

UNIVERSITY OF EDUCATION, WINNEBA

**INVESTIGATING FACTORS INFLUENCING THE INTEGRATION OF
TECHNOLOGICAL AND PEDAGOGICAL CONTENT KNOWLEDGE OF
SOCIAL STUDIES TEACHERS IN THE SOUTH DAYI DISTRICT IN THE
VOLTA REGION OF GHANA**



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**A thesis in the Department of Basic Education,
Faculty of Educational Studies, submitted to the School of
Graduate Studies in partial fulfilment
of the requirements for the award of the degree of
Master of Philosophy
(Basic Education)
in the University of Education, Winneba**

OCTOBER, 2020

DECLARATION

Candidate's Declaration

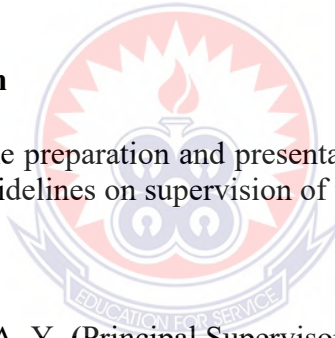
I, Asempa David, hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Signature.....

Date.....

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Education, Winneba.



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Signature.....

Date.....

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Signature.....

Date.....

DEDICATION

To my dear wife, Dogbey Dzifa Brenda and my entire family members and friends.



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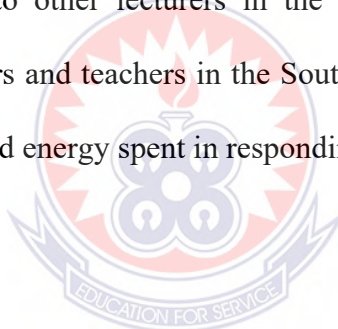
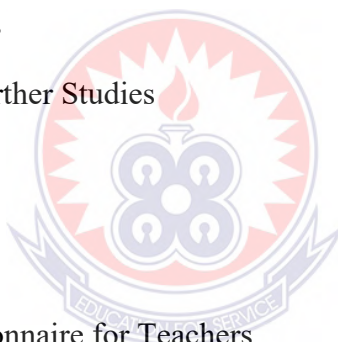


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LIST OF ABBREVIATIONS

ASESP	African Social and Environmental Studies Programme
CD-ROM	Compact Disc Read-Only Memory
CK	Content Knowledge
COE	Colleges of Education
CRDD	Curriculum Research and Development Division
GES	Ghana Education Service
GIS	Geographic Information System
ICT	Information and Communication Technology
ICT4AD	Information and Communication Technology for Accelerated Development
ISTE	International Society for Technology in Education
NaCCA	National Council for Curriculum and Assessment
NCTE	National Council for Technology in Education
PCK	Pedagogical Content Knowledge
PK	Pedagogical Knowledge
SPSS	Statistical Product for Service Solution
TAM	Technology Acceptance Model
TCK	Technological Content Knowledge
TK	Technological Knowledge
TPCK	Technological Pedagogical Content Knowledge
TPK	Technological Pedagogical Knowledge
TRA	Theory of Reasoned Action
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organisation

ABSTRACT

The place of Technological and Pedagogical Content Knowledge for teachers and students in the teaching and learning process cannot be overemphasized. Researchers have stressed the importance of the effective use of Technological and Pedagogical Content Knowledge in teaching and learning. This triggered the researcher to investigate the factors influencing integration of technological pedagogical content knowledge of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana. This Study was a descriptive survey. Questionnaire and observations data were collected at the same time and analysed concurrently to validate each other. A total of 79 questionnaires were circulated to the teachers, retrieved and returned for analysis. A self-developed questionnaire and observation guide formed the basis for the data collection. The quantitative data were analysed using descriptive statistics (means, standard deviations, frequencies and percentages). The research instruments were pre-tested and reliability and validity were ensured. Ethical issues were also considered before the actual data collection. At first glance, the teachers claimed to pose, content, pedagogical, technological, Technological Pedagogical and Technological Pedagogical content knowledge (result from the quantitative analysis) but it appears that in the classroom, they are not really practising the knowledge they claim they posed (result from the qualitative analysis i.e. observation checklist). Several recommendations were provided which include the fact that in order to facilitate effective and efficient technological integration among Social Studies teachers, a new course should be developed and mounted within our teacher training institutions. The course must be developed in two parts. The concentration of the first phase must be on the development of technological skills and competencies while the second phase should then focus on helping the Social Studies teacher trainees to blend their technological skills with their pedagogical techniques and subject content. Also, it was recommended that government and other stakeholders (parents, Social Studies teachers, Social Studies international bodies) within the society should ensure that the various Schools are provided with the basic technological tools i.e. computers, projectors and other educational soft wares to enhance effective and efficient integration of technology into the teaching of Social Studies.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The field of education has been affected by Information Communication Technologies (ICT), which have undoubtedly affected teaching, learning and research (Yusuf, 2005). Information Communication Technologies (ICT) have the potential to accelerate, enrich, and deepen skills, motivate and engage students to relate school experience to work practices, create economic viability for tomorrow's workers.

In America, major revolution in the use of technology began during the Technological Constructionism period (1990-1999). It was viewed at a time when the net was cast more widely along with digital opportunity. The new technology enabled a person with a computer and a phone line or cable in the remotest part of any state to connect to the equivalent of million libraries worldwide. The use of search engine and internet browser allowed those people to acquire within seconds the exact information they needed. Those same tools allowed those people to organize and analyse huge quantities of acquired information to use in solving problems and creating new opportunities. These technologies also enabled people to share information with one another or with many millions of people worldwide (Whitehead, Jensen & Boschee, 2003).

It was also during this decade that Federal money was made available so that the country could go from a "digital divide" to a "digital opportunity" status. In 1994, President Clinton and Vice President Gore bridged the "digital divide" by setting the goal of connecting every classroom and library to the internet. In 1996, President

Clinton unveiled his Technology Literacy Challenge and made a major commitment of resources to (a) connect every classroom to the internet; (b) expand access to modern multimedia computers; (c) make high quality educational software an integral part of the curriculum; (d) enable teachers to integrate technology effectively into their instruction. The funding for educational technology was increased by more than 3,000% from 23 million dollars to 777 million dollars in a 6-year period (White House Office of the Press Secretary, 2000).

The Government of Ghana's commitment to transform the agro-based economy into an information rich and knowledge-based economy and society, anchored such vision through the use of Information and Communication Technology (ICT) tools and applications (Ministry of Education, 2008). The process included the following steps:

1. The initial workshop of sector stakeholders convened under the consultative process for The Ghana ICT for Accelerated Development (ICT4AD) Policy in 2001 (Republic of Ghana, 2003).
2. The development of the Introduction of Information and Communications Technology in Education. A Policy Framework as a part of the initiatives of the Ghana Education Service (GES) to streamline implementation of ICT programmes in pre-tertiary institutions.
3. The workshop on the Integration of Information and Communication Technology (ICT) in Education for Policy Makers.
4. The development of the Education Strategic Plan (2003) which addressed policies, targets and strategies including the need for ICT in Education (Ministry of Education, Ghana. 2003).

5. A survey of the education platform that provided a situational analysis of the sector and presented in the Ghana e-Schools Initiative High Level Business Plan (August 2003)
6. The development of the actual draft policy document for the sector including a number of sector stakeholder consultations (January – December 2006) (Ministry of Education, 2008).

As a result, the government has acknowledged the need for ICT training and education in the schools, colleges and universities to ensure improvement in the education system as a whole. The deployment of ICT into education will result in the creation of new possibilities for learners and teachers to engage in new ways of information acquisition and analysis. Technology/ICT will enhance access to education and improve the quality of education delivery on equitable basis. This confirms Yusuf's (2005) view that the transformation necessitated by modernisation and globalisation will be better strengthened and restricted through the dynamisms of integrating technology/ICT into the educational sector (Davis & Tearle, 1999).

In Watson's (2001) description, Information Communication Technologies (ICTs) have revolutionized the way people work today and are now transforming education systems. As a result, if schools teach children in yesterday's ways and technologies, they may not be effective and fit in tomorrow's world. Contemporary settings are now favouring curricula that promote competency and performance. Curricula are starting to emphasize capabilities and to be concerned more with how the information will be used than what the information is (Oliver, 2000). The integration of information and communication technologies can help revitalize teachers and students by improving and developing the quality of education by providing curricular support in difficult

subject areas. To achieve these objectives, teachers need to be involved in collaborative projects and development intervention strategies which would present the competency and the requisite skills in integrating technology, content and pedagogy.

Prior to the 21st century, the 18th, 19th and the 20th century emphasized the conventional and didactic method of teaching and learning which emphasized content delivery and teacher centred education. For many years courses have been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorials and learning activities designed to consolidate and rehearse the content. The 21st century teaching and learning paradigm appropriately promotes and shifts teaching and learning to learner centred environment (Hooper, & Rieber, 1995). The deployment of technology/ICT will enable new ways of teaching and learning from “content-centred” to “competence-based”. Education needs to be re-directed to focus on addressing problems of unemployment, poverty, moral decline, national integration and peace, challenges of democracy, among others. Social advancement cannot be achieved without citizens who are equipped with knowledge of their civic responsibilities and be willing to put that knowledge into practice.

Developing a citizenry grounded in the tenants of democratic society and who are equipped with the right attitudes and competencies to apply knowledge to solving personal and societal problems should thus be considered a worthy goal of our educational system and this is the fundamental objective of Social Studies which is Citizenship Education. Students need the chance to develop faith, self-expression and confidence in themselves (Garcia, & Michaelis, 2001). They also need the ability and skill to learn about themselves, the societal problems and the wider communities in

which they live. It is through this type of education that students will have a greater chance of effectively participating in life, local and the broader community at large. They will certainly attain the goal of free opportunity to explore, investigate, and discover themselves.

Social Studies is widely held as a subject with the sole responsibility of ensuring that the citizens of the country are adequately imbued with the above attributes. Banks (1990) argues that Social Studies has the primary responsibility for helping students to develop the knowledge, skills, attributes and values needed to participate in the civic life of their communities. According to him, while the other subject areas also help students to attain some skills needed to participate in a democratic society, Social Studies is the only subject that has the development of civic competences and skills as its primary goal. This is why the Ghana Education Service (GES) equate Social Studies to Citizenship Education.

Even though there is a thin line in definition of these subjects “Social Studies and Citizenship Education”, most educators agree that Social Studies concerns itself with citizenship education. According to the African Social and Environmental Studies Programme (ASESP, 1990) Social Studies is citizenship education. Citizenship education involves the development of ideas, beliefs, habits, behaviour and attitudes of individuals so that they become useful citizens in their communities and in the country. Citizenship education emphasis on the acquisition of relevant knowledge, skills attitudes and values by the individual to enable him or her solve his/her personal problems and those of the larger society. This confirms the view of National Council for the Social Studies (1996):

“The primary purpose of Social Studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse democratic society in an interdependent world” (p. 23).

Within the 21st century, students are preoccupied and interested in technological/ICT processes, applications and resources. To enable students’ function effectively around these technological resources, teachers need to instil in students the needed competencies and skills to positively use ICT resources innovatively in addressing societal problems and aspirations. By doing so, the teacher needs to be equipped with the requisite knowledge, skills and competencies to effectively blend technology with content and pedagogy (Dunmire, 2010).

Mishra and Koehler (2006) recently introduced the union of three different types of knowledge as representative of what teachers need to know, technological, pedagogical content knowledge. However, other researchers have previously included and named technological knowledge as a component of teacher knowledge (e.g., Hughes, 2000, Niess, 2005) while work prior to Mishra and Koehler (2006) focused on content and pedagogical knowledge (PCK) (Shulman, 1987).

Technological pedagogical content knowledge (TPACK) is an understanding that emerges from interactions among content, pedagogy, and technology knowledge. TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of meta-physical knowledge (Koehler & Mishra, 2009).

This admission cannot be far from the truth because today's success lies in one being able to communicate, share, and use information to solve complex problems, being able to adapt and innovate in response to new demands and changing circumstances, being able to command and expand the power of technology to create new knowledge.

Accordingly, Social Studies teachers' technological, pedagogical and content knowledge cannot also be compromised because teaching and learning within the 21st century requires and demands certain competencies, knowledge and skills. Hence, new standards for what students should be able to do are replacing the basic skill competencies and knowledge expectations of the past. To meet this challenge, Social Studies teaching and learning in Junior High Schools in Ghana must be transformed in ways that will enable students to acquire the creative thinking, flexible problem solving, collaboration and innovative skills they will need to be successful in work and life (Trilling & Fidel, 2009; Riddle, 2009; Carroll, 2007).

