence that translates to rich data analysis and allows the building of a convincing and credible answer to questions that have been posed (Kabir, 2016).

The data for this research was collected among SHS professionally trained teachers in the Tema Metropolis using an online questionnaire (Google Forms) since the Covid-19 pandemic globally had led to non-face to face instructions at schools in Ghana. Moreover, Lin and Wang (cited in Vasantha, & Harinarayana, 2016) found that web-based surveys including Google Forms are more reliable

than face to face surveys in terms of response speed, response rate, variable costs, wastage of paper, long travel, time consumption both for researchers and respondents and so on.

A reason of choosing Google forms as a digital questionnaire is because Google form is a free application. Google form is a free service from Google, which emulates an online survey system (Kim & Park 2012). The online questionnaire that is documented using Google Forms was sent to the SHS professionally trained teachers through a listserve and WhatsApp groups platforms of SHS within the metropolis. The survey link and informed consent was sent through this listserve and WhatsApp groups for completion. After delivering research instruments, the researcher collected data for analysis.

Data collection was without problems during the period of one month (2nd September, 2020).The survey link sent to some of the teachers WhatsApp group platforms were not responded to as they were not willing to take part. Secondary, response rate within the one month period was quite slow probably due to inadequate skill in using Google Forms. There was also an increased difficulty in contacting the WhatsApp group administrators to load the survey link onto their school WhatsApp platform due to the lock down of schools during the peak of Covid-19.

Data Process Analysis

According to Burns and Grove (cited in Acheampong, 2016, p. 42) "data analysis is the process of extracting from a given data, the relevant information from which a summarised and comprehensible numerical description can be

formulated". The data collected through questionnaire were analyzed using the IBM Statistics version 25.00 software. Research questions 1 and 2 were analyzed using an independent sample t-test.

A Pearson correlation was run to answer research question 3. A multiple regression analysis was used to analyze research question 4. All outcomes of the results were presented in tables. Percentage and frequencies analysis were also used to represent the views of the teachers and this presented a clearer picture of the responses. This made the data more easily comprehensible.

Summary

The study was successfully carried out within the planned time period. The design for the study is described and the rationale for its adoption has been provided. The population for the study was well estimated. Sufficient data were collected from Google online questionnaire for the study. The sample size was also purposively examined, although the size was small, the data gathered provided key information in response to the research questions.

Validity and appropriateness of the questionnaire were supervised by the research supervisor and made necessary corrections in the items for teachers to comprehend in order to provide the true answers as the objectives of the study demanded. A reliability analysis test was run to evaluate the internal consistency of survey instruments. Other methods deployed for the study, including data collecting procedures, and data analyses were also looked at.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the data and analysis based on the research questions to determine teachers' intentions to use WhatsApp Messenger for instruction in selected five SHS in Tema Metropolis in the Greater Accra Region of Ghana. A set of self-developed questionnaire were administered to 408 professionally trained teachers for the purpose of data collection and analysis using a descriptive statistics. The return rate for the teachers was 30.63% using homogeneous sampling category of purposive sampling. The results are therefore presented and discussed in this chapter. The first part of this chapter describes the demographic characteristics of teachers and their WhatsApp Messenger usage. In the second part, the research discussions are presented based on the research questions and hypotheses that guided the study.

Presentation of Results

The chapter has been organized under the following major sub-headings:

i. Demographic information of Teachers
ii. Objective 1
iii. Objective 2
iv. Objective 3
v. Objective 4
vi. Hypothesis 1
vii. Hypothesis 2
viii. Hypothesis 3

Demographic Information of Teacher

This section highlights the demographic characteristics and WhatsApp usage of teachers from the six selected SHS in the Tema Metropolis. Data

collection was through the use of online questionnaire which includes both open and closed-ended questions based on the objectives of the study. Majority of the teachers were between the ages of 31 to 45 years (n=80, 64 Males and females represented 76(60.8%) and 49 (39.2%) respectively. Also, majority (n=70, 56%) of the teachers had Bachelor's degree, were Science teachers (n=63, 50.4%) and had taught between 5 to 20 years (n=95, 76%).Table.7 summarizes the rest of the demographic information of teachers