Teachers of Social Studies should be competent to teach social studies topics and theories, as well as plan and oversee class sessions, organize field trips, explain scientific observations to students, and guide them to accurate and reliable conclusions. They should be able to comprehend the "disciplinary habits of mind" that are relevant to the subject they are teaching (Harris, et al., 2009, p. 397). The use of ICT in teaching Social Studies would greatly contribute to content in as much as the internet abounds with relevant information on any given content. Social Studies would have to sift for relevant, appropriate and accurate information as they employ ICT in their teaching.

Considering the significance attached to the subject “Social Studies” in view of its mission and goal, to produce reflective, competent, and concerned citizens (Martorella, 1994), it is imperative that much seriousness be given to its teaching which suit current trend of learning in order to realize its accomplishment. With the current modernization of education, Mishra and Koehler (2006) have introduced technology to Shulman’s (1987) “Knowledge Domain” to bring the framework “Technological Pedagogical Content Knowledge (TPACK)”, an educational research field for understanding teacher knowledge for effective technology integration in the teaching and learning process. The unification of teachers’ content knowledge (CK), pedagogical knowledge (PK) brings up pedagogical content knowledge (PCK) while the integration of technology to PCK develops Technological Pedagogical Content Knowledge (TPCK) which will produce a multifaceted and dynamic classroom context. TPACK has become a widely used referenced conceptual framework within teacher education and has created a common platform to discuss the integration of technology into education and sees the teachers as curriculum gatekeeper (Thronton, 2001).

This research is therefore meant to investigate the factors influencing the integration of technological pedagogical content knowledge (TPACK) of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana.

1.2 Statement of the Problem

Social Studies, as a core subject in the school curriculum by nature requires teachers to become innovative and inclined to current information and facts from the local to the international realm so that the curriculum will be discussed in a multi-dimensional approach and encourage practical activities to help bring about the desired changes in

the learner. Indeed, Junior High School Social Studies Teaching Syllabus recommend teachers to integrate technology in the teaching of concepts as they handle certain topics in Social Studies (Curriculum Research and Development Division, 2007). But it appears the opposite exists within the Junior High Schools (JHS) in Ghana and specifically within the South Dayi District.

My interaction with some Social Studies teachers suggested that they have received some form of training on technology integration. However, my observation of some of the Social Studies teachers in the same District proved that they do not integrate technology in their teaching leading to the increasing likelihood of Social Studies education becoming irrelevant to the interests and issues of pupils. This hinges on the conventional methods of teaching where Social Studies teachers' competencies are engulfed on content and pedagogy (Shulman, 1987). There is however, a new dimension involving the integration of technology with content and pedagogy.

As Buckingham (2007) notes, bridging this gap will require more than superficial attempts of combining education and entertainment. The latest technological devices demand a careful and conscious effort to adopt 21st century teaching and learning approaches. Here, there is amalgamation of ICT/technology, pedagogy and content in order to reconstruct the teaching and learning of Social Studies. To be more active in learning, teaching should be student centred and more real so that students can better understand real world issues and dynamics.

Literature shows that majority of research works conducted on Technological Pedagogical Content Knowledge (TPACK) were done in the second cycle institutions, Colleges of Education and other Tertiary institutions. For instance, Clark (2017) conducted research on the topic "Investigating the Technological Pedagogical Content

Knowledge of Social Studies Teachers in the Senior High Schools in the Kumasi Metropolis of Ghana”.

Again, Mereku, Yidana, Hodzi, Tete-Mensah and Williams (2009) recommended that for Ghana and Africa as a whole to be able to fully integrate technology into teaching and learning it requires frequent collection and analysis of data on technology (ICT).

There are therefore abundant literature that show that majority of research works done on the TPACK were done in the various Tertiary and the Second Cycle institutions leaving a gap at the Junior High Schools.

Another area deemed as a gap is the fact that none of those studies conducted in the current research area in the Second cycle Schools has not been conducted in the Schools in the District where this study was conducted.

There is therefore the need to investigate the factors influencing the integration of the TPACK into teaching and learning by Social Studies teachers in the South Dayi District using technological pedagogical content knowledge frame by Mishra and Koehler (2006).

1.3 Purpose of the Study

The purpose of this study is to investigate the factors influencing the integration of technological pedagogical content knowledge of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana. Specifically, the study sought to:

1. Examine the technological knowledge level of JHS Social Studies teachers in the South Dayi District.

2. Examine the technological pedagogical content knowledge level of JHS Social Studies teachers in the South Dayi District.
3. Examine how ICT competences influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration.
4. Find out other factors that influence JHS Social Studies teachers' integration of technology, pedagogy and content knowledge in teaching.

1.4 Research Questions

The following research questions guided the study:

1. What are the Technological Knowledge of JHS Social Studies teachers in the South Dayi District?
2. What is the technological pedagogical content knowledge of JHS Social Studies teachers in the South Dayi District?
3. How do ICT competencies influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration?
4. What are the other factors that influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration?

1.5 Significance of the Study

Limited research exists in the areas of Junior High School Social Studies teacher education in Ghana, specifically on their integration of technology, pedagogy and content knowledge (TPACK). The significance of the study will be seen in diverse ways.

First, the findings of this study will enable the Ministry of Education and the National Council for Curriculum and Assessment (NaCCA) to revise and modify the Junior High School Social Studies syllabus to be functional in matter.

Secondly, the findings of the study will inform Colleges of Education (COE) in Ghana the need to introduce a course that will enable teacher trainees to acquire the requisite competencies, skills and knowledge to effectively integrate technology in their teaching and learning.

Thirdly, it is envisaged that the findings of the study will enable Junior High School Social Studies teachers to attend and take up professional technological development and other in-service educational opportunities in order to cultivate higher levels of technological, pedagogical and content knowledge.

Moreover, the findings of this study will bridge the gap between the conventional teacher competencies and the 21st teacher competencies. Lastly, the findings of this study will contribute to the limited knowledge and research on the integration of technology in Social Studies education.

1.6 Delimitations of the Study

The scope of the study explored the technological pedagogical content knowledge (TPACK) of JHS Social Studies teachers. Moreover, the study did not focus on the content knowledge and the pedagogical knowledge of JHS Social Studies teacher because much research has been done on this individual knowledge base domain construct by Shulman (1987).

Furthermore, the study focused on both Public and Private J.H.S Social Studies teachers in the South Dayi District during the 2019/2020 academic year.

1.7 Limitations of the Study

The major limitation of this study resided in the instrument, thus the questionnaire used for the data collection had its inherent weaknesses. This includes different

interpretation of the items by respondents, possibility of ambiguity and untruthfulness on the part of the respondents. In order to solve these problems, I explained the rationale of the research as well as interpreted the items on the questionnaire to the respondents. The conduct of pilot study also helped minimised the associated problems with the research instruments.

1.8 Definition of Terms

Technological knowledge:

It refers to the knowledge about various technologies ranging from low-tech technologies such as pencil and pen to digital technologies such as internet, digital videos, audio videos, visual device, audio visual devices, interactive and software programs.

Pedagogical knowledge

It refers to teachers' knowledge about the processes and practices of teaching and learning.

Content knowledge

Teachers' knowledge about the subject matter to be learned or taught.

Pedagogical content knowledge.

It refers to teacher's knowledge about the process through which teachers convey the subject matter through the use of appropriate pedagogy to facilitate students understanding of concepts.

Technological content knowledge

It refers to how technology can create new representation for specific content.

Technological pedagogical knowledge

It refers to knowledge of how various technological tools can be used in teaching and learning instruction.



Technological pedagogical content knowledge.

It refers to the integration of appropriate technological tools in teaching a content of a topic.

1.9 Organisation of the Rest of the Study

Chapter Two, looks at a review of literature relevant to the study. It discusses on the theoretical framework on which the study was based and other related conceptual and empirical issues. In particular, the concept of technological pedagogical content knowledge and its relationship to the present work is exhaustively explained. Empirical studies related to the study were also reviewed. Chapter Three, gives a description of the research methods that were used in the study. It describes the research design, population, the sample and sampling procedure, data collection procedures, validity and reliability of the instruments, and data analysis procedures. Chapter Four, is devoted to results and discussion of the findings in relation to the research questions. Chapter Five, contains the summary of the research process and key findings, conclusions drawn from the findings and the recommendations made to address the research questions posed.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter presents the literature review with respect to the study. It examines issues on technological, pedagogical, content knowledge of Junior High School Social Studies teachers in South Dayi District in the Volta Region of Ghana. According to Seidu (2007), the objective of the review of the related literature is to provide a conceptual/theoretical framework or a basis from which the researcher could draw conclusions or make generalisation during the analysis of the data.

The theoretical review of this study will be rooted in Mishra and Koehler (2006) “Technological Pedagogical Content knowledge and Theory of Reasoned Action by Ajzen and Fishbein (1980). Also, the concept will be reviewed on ICT/technological adaptation in education in Ghana whilst the empirical review will cover factors that influence JHS Social Studies teacher adaption and integration of technology and benefits of integrating technology/ICT, content and pedagogy in the teaching and learning of Social Studies.

2.1 Theoretical Review

The lack of a unified framework for the use of technology in education resulted in multiple terminologies and models from different experts. This resulted in a new way of thinking about how technology could be used in teaching and learning, as well as new epistemological beliefs. To describe and characterize their attempt to employ technology in education, the majority of experts adopted the term "technology integration" (Graham, Tripp & Wentworth, 2009). Levels of Technology Integration

(LoTI) (Glazer, Hannafin, Polly & Rich, 2009) and the North Central Regional Educational Laboratory's enGauge paradigm are two examples (Lemke, 2003). PCK of educational technology (Margerum-Leys & Marx, 2002); ICT-related PCK (Angeli & Valanides, 2005); Technology PCK (TPCK) (Niess, 2005); and TPCK stands for Technological Content Knowledge (Niess, 2005). (2006) (Slough & Connell). Teaching using technology, according to Mishra and Koehler (2006), involves knowledge of technology, pedagogy, and the material to be taught in order to give a model of how technology might be used most successfully in the classroom. They put a lot of emphasis on how a teacher might use these aspects together in their classes. They combined the three concepts (technology, pedagogy, and content knowledge) to create the Technological Pedagogical Content Knowledge framework (TPCK). To emphasize the integrated nature of the components, its "whole" package, and for simplicity of pronunciation, the abbreviation was changed from TPCK to TPACK (Thompson & Mishra, 2007).

TPACK (Technological Pedagogical Content Knowledge) is a theoretical/conceptual framework for teacher knowledge required for effective technology integration (American Association of Colleges of Teacher Education, 2008; Koehler & Mishra, 2008; Mishra & Koehler, 2006, 2008). The TPACK framework presents an effective frame for thinking about integrating technology through the provision of specific knowledge associated with technology integration into learning environments (Polly & Brantley-Dias, 2009).

The TPACK framework is built on Shulman's (1987) construct of Pedagogical Content Knowledge (PCK) which refers to "the most powerful analogies, illustrations, examples, and demonstrations in a word, the ways of representing and formulating the

subject that makes it comprehensible to others” to include technology knowledge. The framework consists of three main components of knowledge, i.e., content (CK), pedagogy (PK) and technology (TK) and their intersections represented as pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK) and technological pedagogical content knowledge (TPACK).

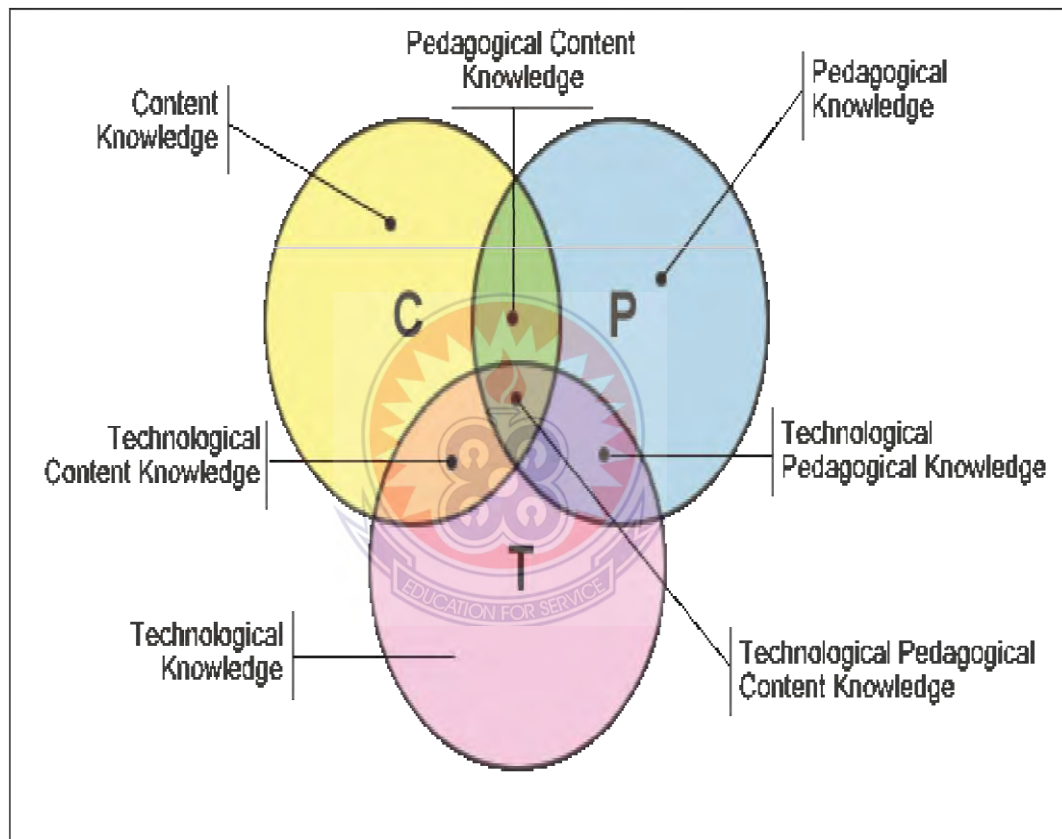


Figure 1: Shows the components of TPACK framework by Mishra and Koehler (2006)

Technological Pedagogical Content Knowledge Source: Mishra & Koehler (2006). Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPCK) are the seven constructs in the TPACK

framework (Mishra & Koehler, 2006). Each of these knowledge base structures will be examined in conjunction with the teaching and learning of Social Studies.

2.1.1 Technological knowledge of Social Studies teacher

The foundation of teaching and learning is knowledge, which is at the heart of teacher education programs (Mumby & Russell, 1994). The foundations of knowledge that teachers have received contribute to their grasp of a subject topic and their capacity to impart information with students. A set of knowledge required to be an effective teacher is defined by the knowledge base for teaching.

It's helpful to investigate what it means to "know" something before examining the knowledge foundation for teaching. Based on their assessment of many disciplinary and epistemological knowledge classification schemes, Deng and Luke (2008) suggest three conceptions of knowledge. First, canonical knowledge in established fields is described by the disciplinary idea of knowledge. Second, procedural knowledge represents a practical understanding of knowledge derived from the wisdom of practice. The experiential conception of knowledge, based on Dewey's (1916) theory that knowledge is grounded in and dependent on human experience, is the third type of knowledge.

While there are additional ways of knowing, such as scientific or aesthetic ways of knowing (Deng & Luke, 2008), these three give a useful interpretative framework for thinking about the sources of knowledge used by Junior High School Social Studies teachers.

Technology is notoriously difficult to define because it is always changing (Harris, Mishra, & Koehler, 2009). It is so difficult to stay current with technology, making it even more difficult to describe technological knowledge because such definitions have a high proclivity for becoming obsolete in the shortest amount of time. As a result, one of the constructs of TPACK is technology knowledge, which is defined variously by different researchers. Cox and Graham (2009) narrowed their definition to include only "emerging technologies." Technological knowledge, in their eyes, is the ability to employ new technology. According to Cox and Graham (2009), technological knowledge should be on how to exploit developing technologies in the TPACK framework. The goal of this definition was to highlight the differences between TPACK and PCK. They felt that as technology became more commonplace, it would become increasingly incorporated into the instructional understanding of teachers.

Other studies described technological knowledge as knowing how to use both old and new technology like blackboards, chalk, and books, as well as the internet and video conferencing (Koehler, Mishra & Yahya, 2007; Mishra & Koehler, 2006). This is a broad term that implies that TPACK should underpin all educational activities. However, it is critical to distinguish between technologies that have become commonplace and those that are still developing. In the context of digital and developing technologies, it is therefore reasonable to define technological knowledge in the TPACK framework. In a larger sense, technological knowledge is the constantly expanding body of information about how to employ various digital and upcoming technologies in various circumstances. This means TK has no finality about it but rather assumes a developmental posture which means that it will be “evolving over a time of generative interactions with multiple technologies” (Harris & Hofer,

2009). With respect to introducing ICT technologies in schools, Olson et al., (2000) advises that one explores the following questions as bases for in-service teacher education. These questions are:

1. How can the theoretical ideas be tested in practice? (What does practice say back to these theoretical ideas?)
2. How useful are negative feedbacks obtained?
3. What might be substantive talking points about the new processes?
4. What is practical from a classroom perspective?
5. What does talking about the new say about the nature of existing technology? Is it adequate?
6. What scaffold needs for the next stage? On the other hand, teachers' reluctance to adopt innovations need be seen in the context of existing technology and commitments (Olson et al., 2000, p. 157).

All of these presupposes that the use of ICTs in the classroom should be guided by certain objectives and directions. The situations where some Social Studies teachers use ICT tools in their teaching just to impress students should not be promoted when it comes to discussing the technological knowledge of JHS Social Studies teachers.

2.1.2 Pedagogical knowledge

A teacher's repertoire of teaching skills is required in order to educate effectively. Knowledge of teaching practices, theories, and concepts that underpin instruction is referred to as pedagogical knowledge. It entails understanding the nature of teaching and learning (Abbitt, 2011a). Teaching skills, beliefs, and conceptions are all part of pedagogical knowledge (Grossman, 1990). It involves knowledge of how students learn, instructional planning and implementation, classroom management, and student

assessment, as well as the processes and practice of teaching and learning (Harris et al., 2009; Koehler & Mishra, 2006).

Shulman (1987) proposed that teachers' pedagogical knowledge consisted of their comprehension of the underlying philosophy and techniques to classroom management and organization. Teachers with strong pedagogical knowledge should be able to comprehend how students generate knowledge as well as their learning styles and patterns (Harris et al., 2009), as well as assess students in a variety of methods. They should be able to meet the job's criteria and obligations and, as a result, help pupils learn more effectively.

2.1.3 Content knowledge

Content Knowledge (CK) refers to a person's understanding of the subject matter being taught or learned. This is the understanding of a field's concepts, frameworks, and processes. "Teaching must begin with a teacher's comprehension of what is to be learnt," Shulman (1987) said (p.7). Teachers of social studies are supposed to be experts in the subject they teach. This includes both science's "method" and "product" (Yalley, 2017). Teachers' content knowledge is very important since an aspects of a highly-qualified teacher from the *No Child Left Behind Act* is to be knowledgeable in content of the subject taught. The United States Department of Education (2004) states, "teachers in the middle and high school must prove that they know the subject they teach with a major in the subject they teach" (p. 4).

Ahtee and Johnston (2006) shows that a lack in subject matter knowledge can lead to teaching difficulties. According to Hill, Rowan and Ball (2005), many professional development activities are aimed at improving content knowledge because evidence

has shown that teacher knowledge in the subject area can strongly influence student learning.

2.1.4 Pedagogical content knowledge of Social Studies teachers

Shulman (1986; 1987) and his colleagues and students (e.g. Carlsen, 1987; Grossman, Wilson & Shulman, 1989; Gudmundsdottir & Shulman, 1987; Marks, 1990), originally suggested pedagogical content knowledge as a major component of teaching expertise. Shulman defines pedagogical content knowledge as a type of knowledge that is unique to teachers, and is based on the manner in which teachers relate their pedagogical knowledge (what they know about teaching) to their subject matter knowledge (what they know about what they teach).

This includes knowledge of how particular subject matter topics, problems, and issues can be organized, represented, and adapted to the diverse interests and abilities of learners and presented for instruction. This form of teacher knowledge, according to Shulman (1987), “goes beyond knowledge of subject matter per se to the dimension of subject matter knowledge for teaching” (p.9). Thus, pedagogical content knowledge is that distinctive knowledge domain of teaching that differentiates the expert teacher in a subject area from the subject expert.

What this indicates, however, if Shulman is correct, is that teacher education should not be limited to teaching subject matter content knowledge; it should also be concerned with the practical teaching of Social Studies and the alternative teaching tools within the subject. In other words, pedagogical content knowledge, should be related to the subject one intends to teach, rather than being limited to sessions of general didactics or pedagogic. For Social Studies teachers, this means not only

familiarity with the content of Social Studies as a school subject, but also with the various forms and methods of teaching the subject, as well as the available tools.

However, many studies on pedagogical content knowledge have been conducted (Adams & Krockover, 1997; Grossman, 1990; Magnusson, Krajcik, & Borko, 1999; Marks, 1990) which have identified the components of pedagogical content knowledge.

Magnusson et al. (1999) identified ‘teachers’ knowledge and beliefs of the curriculum’ as one of the five interacting components of pedagogical content knowledge. This implies that teachers’ curriculum conception will probably influence the way an educational package is delivered to students with the aim of fulfilling individual and societal goals.

Pedagogical Content Knowledge (PCK) indicates the manner in which the content can be represented and formulated to make it comprehensible to others (Shulman, 1987). PCK goes beyond just pedagogy and content. It looks at how these two relate and interact for effective teaching. Segall (2004) explained that the relationship between pedagogy and content is a complicated one in which the boundaries between them are weak and porous. Thus, teacher’s pedagogical and content knowledge are inextricably linked.

PCK encompasses knowledge of pedagogies and the planning processes that are appropriate and applicable to the teaching of a given content at any given time (Abbitt, 2011b). For effective teaching, Harris et al. (2009) maintained that knowledge of teaching and learning, assessment procedures, awareness of students’ prior knowledge and content related misconceptions are very essential. The awareness

of these issues constitutes teacher's PCK. It deals with how to design specific subject matter or problems and teach it effectively to suit learners of diverse abilities.

2.1.5 Technological content knowledge of Social Studies teachers

Technological Content Knowledge (TCK) means knowledge about the method or the manner in which technology knowledge (TK) and content knowledge (CK) are reciprocally related to each other. It represents knowledge of subject matter with technology. Koehler and Mishra (2008) inferred that it is “an understanding of the manner in which technology and content influence and constrain one another” (p. 16). It is the knowledge of how to utilize an emerging technology to represent specific concepts in a given content domain (Cox & Graham, 2009).

Although technology limits types of expression which might occur, new technology is mostly more compatible with new and different expression, as well as more flexible. Teachers need to not only know about subject content which they are teaching but also the method or the manner which that content would be adapted by applying technology.

Harris, et al., (2009) posits that “teachers must understand which technologies are best suited for addressing which types of subject-matter, and how content dictates or shapes specific educational technological uses, and vice versa” (p. 400). It should be noted that the presence of dynamic technology in a classroom is insufficient to encourage higher-order thinking.

Today, as technology becomes ubiquitous in the nation's classroom, computers have begun to be incorporated in a dynamic fashion. The available technology enables

teachers to utilize a variety of skills and formats toward a single purpose, such as digital storytelling (Porter, 2006).

Oliver and Hannafin (2000) found that teachers' incorporated higher-order thinking in technology-driven tasks only after instruction in critical thinking skills. By this, Berson and Balyta (2004) posit that there are three approaches in integrating technology in the Social Studies content by teachers. They are:

1. Social scientist: This is a problem-solving approach to Social Studies teaching where there are frequent uses of multi-media materials such as maps, diagrams, graphs, tables and pictures to develop a broad range of skills, whilst pupils concurrently acquire facts and concepts. With this approach, there is heavy emphasis on making observations, and interpreting and inferring from these observations in order to solve problems and exemplify concepts. High levels of students' talk, reflect active participation in the learning process.
2. The knowledge transmitter: This style is characterised by emphasising on the acquisition of facts and concepts, with some convergent problem solving. The approach is teacher-directed and didactic, with high frequencies of teacher statements of facts, and frequent directives to multi-media materials to acquire information. Low levels of talk amongst students confirm the teacher-directed and informational emphasis of this style.
3. The social inquirer: This is a process orientation to Social Studies teaching, with emphasis on intellectual and personal development through probing public issues. Social Studies content is learned to facilitate this aim and to provide a basis for decision-making. There are high levels of teacher questions and statements, with many speculative interactions designed to raise issues,

help pupils clarify underlying problems and analyse value stances. There are high levels of talk amongst students and frequent interactions with social and environmental resources (Berson and Balyta 2004, p. 176).

With regards to the teaching of contemporary issues in the Social Studies, the social inquirer and the social scientist would be regarded as more appropriate so that learners will be put at the centre of learning to discover solutions to problems themselves.