Table 7: Demographic Information of Teachers

Description	Frequency	Percentages (%)
Age		
30 years and below	11	8.8
31 – 35 years	31	24.8
36 – 40 years	23	18.4
41 – 45 years	26	20.8
46 – 50 years	16	12.8
51 – 55 years	13	10.4
56 years and above	5	4.0
Gender		
Male	76	60.8
Female	49	39.2
Highest educational qualification		
Diploma	8	6.4
Bachelor	70	56.0
Masters degree	47	37.6
Subject Area		
Sciences	63	50.4
Art	43	34.4
Business	19	15.2
Teaching Experience		
Below 5 years	11	8.8
5-10 years	25	20.0
11-15 years	39	31.2
16-20 years	31	24.8
21 years and above	19	15.2

Source: Field Data, (2020)

The analysis also showed 88(70.4%) teachers owned Smartphone, 25(20.0%) owned tablets and 12(9.6%) owned personal computers. All the

125(100%) teachers use WhatsApp Messenger. Table. 8 summarize the rest of the WhatsApp Messenger Usage.

Table 8: WhatsApp Messenger Usage

Description	Frequency	Percentages (%)
Device Ownership		
Smart phone	88	70.4
Tablet	25	20.0
Personal Computer	12	9.6
WhatsApp Messenger Usage		
Yes	125	100
No	0	0.0
Year of WhatsApp Messenger Usage		
5 years and below	23	18.4
6 years and above	102	81.6
Hours Spent on WhatsApp Messenger Daily		
1 hour and below	22	17.6
2 – 3 hours	26	20.8
4 – 5 hours	18	14.4
6 hours and above	59	47.2

Source: Field Data, (2020)

Table 9 provides an overview of the mean values reported on the entire six (6) constructs by the teachers of the study. Largely, the results indicated fairly high values for all the independent construct: PU (M= 3.19, SD= 0.535), PE (M= 3.13, SD= 0.554), PCo (M= 3.13, SD= 0.554), PT (M= 2.20, SD= 1.087), PC (M= 3.0, SD= 0.608) and IU (M= 3.47, SD= 0.487), as indicated by the overall means.

The descriptive analyses herein seem to suggest that the participants reported positive high perceptions on the usefulness, effectiveness, convenience, trust, and cost of the WhatsApp messenger. The highest mean (PC =3.30) reported is an indication of the relatively large extent participants considered the cost associated with the usage of WhatsApp messenger usage compared to other measures.

All the respective means of the items measured in this variable exceeded 3.0 (See PC01 and PC02).The threshold of mean measured in all the constructs exceeded 3.0 as shown in Table 4, that notwithstanding, the lowest reported measure (PT=2.20) also showed that the teachers did not trust support will be earned in the usage of the WhatsApp messenger. Each mean value of the measured items in this variable was below 2.5 with the highest (M=2.30) reported in PT01: My school would provide means for internet for using WhatsApp messenger for teaching and the lowest (M= 2.10) reported in the items PT02: My school would provide means for obtaining an electronic device for teaching.

The result also showed that participants of the study reported a high mean (Mean= 3.47, SD=0.486) value for the dependent variable (IU). This is an indication of a high user acceptance of the WhatsApp messenger.

Consequently, the findings suggest that teachers who participated in the study have a high intention or willingness to continue to teach via the WhatsApp messenger. Particularly, the teachers reported high scores (mean above 3.0) in the following items: I can use WhatsApp to get more information from colleagues concerning my subject (M=3.61); WhatsApp can provide an attractive working environment (M=3.45);

Using WhatsApp can be a pleasant experience (M=3.50); I believe it will be a good idea to use WhatsApp for teaching my courses (M=3.39); Knowing how to use any form of electronic device is a worthwhile skill (M=3.74); I have a generally favourable attitude towards using WhatsApp as a cheaper means of instruction (M=3.39).