Law (2003) posits that citizenship preparation falls in line with the disposition on responsive curriculum. Law states that a responsive curriculum equip the learner for development in information, communications and technology (ICT); local and global challenges of ensuring peace and resolving conflicts, health concerns and myriads of social, economic and political demands that confront individuals and the entire society on daily basis. The current trend of Social Studies curriculum is well responsive enough to equip students with requisite skills that will make them function effectively and contribute productively to the growth and development of the society.

The global requirements for education include promoting life-long education, reemphasizing the quality of learners' experiences, re-organizing subject into key learning areas so as to develop broad knowledge base and develop in the learner the ability to think critically and be innovative. Lee (2008) suggests that TPCK, although messy when it comes to Social Studies because of its multiple disciplines, there can be an effective integration of Social Studies teachers' technological (TK) and content knowledge (CK) in the classroom. Lee asserts that with proper vetting, Social Studies teachers can effectively add technology to their lesson plans thus allowing students access great amounts of information and thereby providing an authentic audience for

their work. According to Lee (2008), there are six specific pedagogical actions that Social Studies teachers might use to frame inherently technological subject matter.

They are:

1. locating and adapting digital sources for use in the classroom,
2. facilitating their students' work in non-linear environments, requiring students to make critical decisions about how to select their own resources and navigate through a wide variety of interfaces,
3. working to develop critical media literacy skills among their students,
4. providing students with opportunities to utilize the presentational capabilities of the Web to motivate and encourage students,
5. using the internet to extend collaboration and communication among students, and
6. extending and promoting active and authentic forms of human interaction in technology enabled social networks (Lee, 2008, p.130).

Fisher (2000) adds that “word processors, spread sheets, statistical packages, databases, simulations, teleconferencing, CD-ROMs, and the internet, can make History come alive in the classroom” (p. 49). In a current study, Mai and Ken-Neo (2003) contend that multimedia technologies significantly influence students' learning by broadening their scope of learning and knowledge. This implies that educators can transform the subject matter through the use of technological resources such as multimedia/hypermedia to support students to display their ideas and information in terms of the multimedia format and use their higher order thinking skills like analysis, synthesis, and evaluation to become active learners rather than memorizing knowledge. March (2003) points out that the best web quest used by instructors

motivate students to see richer thematic and conceptual relationships, to provide the real world learning, and to reflect on their own metacognitive skills which are very important to evaluate at the level of higher-order thinking.

According to March (2003), scaffolding is at the heart of the web quest mode and can be used to apply such approaches as constructivist strategies, differentiated learning, and situated learning. Hooper and Rieber (1999) also stress that integration of technology is dependent on technology for delivery of classroom lessons. Therefore, the focus of technology integration must be how to teach students more effectively using a variety of technological tools. In other words, what teachers need to know most importantly is how to teach content more effectively.

Buabeng-Andoh (2012) explored Social Studies teachers' perception of technology in giving instruction and revealed that majority of the respondents perceived that technology can offer opportunities to teachers to obtain educational resources from the internet to enrich course content and also can improve the teaching and learning process. Reporting similar findings, Rampersad (2011) indicated that Geography teachers perceived technology as an important motivational tool that encouraged them to be creative in their approach to teaching.

Kandasamy and Shah (2013) analysed the knowledge, attitude and use of ICT among teachers and found that most of the respondents believed that computer is a valuable tool for teachers as it can change the way students learn in class. Again, respondents (teachers) were of the view that the computer helps students understand concepts in more effective ways and also helps teachers to teach effectively. Fullan (2000) remind that since technology is everywhere, the issue is not whether they use it, but how they manage it. He stressed that as technology becomes more powerful, good teachers

become more indispensable (p. 582). This is because as he explained, technology generates a glut of information which has no particular pedagogical wisdom on its own. This is to say that regarding new breakthroughs in cognitive science about how learners must construct their own meaning for deep understanding to occur, the teacher must know how to manage and utilize technology in ways that would enhance learning.

Starr (2011) defined technology integration as using computers effectively and efficiently in the general content areas to allow students to learn how to apply computer skills in meaningful ways in their studies. According to her, discrete computer skills take on new meaning when they are integrated within the curriculum. Integration is incorporating technology in a manner that enhances student learning. It is using software supported by the business world for real-world applications so students learn to use computers in flexible, purposeful and creative ways.

Effective technology integration is achieved when it is used to support curricular goals. It must support four key components of learning: active engagement, participation in groups, frequent interaction and feedback, and connection to real-world experts (Harkverdi, Gucum, & Korkmaz, 2007). It has been widely agreed that instructional technology does, indeed hold a remarkable promise for changing the quality of teaching and learning in schools - it is the catalyst for transformation (Ryan & Cooper, 2006; Honey, 2001).

It is noted that for technology integration to be effective, the teacher should have an open mind to new teaching methodologies and be versatile enough to incorporate them into his or her curriculum (Basilicato, 2005). In other words, teachers must find

novel ways in which current computer applications from other fields can be modified to suit their classroom purposes.

2.1.6 Technological pedagogical knowledge of Social Studies teachers

Technological Pedagogical Knowledge (TPK) refers to knowledge of using technology to implement different teaching methods. It is the “knowledge of how various technologies can be used in teaching and to understanding that using technology may change the way teachers teach” (Schmidt, Baran, Thompson, Mishra, Koehler & Shin, 2009, p. 125). TPK deals with the ability to realise how technology affects the methods and strategies of teaching and how effective teaching and learning can be achieved with technology. It includes the realisation of the constraints and affordances that technology can bring to bear on pedagogical strategies, approaches and designs (Abbitt, 2011a). A teacher with TPK should be able to realise that the technology they want to use does affect their teaching approaches, methods and design. Basically, it is the realisation and conceptualisation of how teaching and learning can be affected or changed when particular technologies are used in a particular manner (Koehler & Mishra, 2009).

The mode of using technological applications, resources and approaches to ensure effective classroom management, engaging students’ participation, simulations, promote student-centred teaching to reduce possible distractors is the responsibility of the Social Studies teachers at the Junior High School level. This is because the Social Studies Syllabus (CRDD, 2007) has made recommendation for teachers to solicit for additional teaching and learning activities where necessary in order to achieve optimum student learning (CRDD, 2007).

2.1.7 Technological pedagogical content knowledge of Social Studies teachers

TPCK depicts knowledge of using technology to implement teaching methods for different types of subject matter. TPCK treats technology, content and pedagogy in unison and blends these three constructs in a complex relationship. TPCK is the understanding that emerges from the interactions and interplays between and among technology, content and pedagogical knowledge that underlies meaningful teaching with technology (Koehler & Mishra, 2009).

Abbitt (2011a) insisted that the complex relationships between the constructs provide a basis for understanding teacher knowledge that supports successful technology integration into classroom learning environments. The constructs are intertwined and interwoven and therefore not sufficient for teachers to learn about technology, content or pedagogy alone or independently from each other (Koehler & Mishra, 2008).

According to Mishra and Koehler (2006), TPCK is different from knowledge of all three concepts individually. It is the basis of effective teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones (p. 17). It is therefore critical that teachers understand the complex relationship among the constructs and the contexts in which they are formed and co-exist to constrain and co-create each other (Harris et al., 2009).

TPACK helps teachers, educators and researchers to conceptualise that effective technology integration that includes a consideration of appropriating the multiple uses of technology, in relation to content and effective pedagogy (Koehler & Mishra, 2006). Moreover, TPACK seeks to provide the knowledge required by teachers to be able to integrate technology into teaching in a more meaningful manner rather than in oversimplified approaches that treat technology as an “add-on” (Koehler & Mishra, 2009).

In the words of Taylor (2000), “it is not the silver bullet that will solve all of our education problems, but it is certainly a useful tool that enables teachers to link various learning communities together in new and different ways” (p. 4). It is not about what technology by itself can do, but what teachers and learners may be able to accomplish using these tools. Taylor emphasized that the difference between technology use and technology integration for learning is that integration implies full-time, daily operation within lessons.

Curriculum integration with the use of technology involves the infusion of technology as a tool to enhance the learning in a content area or multidisciplinary setting (Taylor, 2000). Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyse and synthesize the information, and present it professionally. The technology should become an integral part of how the classroom functions as accessible as all other classroom tools. The focus in each lesson or unit must be the curriculum outcome, not the technology (International Society for Technology in Education (ISTE), 2010).

As educators, one is more concerned with the effective use of technology both as an instructional tool and a literacy learning tool. Knowing how to make decisions about

how one is going to implement technology requires knowledge based on time, research (best practices) and expertise. Moulton (2009) comments there are two types of integration; just using technology in the classroom and using technology to improve student learning and outcome. Certainly, there is a difference between using technology to just play video games and using it as a learning tool. For this reason, teachers need to take steps and become more experienced with different technologies so they can create enriching learning experiences for their students.

Education Technology Research Development (2007) stressed that teachers' need competence in three major skills in order to integrate technology effectively: technology skills, technology-supported pedagogy skills, and technology-related classroom management skills.

According to Harkverdi, Gucum and Korkmaz (2007), effective technology integration is achieved when its use supports curricular goals. It must support four key components of learning: active engagement, participation in groups, frequent interaction and feedback, and connection to real-world experts. It has been widely agreed that instructional technology does, indeed hold a remarkable promise for changing the quality of teaching and learning in schools it is the catalyst for transformation (Ryan & Cooper, 2006; Honey, 2001).

To obtain the full benefit of technology integration in our classrooms, we must entwine technology effectively with the content of what is to be learned. This was what Cuban (2001) referred to as "fitting the computer to the curriculum, not the curriculum to the computer". On this note, Basilicato (2005) states that technology tool like the interactive whiteboard requires a dedicated teacher who can convey their enthusiasm for the subject to students. Logically, teachers who have taken part in

some form of training on how to integrate technology into their classrooms are more likely to have a higher level of confidence in their ability to use instructional technology. Subsequently, this training would spur them on to attempt integrating technology into their classrooms. This would lead to the development of the requisite competence in integrating technology, which will further boost their confidence and the cycle continues.

Effective integration of technology depends on the teachers' competence and ability to shape instructional technology activities to meet students' needs (Gorder, 2008). Teachers know their content and pedagogy, but when it comes to technology, teachers often learn along with students.

According to Fulton (1997), teachers in their daily use of technology focus on teaching students first-level technology skills, which include how to work the technology, but many teachers ignore the second level skills of knowledge integration and a deeper understanding of analyzing information. Sheingold & Tucker (1990) said integrating technology in the classroom is not about teaching students to operate computers, but integrating technology is about helping students to use technology as a tool for learning. To reinforce the position of Sheingold & Tucker, the Education Technology Research Development (2007) stressed that teachers' need competence in three major skills in order to integrate technology effectively: technology skills, technology supported pedagogy skills, and technology-related classroom management skills.

In studying the perceptions of Social Studies teachers towards the use of technology, Gulbahar and Guven (2008) reported that teachers believed that the use of technology will be of more advantage to them, but they lacked the basic skills of computer usage.

The teachers also felt that their skills were lacking for other types of technology which could also be used as an aid in the classroom. To emphasize the claim of Gulbahar and Guven (2008), Buabeng-Andoh (2012), explored teachers' perception of technology in giving instruction. The study revealed that majority of the respondents professed that technology can offer opportunities to teachers to obtain educational resources from the internet to enrich course content and also can improve the teaching and learning process. Again, majority of the respondents indicated that technology can enhance students' participation and feedback and also improve students' collaboration. The study concluded that teacher' perceptions on the application of technology in the teaching and learning environment were positive.

Similarly, Abdullah (2012) aimed to identify the degree of using ICT based technology by teachers at early primary levels in the learning process, as well as identifying the teachers' attitudes toward this technology. Moreover, the study aimed to establish whether there are any differences amongst teachers' attitudes regarding the variables of gender, place of working (governorate), academic qualification, length of service and training courses. The researcher relied on an analytical descriptive method. A random sample was selected and consisted of 250 teachers and 90 administrators (principal, librarian, computer lab technician) enrolled in public schools located in Damascus and Al Qunaitera. The study findings revealed that:

1. teachers use ICT-based technology for learning process and administrative affairs moderately,
2. the degree of using ICT-based technology as learning aids by teachers was low,
3. the ICT-based impediments perceived by administrators and teachers were high,

4. the teachers have high positive attitudes toward using ICT-based technology in learning,
5. many schools lacked ICT tools,
6. the students' usage for ICT-based technology was ineffective at both schools,
7. the teachers' gender has no effect on the degree of using ICT-based technology,
8. the variables of "governorate", "degree of qualification", "length of service", and "enrolling in training courses" have significant effects on the degree of using ICT-based technology by teachers. (Abdullah, 2012, p. 98).

The teachers indicated a significant contradiction between their attitudes toward ICT-based technology and the degree of their usage for it in favour of their attitudes. In fact, this study diagnosed the various factors that may influence the teachers' attitudes towards ICT. However, it failed to consider the students' views.