Table 9: Descriptive Statistics of Construct Measures

	Mean	SD	Over All Mean (SD)
Perceived Usefulness			
PU01	3.22	0.706	
PU02	3.20	0.718	3.19 (0.535)
PU03	3.06	0.710	
PU04	3.11	0.663	
PU05	3.37	0.629	
Perceived Effectiveness			
PE01	2.97	0.822	
PE02	2.97	0.718	3.13 (.554)
PE03	2.92	0.781	
PE04	3.43	0.558	
PE05	3.34	0.685	
Perceived Convenience			3.13 (.554)
PCo01	3.61	0.506	
PCo02	3.30	0.648	
PCo03	3.00	0.672	
PCo04	3.30	0.743	
PCo05	3.22	0.739	
Perceived Trust			
PT01	2.30	0.791	2.20 (1.087)
PT02	2.10	0.789	
Perceived Cost			
PC01	3.33	0.791	3.30 (.608)
PC02	3.48	0.789	
Intention to Use			
IU01	3.50	0.591	3.47 (.486)
IU02	3.45	0.641	
IU03	3.50	0.630	
IU04	3.39	0.739	
IU05	3.74	0.494	
IU06	3.39	0.694	

Source: Field Data, (2020)

Discussion

This section focuses on the discussion of the main findings of the study based on research questions or research objectives of the study

Objective 1: To determine the extent of teachers' intentions to use WhatsApp Messenger for teaching based on gender.

Authors such as Tondeur et al. (2016b) and Sáinz and López-Sáez (2010) determined that women have less favorable attitudes towards technology in a general way. Kubiatko et al. (2011) found similar results: men showed more positive attitudes.

Further researchers reported that males had more positive attitudes towards technology than do females (Chou, Wu, & Chen, 2011) According to the ITU World Telecommunication/ ICT Indicators database (2014), more men than women use the internet: globally, 37% of all women are online, compared with 41% of all men.

Some other research studies have shown evidence for supporting the opposite conclusion: males exhibited more negative attitudes toward technology use than their female counterparts (Johnson, 2011)

The t-test results shown in Table 10 indicated no significance difference in all the constructs. Particularly, the results revealed no statistically significant difference ($p > 0.05$) in mean scores for male (Mean=3.45, SD=0.486) and female (Mean=3.56, SD=0.481) with reference to their intention to use WhatsApp messenger for teaching.

Table 10: Differences in Constructs based on Teachers Gender

	Male		Female		
	Mean.	**SD**	**Mean.**	**SD**	**Sig**
Perceived Usefulness					
PU01	3.24	0.728	3.20	0.676	0.801
PU02	3.14	0.706	3.29	0.736	0.286
PU03	2.96	0.701	3.22	0.715	0.044
PU04	3.07	0.639	3.18	0.697	0.333
PU05	3.36	0.582	3.39	0.702	0.779
Overall	**3.15**	**0.474**	**3.26**	**0.618**	**0.288**
Perceived Effectiveness					
PE01	2.89	0.723	3.08	0.954	0.216
PE02	2.92	0.723	3.04	0.954	0.365
PE03	2.95	0.798	2.96	0.763	0.935
PE04	3.39	0.568	3.49	0.545	0.355
PE05	3.28	0.665	3.45	0.709	0.170
Overall	**3.09**	**0.514**	**3.20**	**0.610**	**0.250**
Perceived Convenience					
PCo01	3.58	0.523	3.65	0.481	0.427
PCo02	3.25	0.614	3.37	0.698	0.325
PCo03	2.95	0.586	3.08	0.786	0.277
PCo04	3.18	0.743	3.49	0.711	0.024
PCo05	3.17	0.719	3.31	0.769	0.326
Overall	**3.09**	**0.514**	**3.20**	**0.620**	**0.250**
Perceived Trust					
PT01	2.43	1.135	2.08	1.134	0.092
PT02	2.17	1.136	2.00	1.137	0.413
Overall	**2.30**	**1.074**	**2.04**	**1.098**	**0.190**
Perceived Cost					
PC01	3.21	0.838	3.51	0.681	0.038
PC02	3.45	0.790	3.53	0.793	0.567
Overall	**3.32**	**0.630**	**3.52**	**0.558**	**0.086**
Intention to Use					
IU01	3.41	0.593	3.63	0.566	0.037
IU02	3.43	0.710	3.47	0.641	0.766
IU03	3.45	0.641	3.57	0.612	0.284
IU04	3.38	0.711	3.41	0.788	0.845
IU05	3.68	0.547	3.82	0.391	0. 145
IU06	3.34	0.684	3.47	0.710	0. 319
Overall	**3.45**	**0.486**	**3.56**	**0.481**	**0. 211**

Source: Field Data, (2020)

The results seem surprising since research show a more favorably usage of technologies among men as compared to women. In Table 9, the mean and significant values for the constructs are summarized. However, based on this current study, all the teachers reported using WhatsApp Messenger and also not surprising there was no statistically significance between WhatsApp messenger usage based on gender.

Objective 2: To determine teachers' intentions to use WhatsApp Messenger for teaching based on the number of years of WhatsApp messenger usage.

The t-test results shown in Table 11 indicated no significance difference in the entire independent construct ($p > 0.05$). However, the results revealed a statistically significant difference ($p < 0.05$) in mean scores for respondent that have been using WhatsApp messenger for 5 years and below (Mean=3.31, SD=0.520) and 6 years and above (Mean=3.53, SD=0.470) with reference to their intention to use WhatsApp messenger for teaching. In Table 11, the means and significant values for the construct are summarized.

Table 11: Differences in Constructs based on number of years of WhatsApp messenger usage

	5 years and below		6 years and above		
	Mean	**SD**	**Mean**	**SD**	**Sig**
Perceived Usefulness					
PU01	3.22	0.736	3.23	0.702	0.961
PU02	3.00	0.798	3.25	0.696	0.140
PU03	2.91	0.848	3.10	0.683	0.264
PU04	3.00	0.739	3.14	0.645	0.372
PU05	3.22	0.671	3.40	0.618	0.205
Overall	**3.06**	**0.589**	**3.22**	**0.521**	**0.220**
Perceived Effectiveness					
PE01	2.87	0.815	2.99	0.826	0.527
PE02	2.91	0.668	2.98	0.731	0.686
PE03	2.91	0.733	2.96	0.795	0.792
PE04	3.35	0.573	3.45	0.556	0.426
PE05	3.35	0.647	3.34	0.696	0.976
Overall	**3.07**	**0.558**	**3.15**	**0.555**	**0.603**
Perceived Convenience					
PCo01	3.52	0.511	3.63	0.506	0.368
PCo02	3.13	0.869	3.33	0.586	0.176
PCo03	2.87	0.694	3.03	0.667	0.305
PCo04	3.22	0.736	3.32	0.747	0.538
Overall	**3.07**	**0.558**	**3.15**	**0.555**	**0.603**
Perceived Trust					
PT01	2.22	1.085	2.31	1.160	0.717
PT02	2.09	1.125	2.11	1.142	0.937
Overall	**2.15**	**1.049**	**2.21**	**1.100**	**0.816**
Perceived Cost					
PC01	3.09	0.848	3381	0.771	0.106
PC02	3.35	0.832	3.51	0.780	0.376
Overall	**3.53**	**0.751**	**3.47**	**0.566**	**0.103**
Intention to Use					
IU01	3.30	0.765	3.54	0.539	0.085
IU02	3.22	0.736	3.50	0.609	0.056
IU03	3.35	0.714	3.53	0.609	0.213
IU04	3.17	0.834	3.44	0.712	0.118
IU05	3.78	0.422	3.73	0.510	0.619
IU06	3.04	0.767	3.47	0.656	0.007
Overall	**3.31**	**0.520**	**3.53**	**0.470**	**0.047**

Source: Field Data, (2020)

Objective 3: To determine the correlation between the consructs and the number of years of WhatsApp messenger usage.

The study hypothesized Intention to Use (IU) (dependent variable) of the WhatsApp messenger as a function of teachers reported Perceived Usefulness (PU), Perceived Effectiveness (PE), Perceived Convenience (PC) Perceived Trust, Perceived Cost and Number of years of WhatsApp messenger usage (the independent variables). Among others, the study sought to determine the extent to which PU, PE, PCo, PT, PC and the number of years of WhatsApp usage impacted on teachers' levels of intention to use WhatsApp messenger for teaching and learning. Consequently, an investigation aimed at determining a predictive model of User Intention to Use, using the construct: PU, PE, PCo, PT, PC and the number of years of WhatsApp usage was conducted. Prior to the conduct of the regression analysis, a bivariate correlation was run among the variables. This analysis aimed at promoting understanding of the relationships among the construct and the number of years of WhatsApp usage and their subsequent predictability of the model more precisely. Table 12 gives an overview of the results.