In another study by Gulbahar and Guven (2008), it was reported that teachers preferred printed materials, overhead projectors, television, video, radio cassette recorder, multimedia, computers and slide projectors for instructional aims. Again, teachers most frequently used computers to access information on the internet, communicate, do word processing and make slide presentations. Buabeng-Andoh (2012) made claims on the use of technological resources in the teaching and learning in Ghanaian SHS by examining teachers' skills, and practices of ICT in teaching and learning in Ghanaian Second-Cycle Schools. The results of the study indicated that computer was almost always used by teachers, followed by the internet, with the least frequently used hardware being the overhead projector.

Another study by Boakye and Banini (2008) on teachers' ICT readiness in Ghana indicated that 71% of teachers in the study did not use ICT in classrooms, 49% of teachers used ICT to prepare lesson notes, 55% of teachers had some knowledge of web browsing, 71% used email, and 78% made efforts to learn how to use the computer. The study concluded that most teachers were not prepared to integrate ICT into their teaching. Also, Ebrahim (2006) conducted a study on the integration of computer technology in an eighth-grade male Social Studies classroom in the United Arab Emirates. It was conducted in a naturalistic setting where different activities and interactions were observed and explained. Both quantitative and qualitative data were gathered to describe and explain what happened in the eighth-grade Social Studies classroom. A two-tailed paired sample t-test at the .05 significance level was conducted to examine students' change in attitudes regarding each item. The results of the two-tailed t-test showed that the students' perceptions towards computer importance were not significant; in contrast, when it came to the students' perceptions of computer enjoyment and computer anxiety, the results of the two-tailed t-test showed positive improvement. The study recommended that Social Studies teachers need to observe models of integrating computer technology within their various educational context thus they can either adapt models of computer integration or generate their own models to improve students' involvement in the learning process.

Pamuk, Ergun, Cakir, Yilmaz and Ayas (2013) conducted a study to investigate the application of Information and Communication Technology in instruction which is highly emphasized in the contemporary education of science teachers. A total of 222 pre-and in-service science teachers in Singapore were surveyed. Structural equation models analysis was utilized to examine the model. The results confirm the seven-factor model and indicate that the science teachers' perceived TPC significantly and

positively correlated with all the other TPACK factors. It further reveals the relationships between the science teachers' perceptions of TPACK and their demographic characteristics such as teaching experience, gender, and age. The findings indicated that female science teachers perceive higher self-confidence in pedagogical knowledge but lower self-confidence in technological knowledge than males. Further, female in-service science teachers' perceptions of TK, TPK, TCK, and TPC significantly and negatively correlate with their age. Pamuk, et al., (2013) recommended that in-service training, workshops and conferences should be conducted to help develop the confidence of female science teachers in the use of technology in the teaching and learning process.

Largely, these findings give credence to the fact that teachers generally have a positive view about the use of technology in instruction and are willing to integrate technological resources into their teaching. As indicated, the way teachers perceive technology is crucial if technological integration into classroom instruction is to be successful. It could therefore be said that Social Studies teachers need to be investigated on the integration of technology in the teaching and learning of the subject.

2.2 Theory of Reasoned Action

The Technology Acceptance Model (TAM) was derived from Theory of Reasoned Action (TRA) which is a general intention model designed to explain every human action and behaviour (Ajzen & Fishbein, 1980). TAM tries to illuminate the reasons behind a user's acceptance or rejection of a particular information technology. TAM thrives on two main beliefs of users of technology to predict their actions in relation to technology. These are perceived usefulness and perceived ease of use. Davis (1989)

accentuated that perceived usefulness is the extent to which a person believes that his or her job performance will be improved when they use a particular tool or system. He noted that the extent to which a person believes that his work will be free of effort when he uses a particular tool constitutes the person's perceived ease of use.

The technology acceptance model postulates and clarifies how external factors affect attitude, belief and intention to use a particular technological device. This is because TAM notes that perceived usefulness of a system, perceived ease of a system, attitude and behavioural intentions directly or indirectly affect and influence a person's actual use of technology.

Thus, although teachers acknowledge the effectiveness of technology in the teaching and learning process, their actual usage of technological tools may be affected by how easy they are able to integrate technology effectively in their classrooms. Since technological tools are not educational by default, teachers need to repurpose it to suit their classroom learning environments as well as their learning objectives in order to derive maximum impact from the tool (Kereluik, Mishra & Koehler, 2011). Social Studies teachers therefore need to have a unified concept through which they can effectively integrate technology in their teaching and learning.

The school has an obligation to provide a curriculum designed to develop effective living in the society. Such a curriculum should equip the learner with skills, understanding, attitudes, habits and appreciations that will contribute to this broad goal. All areas of the school programmes share the responsibility of advancing this objective, but the Social Studies has it as a primary function, to students' environment; self-realization, human relationship, economic efficiency, and civic responsibility (Friedman & Hicks, 2006).

The philosophical background of the subject “Social Studies” therefore emphasises that the teacher charges him/herself with the responsibility of forming citizens of localities, and the country. By this, he/she is expected to and must accept to package and deliver content areas that promote a balance between patriotism and citizenship to meet 21st century living and challenges. This requires creating opportunities for learners to understand the world as a place full of people with different stories than their own as well understand the conventions which bind them to others in order to participate fully politically and socially (African Social and Environmental Studies Programme (ASESP) 1990).

The open-ended nature of Social Studies encourages the discipline to accommodate social issues considered relevant to life. By this opportunity, it emphasises integration and inter relationship of knowledge. Hence, Social Studies provides general education for social living through the processes it adopts, the social sciences and many other aspects of knowledge and learning from the primary sources of the content of the subject (Aggarwal, 1982).

Furthermore, the dynamic nature of human environment is fortunately a major concern of Social Studies. This also forms part of its philosophical background as it is meant to encourage learners to understand better and cope with the ever occurring changes in the political, social, economic and other facets of life, so as to effectively face the challenges and opportunities in a world of rapid change (Ananga, & Ayaaba, 2004).

The philosophical background of Social Studies equally creates vantage opportunity for the discipline to package a content that is integrated in nature, with its products becoming integrated individuals who can stand the test of time as traders, teachers,

engineers, doctors, bankers, politicians, or whatever they choose to become. It also encourages the making of learners to be socially relevant, economically viable and politically honest in a rapidly changing world (Bailey, Shaw & Hollifield, 2006).

2.2.1 ICT/Technological adaptation in education in Ghana

Ghana has not reneged in her efforts to equip her citizens with ICT skills to be able to operate effectively in a world that is increasingly being transformed into a knowledge based one. ICT introduction in all sectors of the economy, including education, has therefore become a public policy priority. Efforts to introduce ICT in schools derive from the national ICT for Accelerated Development policy of 2003 and the ICT in Education policy of 2008.

2.2.2 Ghana ICT for Accelerated Development (GICT4AD) Policy

The Ghana ICT for Accelerated Development Policy's main objective is to develop ICT-led socio-economic policies aimed at ushering Ghana into a knowledge-based information society in the shortest possible time (Kwapong, 2010). Some of the concerns the policy sets out to address include:

1. The transformation of the country into a competitive ICT-led Foreign Direct Investment within the West African sub-region.
2. The transformation of the education system at all levels to impart the needed skills required to usher Ghana into the information and knowledge- based society.
3. The development of human resource capacity in ICT skills to be able to harness the full benefits of the information age.
4. The Enhancement of efficiency of administration service delivery through ICT. (Kwapong, 2010 p. 106).

The policy mandates all sectors of the economy to draw-up their own ICT policy frameworks that are consistent with the aims and aspirations of the national ICT policy in order to facilitate a multi-sectorial application of ICT. In this regard, the Ministry of Education in 2008 came up with the ICT in Education policy which outlines the plans and strategies for integrating ICT in education at all levels.

2.3 ICT in Education Policy

The overall vision of the ICT in Education policy is to use ICTs to support the Ministry of Education's policies, objectives and strategies to facilitate equitable access to education, quality of teaching, educational administration, science and technology and labour market demands (Ministry of Education, 2009a). The specific objectives of the policy are to:

1. Facilitate the deployment, utilization and development of ICT within the educational system to improve educational access and delivery to support teaching and learning from the primary level upwards.
2. Transform the education system in order to improve the quality of teaching and training at all levels of the educational system and expanding access to education, training and research resources.
3. Orient all levels of the country's educational system to the teaching and learning of science and technology in order to accelerate the assimilation of science and technology in society.
4. Achieve universal basic education and improve the quality of basic education and computer literacy in the nation.
5. Ensure that all citizens are at least functionally literate and productive.
6. Expand and increase access to secondary and tertiary education.

7. Strengthen science education at all levels of the educational system, especially at the basic and secondary levels.

Four key factors underlie the strategies for achieving the specific objectives outlined in the policy. They are equity in the allocation of resources, affordable and continuous access to ICT infrastructure, capacity building of users and the development of norms and standards with regard to ICT use (Hammond, & Manfra, 2009a).

Additionally, the policy has seven thematic areas. These areas outline the guiding principles and strategies to be put in place to accomplish the goal of integrating ICT in education.

The first thematic area seeks to enhance education management by building the capacity of the Ministry of Education and all its agencies. By doing so, ICT can be effectively used to generate data for informed decision making (Fulton, 1997). The second thematic area concerns building the ICT capacity of all persons involved in education delivery, especially teachers, to facilitate the incorporation of ICT into teaching and learning at all the levels of education in Ghana.

The third thematic area is concerned with infrastructure provision, e- readiness and equitable access to ICT in all schools.

Other areas of concern are content development, ICT integration into the curriculum, technical support, maintenance and sustainability of ICT infrastructure.

2.4 Empirical Review

This section of the review of related literature deals with the various works and studies that have been conducted by researchers and scholars as they relate to field of integration of technology in the teaching and learning process. The premise that teachers who know the content of what they teach and how to teach it (using appropriate technological tools) enhance student learning is supported by research.

A study conducted by Ruto and Ndaloh (2013) on the use of instructional materials for the teaching of History and Government in Kenya found that 62% of teachers in the study used textbooks frequently while 54% used maps. Again, 80% of the respondents are reported to have never used the radio in teaching History and Government in their schools with only 3% reporting frequent usage. These findings are corroborated by the results of Oppong (2009) which reported that apart from the History textbook, History teachers do not make use of other instructional and technologically oriented resources such as audio media, visual media and audio-visual media in History teaching.

To emphasize the claim of Gulbahar and Guven (2008), Buabeng- Andoh (2012), explored teachers' perception of technology in giving instruction. The study revealed that majority of the respondents professed that technology can offer opportunities to teachers to obtain educational resources from the internet to enrich course content and also can improve the teaching and learning process. Again, majority of the respondents indicated that technology can enhance students' participation and feedback and also improve students' collaboration. The study concluded that teacher' perceptions on the application of technology in the teaching and learning environment were positive.

Similarly, in a recent study, Abdullah (2012) aimed to identify the degree of using ICT based technology by teachers at early primary levels in the learning process, as well as identifying the teachers' attitudes toward this technology. Moreover, the study aimed to establish whether there are any differences amongst teachers' attitudes regarding the variables of gender, place of working (governorate), academic qualification, length of service and training courses. The researcher relied on an analytical descriptive method. A random sample was selected and consisted of 250 teachers and administrators (principal, librarian, computer lab technician) enrolled in Public Schools located in Damascus and Al Qunaitera.

Also, a study by Adeyinka (1989) revealed that technological aids such as television and radio, slides, projectors, films and film-strips are never used to teach History in majority of schools. The results of these studies show that the use of technological tools for instruction is an area which has not been explored by most History teachers. Likewise, a study by Yidana (2007) on teachers' level of technology adoption for instructional purposes revealed that 50% of participants were in the low technology users' category, 34.8% of participants were in the moderate technology users' category, while only 14.4% fell within the high users' category. This indicates that majority of teachers in the study were low level users of technology, meaning they did not make extensive use of technological innovation in their teaching activities. In studying the perceptions of Social Studies teachers towards the use of technology, Gulbahar and Guven (2008) reported that teachers believed that the use of technology will be of more advantage to them, but they lacked the basic skills of computer usage. The teachers also felt that their skills were lacking for other types of technology which could also be used as an aid in the classroom. The teachers indicated a significant contradiction between their attitudes toward ICT-based technology and the

degree of their usage for it in favour of their attitudes. In fact, this study diagnosed the various factors that may influence the teachers' attitudes towards ICT. However, it failed to consider the students' views.

In another study by Gulbahar and Guven (2008), it was reported that teachers preferred printed materials, overhead projectors, television, video, radio cassette recorder, multimedia, computers and slide projectors for instructional aims. Again, teachers most frequently used computers to access information on the internet, communicate, do word processing and make slide presentations.