The results showed that there was a correlation between the number of years of WhatsApp usage and two of the constructs (PE: $r = 0.60$, $p < 0.05$ and PCo $r = 0.60$, $p < 0.05$) was moderately strong and statistically significant. The results also showed that there a correlation between the number of years of WhatsApp usage and the intention to use ($r = .18$, $p < 0.05$), even though weak was statistically significant. The number of years of WhatsApp usage, was not statistically significant with both PT ($r = 0.02$, $p > 0.05$) and PC ($r = 0.15$, $p > 0.05$). However,

IU was significantly correlated with three out of the five latent constructs; PU (r =0.5, p< 0.001), PCo (r =0.74, p<0.001) PE (r =0.74, p<0.001) indicating the strongest correlation (r=0.74, p<0.001) for both PCo and PE. This result seems to suggest that the three variables are highly associated to IU and move in tandem but between PCo and PE the relationship is much stronger.

Table 12: Bi-variate Correlation among Constructs and Years of WhatsApp Usage

Constructs	PU	PCo	PE	PT	PC	IU	No. of Years
PU	1.00						
PCo	0.56 *(0.000)***	1.00					
PE	0.56 *(.000)***	1.00 *(0.000)***	1.00				
PT	-.11 *(.216)*	-.051 *(.571)*	-.051 *(.571)*	1.00			
PC	0.20 *(.026)**	0.29 *(.001)***	0.29 *(.001)***	-.30 *(.001)***	1.00		
IU	0.50 *(.000)***	0.74 *(.000)***	0.74 *(.000)***	-.08 *(.373)*	0.38 *(.000)***	1.00	
No. of Years	0.11 *(0.220)*	0.60 *(0.047)**	0.60 *(0.047)**	0.02 *(0.816)*	0.15 *(0.103)*	0.18 *(0.047)**	1.00

*Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)
Source: Field Data, (2020)

Objective 4: To examine the predictors that best explains a significant portion of teachers' intention to use WhatsApp Messenger for teaching.

A regression analysis model was used to explore how well PU, PC, PE. PCo and PT could predict Intention to Use WhatsApp messenger. The results are summarized in Table 9.The F test: F = (4,120) = 43.35 (p <0.001) associated with the independent variables, four of the variables were considered for the model. Of

these, three was significant indicating that these three independent variables significantly on their own can predict the dependent variable.

One construct, PT, was included in the model but was not significant, thus indicating that, on its own, PT cannot significantly contribute to the model but its inclusion to PU, PC and PE makes the model, significant. The observed variable values of the various measures (PU, PC, PE & PT) together significantly have effect on Intention to Use the WhatsApp messenger and consequently can be used in a predictive model. The explanatory power of the variables was also examined, using the resulting R squared. The analyses verified that approximately 76% of the variance in the perceived Intention to use WhatsApp messenger for teaching and learning was attributable to all the four measures: (PU, PC PE and PT). This means PU, PC, PE and PT together accounted for 76% of the variance observed in the participants perceived Intention to Use WhatsApp messenger for teaching and learning. Further, the extent to which each of these measures impacted on Intention to Use was explored. The approximate standardized coefficients (PU = 0.12, PC = 0.18, PE = 0.63 and PT = 0.02) provide answers. Literally, these coefficients represented the level of increase in one's Intention to Use when there is a unit increment in each of the respective independent variables.

Table 13: Coefficients of Predictor Measures (PU, PCo, PE, PT, PC,IU)

	Co-efficient			F-test	
Model	Unstandardized	Standardized	Sig.	F	Sig.
(Constant)	0.929		0.000	43.35	0.000
PU	0.107	0.118	0.048		
PE	0.550	0.628	0.000		
PT	0.008	0.018	0.774		
PC	0.142	0.177	0.006		

Significant at $P < 0.05$; Multiple $R = 0.869$; $R^2 = 0.755$; Adjusted $R^2 = 0.725$
Source:Field Data,(2020)

According to the standardized coefficients the regression model is as follows:

$$IU_{predicted} = 0.12\ PU + 0.18PC + 0.63PE$$

Thus, PE appeared to be the strongest predictor of participants Intention to use WhatsApp messenger for teaching and learning. The results imply that every unit increment in PE will increase one's Intention to Use by 0.63 units. The next best predictor was PC while PU and PT (no statistically significant on its own but contributes to model) was reported as the least among the four.

Results of Hypotheses Testing

Ho1: An investigation aimed at determining if differences existed between the reported construct by gender of the teachers. The t-test results shown in Table 5 indicated no significance difference in all the independent constructs. Particularly, the results revealed no statistically significant difference ($p > 0.05$) in mean scores for male (Mean=3.45, SD=0.486) and female (Mean=3.56, SD=0.481) with reference to their intention to use WhatsApp messenger for teaching.

Ho2: An investigation also aimed at determining if differences existed between the reported constructs by the teacher's number of years of WhatsApp messenger usage. The t-test results shown in Table 6 indicated no significance difference in all the independent construct ($p > 0.05$). However, the results revealed a statistically significant difference ($p < 0.05$) in mean scores for respondent that have been using WhatsApp messenger for 5 years and below (Mean=3.31, SD=0.520) and 6 years and above (Mean=3.53, SD=0.470) with reference to

their intention to use WhatsApp messenger for teaching. In Table 5 the means and significant values for the construct are summarized.

Ho3:.The results showed that there was a correlation between the number of years of WhatsApp usage and two of the constructs (PE: r =0.60, $p<0.05$ and PCo r =0.60, $p<0.05$) was moderately strong and statistically significant.

Summary of Key Findings

Four of the hypothesized predictors (PE, PU, PC, & PT) best explained a significant portion of teacher's intention to use WhatsApp Messenger for teaching and learning in SHS in the Tema Metropolis. This means that the effectiveness of using technology will encourage the user to use the technology. PU is hypothesized to be the direct predictor of behavioural intention to use of the technology of interest. PU is positively associated with continuance intention in the context of e-text, instant messaging, and online travel services just to mention a few.

Similarly, PC has been argued to be a barrier to technology adoption Studies. Finally, customer trust was highly supported to have a critical role in hindering fears related to using mobile internet services as well as motivating customers to adopt such systems. The study observed variable values of the various measures (PU, PC, PE & PT) together significantly have effect on Intention to Use the WhatsApp messenger and consequently can be used in a predictive model.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter is the summary of the objectives or hypotheses as indicated in the preliminary stage of the study. The study investigated the perception of teachers on the usage of WhatsApp instant messaging application for instruction in SHS in the Tema Metropolis.

Descriptive research design was used for the study. The population for the study was all the 408 professionally trained teachers selected from six (6) SHS in the Tema Metropolis. The sample for the study was 125 which were generated through purposive sampling technique. The research instrument used was an online Google Form questionnaire and was designed with the assistance of my supervisor.

The content of the questionnaire was about the perceptions of teachers' usage of WhatsApp messaging application for instruction. The instrument was loaded by the researcher and was accessed by the teachers via their WhatsApp messenger group platform by the researcher. Return rate for the instrument was 30.36%. The SPSS version 25 was used to analyze the data gathered. The data was edited; coded, presented and analyzed using statistical tools such as percentages and frequency tables.

This chapter draws conclusions and makes recommendations from the major findings to help encourage teachers use WhatsApp Messenger technologies for instruction in SHS. In addition, it suggests areas for further research. The major findings are discussed under the following headings:

1. To determine teachers' intentions to use WhatsApp Messenger for teaching based on gender.
2. To examine teachers' intentions to use WhatsApp messenger for teaching based on the number of years of WhatsApp Messenger usage.
3. To determine the correlation between the latent variables and the number of years of WhatsApp messenger usage.
4. To examine the predictors that best explains a significant portion of teacher's intention to use WhatsApp Messenger for teaching.

Descriptive research design was used for the study. The population for the study was all the 408 professionally trained teachers of the selected schools in the Tema Metropolis. The sample for the study was 125 which were generated through homogenous purposive sampling technique. The research instrument used was questionnaire designed with the assistance of my supervisor. The content of the questionnaire was about the perceptions of teachers towards the use of WhatsAPP Messenger for instruction. The instrument was administered by the researcher through online Google Form served to teachers through their WhatsApp group platforms. Return rate for the instrument was 30.36% from the professionally trained teachers.