Another study by Boakye and Banini (2008) on teachers' ICT readiness in Ghana indicated that 71% of teachers in the study did not use ICT in classrooms, 49% of teachers used ICT to prepare lesson notes, 55% of teachers had some knowledge of web browsing, 71% used email, and 78% made efforts to learn how to use the computer. The study concluded that most teachers were not prepared to integrate ICT into their teaching.

Koh, Chai and Tsai (2010) conducted a study to determine teachers view on technological pedagogical content knowledge (TPACK), their self-efficacy and whether these views changed according to sex, age, period of service, faculty graduated from, branch access to the internet, the use of technology level and access to in-service training which is oriented to the use of technology (TK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technological content knowledge (TCK) and technological pedagogical knowledge (TPK). According to this study, teachers' self-efficacy perceptions on, CK and PCK, and did not change according to sex while there was significant statistical difference between teachers' TK ($t(278) = 3.035, p < 0.05$) and TPACK ($t(278) = 2.124, p < 0.05$) on self-efficacies

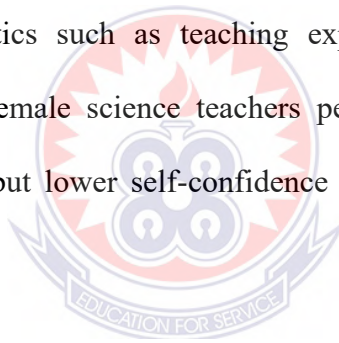
and the variable of sex. It was concluded that the self-efficacy perceptions of female teachers in these dimensions were higher when compared to those of male teachers. It is detected that the self-efficacy of teachers can change as a result of the faculty graduated from but the study failed to find out if there was a significant difference among the courses taught within the faculty. This is a challenge that was recommended by Koh et al., (2010) that prospective teachers, sub-structures and program content should be investigated accordingly.

Buabeng-Andoh (2012) made claims on the use of technological resources in the teaching and learning in Ghanaian SHS by examining teachers' skills, and practices of ICT in teaching and learning in Ghanaian Second-Cycle Schools. The results of the study indicated that computer was almost always used by teachers, followed by the internet, with the least frequently used hardware being the overhead projector.

Busaeed (2015) conducted a similar study exploring female teachers' perception of utilizing technology in Social Studies in Saudi Public Schools. A Likert-scale survey was used to collect data. The sample size used for the research was 32 female teachers from public schools in Saudi Arabia. The result showed that the participants had positive perceptions on the use of technology; that they believe technology use to have a positive impact on their teaching and learning of students'. It was concluded that lack of support from their school administrators on the use of modern technology was their greatest challenges with using technology in the classroom. Busaeed (2015) recommended that government should resource public schools in Saudi Arabia to be able to integrate technology in the teaching and learning of Social Studies in school. One setback of Busaeed (2015) study was that it failed to consider the qualification of these Social

Studies teacher in respect to the integration of technology in the teaching and learning process.

Pamuk, Ergun, Cakir, Yilmaz and Ayas, (2013) conducted a study to investigate the application of Information and Communication Technology in instruction is highly emphasized in the contemporary education of science teachers. A total of 222 pre-and in-service science teachers in Singapore were surveyed. Structural equation models analysis was utilized to examine the model. The results confirm the seven-factor model and indicate that the science teachers' perceived TPC significantly and positively correlated with all the other TPACK factors. It further reveals the relationships between the science teachers' perceptions of TPACK and their demographic characteristics such as teaching experience, gender, and age. The findings indicated that female science teachers perceive higher self-confidence in pedagogical knowledge but lower self-confidence in technological knowledge than males.



Ehman (2002) conducted a study on the integration of computer technology in an eighth-grade male Social Studies classroom in the United Arab Emirates. It was conducted in a naturalistic setting where different activities and interactions were observed and explained. Both quantitative and qualitative data were gathered to describe and explain what happened in the eighth-grade Social Studies classroom. A two-tailed paired sample t-test at the .05 significance level was conducted to examine students' change in attitudes regarding each item. The results of the two-tailed t-test showed that the students' perceptions towards computer importance were not significant; in contrast, when it came to the students' perceptions of computer enjoyment and computer anxiety, the results of the two-tailed t-test showed positive

improvement. The study recommended that Social Studies teachers need to observe models of integrating computer technology within their various educational context thus they can either adapt models of computer integration or generate their own models to improve students' involvement in the learning process.

Further, female in-service science teachers' perceptions of TK, TPK, TCK, and TPC significantly and negatively correlate with their age. Pamuk et al. (2013) recommended that in-service training, workshops and conferences should be conducted to help develop the confidence of female science teachers in the use of technology in the teaching and learning process.

Largely, these findings give credence to the fact that teachers generally have a positive view about the use of technology in instruction and are willing to integrate technological resources into their teaching. As indicated, the way teachers perceive technology is crucial if technological integration into classroom instruction is to be successful. It could therefore be said that Social Studies teachers need to be investigated on the integration of technology in the teaching and learning of the subject.

2.5 Factors that Influence JHS Social Studies Teacher Adaptation and Integration of Technology

Earle (2002) and Williams (2003) linked ICT integration with the concept of wholeness, when all elements of the system are connected together to become a whole. For instance, the two important elements of teaching and learning, content and pedagogy, must be joined when technology is used in lesson. In other way, if students are offered series of websites or ICT tools (e.g. CD ROMs, multimedia, etc.) then the

teacher is not integrating ICT into teaching since s/he is not tackling the pedagogical issues.

Stockdill and Moreshouse (1992), Rogers (2003) and Balanskat, Blamire and Kefalla (2007) have identified some technological characteristics or attributes that influence the adaptation innovation by teachers during their teaching and learning process. Balanskat, Blamire and Kefalla (2007) identified these factors as teacher-level, school-level and systemlevel. Teachers' integration of ICT into teaching is also influenced by organisational factors, attitudes towards technology and other factors (Chen, 2008; Lim & Chai, 2008; Clausen, 2007).

Sherry and Gibson (2002) claim that technological, individual, organisational, and institutional factors should be considered when examining ICT adoption and integration. This is important because technology is not used in vacuum; the factors above definitely have significant roles to play in the adoption of ICT in teaching.

2.6 Personal Characteristics and Teachers' Attitudes

Personal characteristics such as educational level, age, gender, educational experience, experience with the computer for educational purpose and attitude towards computers influence the adoption of a technology (Schiller, 2003). Teachers are implored to adopt and integrate ICT into teaching and learning activities, but teachers' preparedness to integrate ICT into teaching determines the effectiveness of the technology and not by its sheer existence in the classroom (Jones, 2001).

The attitudes of teachers towards technology greatly influence their adoption and integration of computers into their teaching. According to Russell and Bradley (1997), anxiety, lack of confidence and competence and fear often implies ICT takes a back

seat to conventional learning mechanisms. Therefore, an understanding of personal characteristics that influence teachers' adoption and integration of ICT into teaching is relevant. This is relevant in the Ghanaian context because teachers of various backgrounds in the country may be disposed or not to ICT.

To successfully initiate and implement educational technology in school's program depends strongly on the teachers' support and attitudes. It is believed that if teachers perceived technology programs as neither fulfilling their needs nor their students' needs, it is likely that they will not integrate the technology into their teaching and learning. Among the factors that influence successful integration of ICT into teaching are teachers' attitudes and beliefs towards technology (Keengwe & Onchwari, 2008; Hew & Brush, 2007).

Again, Demici (2009) and Teo (2008) revealed that teachers' positive attitudes towards GIS was an important determinant to the successful integration of GIS into geography lessons. Studies have shown that teachers' attitudes towards technology influence their acceptance of the usefulness of technology and its integration into teaching (Huang & Liaw, 2005).

2.7 ICT Competence

Computer competence is the ability to handle a wide range of varying computer applications for various purposes (Van Braak, Tondeur, & Valcke, 2004). According to Berner (2003), teachers' computer competence is a major predictor of integrating ICT in teaching. Evidence suggests that the majority of teachers who reported negative or neutral attitude towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decision" (Al- Oteawi, 2002, p. 253, as cited in Bordbar, 2010). It is clear that lack of

knowledge in computer skills is likely the reason for negative attitude towards employing ICT in teaching.

One thing that could contribute to a favourable attitude toward the use of ICT in teaching is teachers' computer self-efficacy. According to Liaw, Huang and Chen (2007), teachers' computer self-efficacy influences their use of ICT in teaching and learning. Similarly, (Yuen & Ma, 2008) revealed that the Hong Kong teachers' implementation of ICT was depended on simplicity of computer use and perceived teacher self-efficacy.

2.8 Gender

Gender differences and the use of ICT have been reported in several Research Studies concerning teachers' gender and ICT use have shown female teachers' low levels of computer use because of their limited technology access, skill, and interest (Volman & van Eck, 2001). Research studies revealed that male teachers are more inclined to ICT in their teaching and learning processes than their female counterparts (Kay, 2006; Wozney, Venkatesh & Abrami, 2006, Markauskaite, 2006).

2.9 Teaching Experience

Though some research reported that teachers' experience in teaching did not influence their use of computer technology in teaching (Niederhauser & Stoddart, 2001), most research showed that teaching experience influence the successful use of ICT in classrooms (Wong & Li, 2008; Giordano, 2007; Hernandez-Ramos, 2005). Gorder (2008) reported that teacher experience is significantly correlated with the actual use of technology. In her study, she revealed that effective use of computer was related to technological comfort levels and the liberty to shape instruction to teacher-perceived student needs.

Also, Baek, Jong and Kim (2008) claimed that experienced teachers are less ready to integrate ICT into their teaching. ICT integration was related to the years of teacher service.

However, Granger, Morbey, Lotherington, Owston and Wideman (2002), conducted a qualitative survey on factors contributing to teachers' successful implementation of ICT in Canada. They interviewed 60 respondents from 12 schools. The findings found no relationship between teachers' teaching experience and experience in the use of ICT, implying that teachers' ICT skills and successful implementation is complex and not a clear predictor of ICT integration.

2.9.1 Teacher workload

Many studies have revealed that the workloads of teachers influence their acceptance of technology in classrooms. For example, Samarawickrema and Stacey (2007) investigated factors related to the use of learning management system in a large multi-campus urban university in Australia. They adopted case study method and purposive sampling to select 22 participants used web-based methods to teach both on- and off-campus students for the study. The findings of the research found that increased workload coupled with teaching with technology was critical to the participants of the study. Factors reported to contribute to increased workload were course maintenance and constant upgrades, student emails, the learning of new skills and the continuous search for sustainable strategies.

2.9.2 Institutional characteristics

Institutional factors help to improve teachers' existing attributes. According to Vannatta and Fordham (2004), teacher's time committed to teaching and amount of technology training are reliable factors of technology use in classroom. They asserted

that teacher trainers and administrators should not only “provide extensive training on educational technology, but should also facilitate a contribution to teaching improvement” (p. 262).

Norris, Poirot and Soloway (2003) also pointed out the importance of access to technology. Therefore, an understanding of institutional characteristics that influence teachers’ adoption and integration of ICT into teaching is relevant. The use or adoption of ICT in teaching is favourably received. That is one key factor in why the Ghana Education Service has introduced the ICT as a course to teach in schools.

2.9.3 Professional development

Teachers’ professional development is a key factor to successful integration of computers into classroom teaching. Several studies have revealed that whether beginner or experienced, ICT related training programs develop teachers’ competencies in computer use (Franklin, 2007; Wozney et al., 2006; Bauer & Kenton, 2005) influence teachers’ attitudes towards computers (Hew & Brush, 2007; Keengwe & Onchwari, 2008) as well as assisting teachers reorganize the task of technology and how new technology tools are significant in student learning (Plair, 2008).

Mueller, Wood, Willoughby, Ross, & Specht, (2008) related technology training to successful integration of technology in the classroom. In a study of 400 pre-tertiary teachers, they showed that professional development and the continuing support of good practice are among the greatest determinants of successful ICT integration. Sandholtz and Reilly (2004) claim that teachers’ technology skills are strong determinant of ICT integration, but they are not conditions for effective use of technology in the classroom. They argue that training programs that concentrate on

ICT pedagogical training instead of technical issues and effective technical support, help teachers apply technologies in teaching and learning.

Training programs for teachers that embrace educational practices and strategies to address beliefs, skills and knowledge improve teachers' awareness and insights in advance, in relation to transformations in classroom activities (Levin & Wadmany, 2008).