The SPSS version 25 was used to analyze the data gathered. The data was edited; coded, presented and analyzed using statistical tools such as percentages, frequency tables, t-test and regression analysis.

Summary of Findings

1. The study showed that all the teachers sampled in Tema Metropolis own Smartphone and other digital devices with them for communication and information retrieval purposes
2. Teachers spend more hours using WhatsApp Messenger daily and have used it for more than 6 years and above.
3. Technology adoption in education has less to do with age but it is based more on exposure and experience
4. The study showed that teachers have a high user acceptance or willingness to teach via WhatsApp Messenger
5. The study revealed that teachers have positive high perceptions on usefulness,effectiveness,convenience, trust and cost for the usage of WhatsApp Messenger
6. The study showed that both male and female teachers in the Tema Metropolis have a high favourable user acceptance intention to use technologies,especially,WhatsApp Messenger contrary to previous research
7. The study revealed that Perceived Effectiveness appeared in the results as the strongest or best predictor of teachers intention to use WhatsApp Messenger for teaching though Perceived Cost, Perceived Usefulness and Perceived Trust contributed to the model+

Conclusions

Teachers' perception for the usage of WhatsApp Messenger in SHS as one of the applications for instruction in SHS is the focus of this study. From the findings of this current study, it could be concluded that teachers own Smartphone and other digital devices for communication and information retrieval purposes.

Teachers spend more hours using WhatsApp Messenger daily and have used it for more than 6 years and above. Also teachers are more willing to accept WhatsApp Messenger for instruction and that long-term use of information technologies affects users.

Teachers have positive high perceptions on usefulness, effectiveness, convenience, trust and cost for the usage of WhatsApp Messenger for instruction.

Both male and female teachers in the Tema Metropolis have a high favorable user acceptance intention to use technologies, especially, WhatsApp Messenger contrary to previous research.

Perceived Effectiveness is the strongest or best predictor of teachers' intention to use WhatsApp Messenger for teaching though Perceived Cost, Perceived Usefulness and Perceived Trust contributed to the model.

Recommendations

On the basis of the findings and the conclusion drawn, the following are the recommendations made:

1. **Adequate Orientation and Training on the WhatsApp Instant Messaging Application:** It is recommended that, the Ministry of Education (MoE) through Ghana Education Service (GES) should provide

adequate orientation and training to all teachers on the use of the WhatsApp Messenger Application. Much emphasis should be put on the tool that is required to be used by the teachers. This will ultimately create awareness about the tools as well and help the teachers navigate on the software.

2. **Redesigning of WhatsApp Messenger Interface:** it is the recommendation of the researcher that the designers of the WhatsAPP Messenger application should redesign its interfaces to look more flexible, user-friendly and customizable to reflect the needs and goals of the highest number of end users.

3. **System Upgrade:** In addition, the designer of WhatsApp Messenger should make a conscious effort to upgrade the software to accommodate more features of learning management systems (LMS) .Also, tutors should be motivated to spend ample time on the WhatsApp platform to address questions that are put across by students and also they should engage students with pertinent discussion on topical areas of subjects under study.

4. **Policy Formulation:** The Government of Ghana through the Ministry of Education should formulate policies that will allow the use of WhatsApp Messenger as one of the means to support instruction between teachers and students.

5. **Stakeholders Partnership:** It is further recommended that the government of Ghana and the telecommunication companies engage in

stakeholders consultations that will provide affordable internet service to school to argument the effective use of the WhatsApp Messenger

6. **Guidance and Motivation:** Teachers should try to encourage their students to call them in times of trouble in their studies and learn to use WhatsApp instant messaging application in all facets of their preparations, presentation and evaluation in the instructional processes in schools.

Suggestions for Further Study

This study dealt with SHS teachers. In view of this, there is the need to investigate the following;

1. Further research should be carried out to examine JHS and elementary schools teachers' perceptions and adoption of WhatsApp instant messaging application as well.
2. It is also suggested that further research be conducted to find out the perceptions of other educational stakeholders such as parents towards the use of WhatsApp instant Messaging application for instruction.
3. If WhatsApp instant messaging application becomes a common tool for teachers and students in and outside the classroom, there will be need for further research in order to identify user properties and the best way to integrate them into educational and pedagogical goals for Ghana and beyond.

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APPENDIX A

QUESTIONNAIRE FOR TEACHERS
UNIVERSITY OF CAPE COAST

COLLEGE OF DISTANCE EDUCATION

PERCEPTIONS OF THE USAGE OF WHATSAPP FOR INSTRUCTION IN SCHOOLS: A CASE STUDY IN SENIOR HIGH SCHOOLS IN IN THE TEMA METROPOLIS

This questionnaire seeks to gather information on Senior High School teachers' perceptions on the usage of WhatsApp for instruction. Kindly provide response to the questionnaire based on your experiences as a professionally trained Senior High School teacher. Be assured that all information provided will be confidential. For this reason, you are kindly asked **NOT** to write your name on this questionnaire.

Thank You.

Please tick (√) and provide responses (answers) where applicable.

PART A: DEMOGRAPHIC INFORMATION

1. Age:

Below 30 [ ]

31-35 [ ]

36-40 [ ]

41-45 [ ]

46 – 50 [ ]

51-55 [ ]

Above 56 [ ]

2. Gender:

   a. Male [ ]

   b. Female [ ]

3. Highest educational qualification :

   Diploma [ ]

   Bachelor [ ]

   Masters degree [ ]

   Other (specify) _____

4. Which subject area do you teach?

   Science [ ]

   Art [ ]

   Business [ ]

5. Please, indicate your teaching experience

   Below 5 years [ ]

   5-10 years [ ]

   11-15 years [ ]

   16-20 years [ ]

   above 20 years

6. Which of the following devices do you own?

   Smart Phone [ ]

   Tablet [ ]

   Personal Computer [ ]

   Desktop Computer [ ]

7. Do you use WhatsApp messenger?

   YES [ ]

   NO [ ]

8. How long have you been using WhatsApp Messenger?

   Below 5 years [ ]

   Over 5 years [ ]

9. How many hours do you spend using WhatsApp?

   1 Hour & below [ ]

   2-3 Hours [ ]

   4-5 Hours [ ]

   6 Hours & Above [ ]

PART B: PERCEIVED WHATSAPP USAGE FOR INSTRUCTION

Note the meaning of the following responses:

- **Strongly Disagree (SD):** You strongly disagree with the statement
- **Disagree (D):** You disagree with the statement
- **Agree (A):** You agree with the statement.
- **Strongly Agree (SA):** You strongly agree with the statement

No.	Item Statement	SD	D	A	SA
10	Using WhatsApp can improve the delivery of my course.				
11	Using WhatsApp can improve my productivity in my course delivery.				
12	Using WhatsApp can enable me to have more accurate information for my students.				
13	Using WhatsApp can make it easier to do my tasks as an instructor.				
14	Using WhatsApp is useful in my study.				
15	WhatsApp is easy to use.				
16	It is easy to get WhatsApp to do what I want it to				
17	Using WhatsApp can improve my objectives for clear and understandable course delivery.				
18	Interacting with WhatsApp does not require a lot of mental effort.				
19	It is easy to find information through the usage of WhatsApp.				
20	WhatsApp can make content of the lesson to be well delivered.				

No.	Item Statement	SD	D	A	SA
21	WhatsApp can made organization of the lesson appropriate, logical and clear				
22	WhatsApp can ensure that the lesson was well supported by examples				
23	The activities within WhatsApp makes me identify the importance of learning with the aid of technology				
24	I feel empowered by using the WhatsApp				
25	I use WhatsApp to get more information from colleagues concerning my subject.				
26	WhatsApp can provide an attractive working environment				
27	Using WhatsApp has been a pleasant experience.				
28	I believe it will be a good idea to use WhatsApp for teaching my courses				
29	Knowing how to use any form of electronic device is a worthwhile skill.				
30	I have a generally favourable attitude towards using WhatsApp as a cheaper means of instruction				

No.	Item Statement	SD	D	A	SA
31	Using WhatsApp could mean internet cost for me				
32	Using WhatsApp could mean obtaining an electronic device				
33	My school would provide means for internet for teaching				
34	My school would provide means for obtaining an electronic device for teaching				

Appendix B

Reliability Statistics

Cronbach's Alpha	N of Items
.909	34