2.9.4 Accessibility and technical assistance

Access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education (Plomp, Anderson, Law & Quale, 2009). Effective adoption and integration of ICT into teaching in schools depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Obviously, if teachers cannot access ICT resources, then they will not use them. Therefore, access to computers, updated software and hardware are key elements to successful adoption and integration of technology.

A study by Yildirim (2007) found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching. Further, a study of 814 faculty members in higher education in Turkey showed that majority of the respondents reported having access to computers and the internet. About 82.5% and 81.2% of faculty members had access to computers and internet respectively (Usluel, Askar & Bas, 2008). The Government of Ghana has placed a strong emphasis on employing ICT in solving the country's problems and the Education Strategic Plan 2003-2015 emphasize the use of ICT in reaching the poor, in teaching and in solving other problems (Ministry of Education, 2008).

2.10 Technical Support

Jones (2004) reported that the breakdown of a computer causes interruptions and if there is lack of technical assistance, then it is likely that the regular repairs of the computer will not be carried out resulting in teachers not using computers in teaching. The effect is that teachers will be discouraged from using computers because of fear of equipment failure since no one would give them technical support in case there is technical problem. Becta (2004) agreed that “if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns” (p.16).

The National Council for Technology in Education (NCTE), 2005 census on ICT infrastructure (as cited in ICT Strategy Group Report, 2008-2013) found that about 85.3% of schools reported technical support and maintenance as a ‘high’ or ‘very high’ priority and claimed that it should be an important element of the school ICT environment with proper technical support being made available to maintain hardware and infrastructure.

Similarly, Yilmaz (2011) in assessing the technology integration processes in the Turkish education system reported that in providing schools with hardware and internet connections, it is also crucial to provide the schools with technical support with regard to repair and maintenance for the continued use of ICT in schools.

Therefore, if there is no technical support for teachers, they will become frustrated resulting in their unwillingness to use ICT (Tong & Trinidad, 2005). Even though, lack of technical support discourages teachers from adopting and integrating technology in classrooms, a study by Korte & Husing, (2007) revealed that schools in Britain and the Netherlands have appreciated the significance of technical support to

help teachers to integrate technology into their teaching. They argued that ICT support in Schools influence teachers to apply ICT in classrooms without wasting time troubleshooting hardware and software problems.

2.10.1 Leadership support

Though infrastructure support is imperative, school technology leadership is a stronger predictor of teachers' use of computer technology in teaching (Anderson & Dexter, 2005). Yee (2000) believes that a leader who implements technology plans and also shares a common vision with the teachers stimulate them to use technology in their lessons.

Lai and Pratt (2004) suggest that for effective utilization of ICT by teachers, there is the need for a strong leadership to drive well-designed technology plans in schools. I have observed in some basic schools in the country that when leaders of such schools (such as the heads) had known to use computers in teaching and other school activities, other teachers readily copy this trend. Technology use is contagious in this way.

2.10.2 Benefits of integrating technology/ICT, pedagogy and content

ICTs are rapidly transforming the world into an information society. This transformation requires that the education sector be able to harness the full potential of ICTs to improve the quality of teaching and learning. It is therefore not surprising that the use of ICTs is on the rise in many educational institutions because they serve numerous purposes in teaching and learning.

Fan and Ho (2012) identify three main uses of ICT in education. The primary role of ICT is to improve teaching and learning using application software. The second

purpose is to facilitate administrative roles such as grading and keeping records in schools for tracking students' learning history and performance. The third role of ICT in education is to build information literacy of students.

The rationale for ICT investments in education is based on the assertion that traditional teaching and learning methods in which knowledge is imposed on learners have not provided enough opportunities for learners to create their own knowledge and develop critical minds. Osin (1998) thus argues that the use of computers in classrooms provide key ingredients in teaching and learning that were lacking in all previous tools that raised high expectations when introduced in the educational system. Previous tools such as the blackboard only presented information to students.

Furthermore, the use of ICTs in education also shifts learning approaches. Bransford, Brown and Cocking (1999) posits that there is a common belief that the use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. This limits the role of the teacher to supporting, advising and coaching students rather than merely transmitting knowledge. The gradual progress in using computers changes from learning about computers, to learning computers, and finally to learning with computers (Volman, 2005).

Computers have resulted in what he calls "individualized interactivity", providing the opportunity for information to be given to students as well as adopting presentations to students' needs and preferences.

Beda, Gallo, Smith, Wong and Subramanian (2009) assert that the world has evolved into a technological one in which computers play a dominant role in the way knowledge is transmitted. Computers could be used to present multiple teaching and

learning opportunities for agents in the learning process to change their styles. According to Smeets (2005), ICTs provide many information resources for people to have access to. Also ICTs are capable of making complex processes easier for learners to understand through simulations.

UNESCO (2007) is of the view that adopting ICT into the educational systems has the potential of increasing the quality of education delivery as well as facilitating greater access to information and services by marginalized groups and communities. Therefore, when used effectively, ICTs could:

1. Make education easier, cheaper to access and free of the limitation of distance.
2. Result in better academic performance due to changes in teaching and learning.

Johannessen (2009) posits that ICTs could be used to provide visualization and variation in many disciplines. He also notices that some students have prior knowledge of ICT skills from the home and that the education sector has a role to play in furthering those skills. When ICTs are treated as integral part of teaching and learning, learners from low socioeconomic backgrounds could be equipped with skills for work and life.

Fullen (1989) cited in Watson (2001) states that change or improvement can happen at schools if teachers understand themselves and are understood by others. For instance, many teachers are currently not in a position to make informed judgements on ICTs to support their teaching goals. Clearly, a variety of factors still do make using ICT in the curriculum problematic (Watson, 2001). Because of this, the influence of ICT did not bring revolutionary changes at schools. For instance, the National ICT survey in the Netherlands shows that most primary-school students use computers less than

once a week and there are still many secondary school teachers who do not use ICT at all (Volman, 2005).

Most often, they use computers for drill-and-practice and word processing. In recent years however, there has been a growing interest to know how computers and internet can best be utilized to improve effectiveness and efficiency of education at all levels and in both formal and non-formal settings. As there is a shift of theories explaining learning processes, ICTs become handmaiden for learning activities. Voogt's (2003) description on the major roles, distinguished ICTs as an object for study, an aspect of a discipline or a profession, and a medium of instruction. The Netherlands are far ahead of Ghana in the employment of technology in schools. However, there are still people, places or schools where no technology or less technology is employed in teaching and learning. It would not be a surprise therefore that there would be schools in Ghana that would still be lagging behind in the use of technology in teaching. Observations on the part of the researcher reveals that many underdeveloped schools in rural areas do not own a single computer.

As a medium of instruction, ICTs fit to realize and implement the emerging pedagogy of constructivism (Davis, 1989; Panel on Educational Technology, 1997; Office of Technology Assessment, 1995). Moreover, Voogt (2003) differentiated between traditional learning setting and constructivist approaches. The former considers learning as transmission of knowledge to students, which is the sole responsibility of the teacher. On the other hand, the constructivist approach considers learning as authentic and learner centred.

ICTs are exerting impacts on pedagogical approaches in the classrooms. Their contribution to changes in teaching practices, school innovation, and community

services is considerable. A research review by Kozma (2005) suggests three significant concerns of consideration regarding ICTs impact on education. Firstly, student outcomes such as higher scores in school subjects or the learning of entirely new skills needed for a developing economy. Secondly, we should consider teacher and classroom outcomes such as development of teachers' technology skills and knowledge of new pedagogic approaches as well as improved attitudes toward teaching. Finally, one has to consider other outcomes such as increased innovativeness in schools and access of community members to adult education and literacy.

A direct inference to Kozma (2005) could imply that University of Cape Coast Junior High School could be cited as one of the best JHSs in the country when it comes to integrating ICT into teaching and learning. This school boasts of a modern computer laboratory full of computers for use in teaching and learning. Students of this JHS are noted for excellent performance in their examinations. The second point as to developing the teaching skills of teachers and the third, which is increase in innovativeness are also true in the case of the University JHS. The employment of ICT in teaching and learning truly contribute for the better of both teacher and learner.

2.11 Chapter Summary

The transformation of the world to an "Information Age" calls for the introduction of technology/ICT in education. Arguments for ICT integration into education point to the fact that ICTs have the capacity to improve teaching and learning if appropriately used and effectively integrated with content and pedagogy. This revelation is a major driver of national policies, strategies and investments in ICT in the education sector in many countries. Many of the studies on ICT in education have focused on tertiary

institutions and secondary schools. Arguably, little has been done in basic schools which are the basis of education. Besides, many of the studies were carried out in contexts that are characteristically different from that of Ghana and in particular the South Dayi District. This study seeks to add to the body of existing literature in educational technology by exploring the technological pedagogical content knowledge of JHS Social Studies teachers in the South Dayi District.

The current state of theory and studies on technology integration in the teaching and learning of subject especially Social Studies within the educational cycle of Ghana are inconclusive. It is significant for us as educationalist and Social Studies experts to identify technological theories and resources that apply to our own conditions that will facilitate the effective teaching and learning of Social Studies as we keep a firm grip of our own practice and research. By this, Mishra and Koehler (2006) has provided a suitable starting point in our search for a theoretical and conceptual home for technological integration in Social Studies. As Berson (2000a) asserts, one of the major purposes of Social Studies is to promote effective citizens who possess the critical thinking and decision making skills to function in a democratic society. Thus, reflective inquiry, problem solving and decision making skills are considered essential for the contemporary Social Studies education.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter focuses on the methodology and procedures that were used to carry out the study. The chapter specifically takes a critical look at the philosophical paradigm, research design, population, sample and sampling procedure, instruments for data collection, validity and reliability of the instruments, data collection procedures and data processing and analysis.

3.1 Philosophical Paradigm

The term paradigm is derived from Greek meaning pattern (Kivunja & Kuyini, 2017) and has been broadly defined by many academics. For example, paradigm is perceived as “a way of seeing the world that frames a research topic” and influences the way that researchers think about the topic (Hughes, 2000, p. 35). Fraser and Robinson (2004) further argue that a paradigm is “a set of beliefs about the way in which particular problems exist and a set of agreements on how such problems can be investigated” (p. 59). Hughes (2000) further asserts that a research is undergirded by paradigm, or a specific way of “seeing the world and making sense of it” (Mukherji & Albon, 2015, p. 24). Every researcher has particular understandings on what is knowledge and what is truth (Chilisa & Kawulich, 2012). Such understandings shape researchers’ thoughts and views about themselves and other people as much as the researchers’ thoughts and views about the world (Schwandt, 2001).

According to Tuli (2010), Paradigm decides how a researcher should view a phenomenon and which research methodology to use to study those phenomena.

Atieno (2009) posits that, a paradigm can be understood either as an approach or a design, So, there are some paradigms which are favourable for quantitative approach (Positivist Paradigm) while there are others which are favourable for qualitative approach (Interpretive paradigm) and there are some other paradigms which are favourable for both approaches known as mixed method approach (pragmatist paradigm) (Mackenzie & Knipe, 2006).

3.2 Philosophical Underpinning

This study is aligned to the Pragmatist research philosophy. The word pragmatism is originally derived from the Greek word “pragma,” which means action, and which is the central concept of pragmatism (Pansiri 2005). Pragmatist philosophy holds that human actions can never be separated from the past experiences and from the beliefs that have originated from those experiences. Human thoughts are thus intrinsically linked to action. People take actions based on the possible consequences of their action, and they use the results of their actions to predict the consequences of similar actions in the future. A major contention of pragmatist philosophy is that meaning of human actions and beliefs is found in their consequences. External forces do not determine humans; they are themselves capable of shaping their experience through their actions and intelligence. Pragmatists believe that reality is not static—it changes at every turn of events. Similarly, the world is also not static—it is in a constant state of becoming. The world is also changed through actions—action is the way to change existence. Actions have the role of an intermediary. Therefore, actions are pivotal in pragmatism (Goldkuhl 2012; Maxcy 2003; Morgan 2014). The uniqueness of pragmatism is that it aims to unlock the process of inquiry into all possibilities in the most practical way (Tashakkori & Teddlie, 2003b). Since, the world is constantly changing through the use of technology, the pragmatism framework offers me the

opportunity to practically examine the current status of Social Studies Teachers' Technological and Pedagogical Content Knowledge in the South Dayi District.

3.3 Research Design

The research design deemed appropriate for this study is descriptive survey. According to Best and Khan (1995), descriptive research is concerned with the conditions or relationships that exists, such as determining the nature of prevailing conditions, practices and attitudes, opinions that are held; processes that are going on; or trends that are developed.

Descriptive survey makes primary use of surveys, interviews, questionnaires, and observation to acquire information about one or more groups of people perhaps about their characteristics, opinions, attitudes, or experiences (Cohen, Manion & Morrison, 2007; Leedy & Ormrod, 2005).

The descriptive design was chosen because of the advantage of producing a good amount of responses from a wide range of people by telephone mail or in person. The design provides an accurate picture of events by explaining peoples' perception and behaviour on the basis of data gathered at a particular time. Based on these unique features of the descriptive research design, I chose the descriptive survey design to answer the research questions concerning the current status of the technological pedagogical content knowledge of Social Studies teachers in the South Dayi District. The research design helped me to describe the characteristics of the population by directly examining the samples of the population through the use of questionnaires, structured interview and observation guide.

3.4 Population of the Study

According to Cohen et al. (2000), a target population is a group of respondents from whom the researcher is interested in collecting information and drawing conclusions. In this present study, the target population consists of both Public and Private Junior High Schools (JHS) Social Studies teachers teaching at the Volta Region. The accessible population consists of both Public and Private Junior Secondary Schools (JHS) Social Studies teachers teaching at the South Dayi District. The justification for this population is their relatedness and significance to the problem identified within the South Dayi District.

3.5 Sample and Sampling Procedure

The sample size for the study was seventy-nine (79) JHS Social Studies teachers. Simple random sampling technique was used to select one District out of the 18 Districts in the Volta Region of Ghana. South Dayi District was eventually selected and based on the fact that I initially had some observations and interactions with some of the teachers in the District, I therefore found it very easy to conduct the research based on the problem identified in chapter one of the study.

I employed census sampling technique in selecting the Social Studies teachers from both the Public and Private Junior High Schools within the South Dayi District. Census is defined as an operation which produces an official count of a country's population, right down to the lowest level of geographical detail, at regular intervals (UNECE 2006, pp. 6-7). An address register of both Public and Private Junior High Schools in the South Dayi District was used as a sampling frame to select all the seventy-nine (79) Public and Private Social Studies Teachers in the South Dayi District which is in line with Krejcie and Morgan (1970) which states that a

population of ninety-seven (97) will use seventy-nine (79) as the sample size. In the South Dayi District, every house as well as the Schools was given a unique digital address which made it easier for me to compile them into some form of address register as shown in table 1 (sample frame) below. Also, in qualitative studies, researchers aim to explore a phenomenon for a better understanding and therefore it is important for them to select a sample size to achieve this purpose. Boyd (2001) is of the opinion that, two to ten participants were sufficient to reach saturation in qualitative study. In order to give opportunity to construct their own meaning to the issue under study, I conveniently selected ten (10) teachers out of the seventy-nine (79) sample size for the structured interview. In addition, the ten (10) respondents selected for the structured interview were observed while they taught. Observation gave me a first-hand information on the technological, pedagogical content knowledge of Social Studies teachers in the South Dayi District.

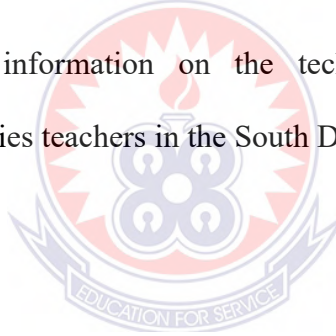


Table 1: Sample frame

Junior High Schools	GPS Address/ Location	No. of Social Studies Teachers	No. of Social Studies Teachers Selected
Dzogbati D/A JHS	VE-0977-7870		2
Peki Blengo E.P JHS	VE-0975-6525	2	2
Peki Tsame D/A JHS	VE-0929-2894	2	3
Peki Wudome D/A JHS	VE-0888-1676	3	2
Peki Avetile E.P JHS	VE-1060-6009	2	2
Peki Avetile Methodist JHS	VE-1018-6116	2	2
Peki Avetile D.A/RC JHS	VE-1019-0241	2	2
Peki Dzake A&B JHS	VE-1217-2626	2	2
GOVCO Demonst. JHS	VE-1103-1224	2	3
Sanga Methodist JHS	VE-1490-2140	3	2
Kpeve Newtown EP JHS	VE-0013-6647	2	2
Todome D/A JHS	VE-0128-6143	2	2
Peki Adzokoe D/A JHS	VE-0219-4272	2	3
Wegbe-Kpalime D/A JHS	VE-0033-3444	3	2
Tsatee D/A JHS	VE-0338-9746	2	1
Deich Inter. Sch.(PRIV)	VE-0007-6954	1	2
Tongor Tsanakpe D/A JHS	VE-0913-8808	2	2
Tongor Kaira D/A JHS	VE-0684-9336	2	2
Toh-Kpalima D/A JHS	VE-0826-9219	2	2
Kpalime Duga D/A JHS	VE-0919-6323	2	3
Dzemeni St. Fa Rc JHS	VE-1089-1968	3	2
Dzemeni E.P JHS	VE-1044-1481	2	3
St. Jama Inter Sch (PRIV)	VE-0014-2437	3	2
Thalas Academy JHS (PRIV)	VE-1001-1085	2	2
Shining Star Aca.JHS (PRIV)	VE-1045-3709	2	2
Peki Agbateh D/A JHS	VE-0612-2634	2	1
Peki Avetile Sal. Army JHS	VE-1062-2922	1	2
Kpeve Model Jhs	VE-0014-2611	2	2
Tower Foundation Mod. JHS (PRIV)	VE-1106-9061	2	2
Kpeyiborme D/A JHS	VE-0209-0293	1	1
Crossover Inter. Aca. JHS(PRIV)	VE-1042-4337	2	2
Tsyokpokofe D/A JHS	VE-2335-0471	2	2
Tongor D/A Basic School	VE-0777-3006	2	2
Agordeke D/A JHS	VE-1084-5803	1	1
New Age Prep. JHS (PRIV)	VE-1045-9802	2	2
Fellowship Inter. JHS(PRIV)	VE-1044-5279	2	2
New Kaira D/A JHS	Dzemeni	2	2
Joy Academy	Toh Kpalime	2	2
British School Complex	Dzemeni	1	1
Thy Will Inter. School	Dzana Kpoenu	1	1
Total		79	79

Source: Field Survey, Asempa (2019)

3.6 Data Collection Instruments

According to Hsu and Sandford (2007) instrumentation refers to the means by which researchers attempt to measure variables of interest in the data-collection process. I used questionnaires, observation guide and structured interview as the main data collection instruments. The questionnaire was used to analyse the quantitative data while the structured interview and the observation guide were used to analyse the qualitative data. A questionnaire was selected for the study because it is a self-report measure which guarantees confidentiality and therefore likely to elicit more openness in response with regards to the kinds of information required from the respondents. The questionnaire has seven sections (A, B, C, D, E, F and G) and each section covered each of the research questions while Section “A” consisted of five items on demographic data. The questionnaire was adopted and modified from Agyei, and Voogt, (2012). For accuracy of representation of data, items on the questionnaire were put on a five point Likert scale: Disagree = 1, Undecided = 0, Agree = 2, strongly Agree=3 and strongly disagree=4.

Observation guide was also used in this research because “observation brings the investigator into contact with the phenomenon being studied” (Kumekpor, 2002 p. 31). In this way, observation becomes an effective means of reporting precisely what prevails about the phenomenon under study with greater reliability. This technique afforded me the opportunity to see the teaching of Social Studies as done in schools in the study area. An observation checklist is prepared to cross check the questions asked in the questionnaire on the technological pedagogical content knowledge of JHS Social Studies teachers.

A structured interview is one of the techniques that can be used to gather data for qualitative study. The questions in the schedule are pre-determined, leaving the interviewer little or no chance to divert from them. Cohen and Manion (1994) describe a structured interview in the following way: ‘the one in which the content and procedures are organized in advanced. This means that the sequence and wording of the questions are determined by means of a schedule and the interviewer is left little freedom to make modifications. Where some leeway is granted, it is specified in advance. It is therefore characterized by being a close situation (p.273).

Boyd (2001) is of the opinion that, two to ten participants were sufficient to reach saturation in qualitative study. In order to give opportunity to respondents to construct their own meaning to the issue under study, I conveniently selected ten (10) teachers out of the seventy-nine (79) sample size for the structured interview to collect qualitative data on the technological and pedagogical content knowledge of Social Studies teachers in the South Dayi District.

3.7 Validity and Reliability of Instrument

The validity of the questionnaire instrument, particularly the face and content validity, were ascertained by my supervisor and peers pursuing Master of Philosophy in Basic Education (Social Studies). This was done by checking the content to ensure that it measures what it is supposed to measure. With the observation checklist, the items were cross checked with the responses given in the interview with my supervisor.

All these processes are in line with what Opoku (2005) about validation of questionnaire so that the test items constituting a questionnaire in survey research measure the construct that the test researcher has designed it to measure. Burns (2000)

also says if a study and its findings make sense to participants then, it must at least have some validity. In this research, validity was also addressed by triangulating the findings from the two instruments that was used for the study.

To ensure the reliability of the instruments, I pilot tested the questionnaire on twenty (20) Junior High School Social Studies teachers in seven (7) selected Junior High Schools in the North Dayi District. The justification for the selection of these schools is based on the fact that these schools shared similar characteristics with the Junior High Schools in the South Dayi District. The pilot test will help in testing the consistency of the questions with data analysis techniques.

3.8 Data Collection Procedures

A letter of introduction was taken from the Department of Basic Education, University of Education, Winneba to the South Dayi Education Directorate and to the Heads of various selected Junior High Schools. This enabled the study to get the needed attention, support and co-operation from the staff and the powers that be.

Ethics guiding the conduct of research were duly observed in this study. Respondents' consent was sought before I proceeded with the administration of the questionnaires. The Junior High School Social Studies teachers chosen for the study were briefed about the purpose of the study and the need for them to provide correct responses. The questionnaires were personally administered to the respondents.

3.9 Data Processing and Analysis

The data were organised into seven sections based on the research questions and socio-demographic characteristics respectively. Each section provided answers to the research questions. The responses to the items on the questionnaires were edited,

cleaned and coded by assigning numbers to the various categories of responses for the purposes of analyses. Also, the items on the questionnaires were transferred onto Statistical Product for Service Solution, (SPSS) version 21.0.

The data were analysed and discussed using descriptive statistics (frequency and percentages). The socio-demographic data and the research questions one, two, three and four were analysed using frequency, means, standard deviations and percentages.

On the other hand, the data that were obtained from Social Studies teachers through the structured interview session were qualitative and therefore was analysed using the thematic data analysis approach. Data collected from respondents were organized, transcribed, themes and code were generated and finally described.

3.10 Justification for Triangulation Method

Cohen, Manion and Morrison (2007) defined triangulation as the use of two or more methods of data collection in the study of some aspect of human behaviour. They further added that triangulation technique in the social sciences attempts to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one stand point by making use of both quantitative and qualitative data. I acknowledge the fact that triangulation can assist in explaining technological pedagogical content knowledge of Social Studies teachers in the South Dayi District. Combining data from different methods will certainly increase the quality of the data.

In view of this, Thomas and Nelson (2001) pointed out that triangulation is valuable because of the increased quality control achieved by combining methods and data sources. The complementary function of each of these data collection methods

enriched the quality of this study. This minimized the weakness of any single approach (Nau, 1995).

3.11 Ethical Issues

Ethical issues are very important aspects in a research work and in this particular study, it was taken seriously. The respondents were assured of their anonymity though it was written on the questionnaire. No respondent was allowed to disclose his/her name or even the name of the school which they teach. The views of the respondents were handled with utmost care and confidentiality.

3.12 Chapter Summary

This chapter discussed the methodology that was adopted for the study. Descriptive research design was employed for the study. The census sampling technique was used to sample respondents for the study. The main data collection instruments were questionnaires, structured interview and observation checklist. The data were analysed and discussed using descriptive statistics (frequency, means, standard deviations and percentages).

Research code of ethics such as informed consent, anonymity and confidentiality of the respondents when collecting primary data was also discussed.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the results of the analysis of the questionnaire data based on the purpose of the study. The purpose of this study was to investigate the factors influencing the integration of technological pedagogical content knowledge of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana. The analysis and interpretation of data were carried out based on the results of the four (4) research questions. The analysis was based on the 100% return rate data obtained from seventy-nine (79) JHS Social Studies teachers for the study. This implies that all the targeted 79 questionnaires were retrieved for the study. The quantitative data were analysed using descriptive statistics (means, standard deviations, frequencies, and percentages). The first part of this chapter describes the demographic characteristics of the respondents (Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana). The obtained data on the demographics were analysed using frequencies and percentages, graphs (bar and pie) where applicable. In the second part, the research findings are presented based on the research questions formulated for the study.

4.1 Description of Respondents

This section on the questionnaire (biographical) discusses the background information of the respondents. These included the teachers' Age, Sex, educational qualification and years of teaching experience. The results are presented in graphs.

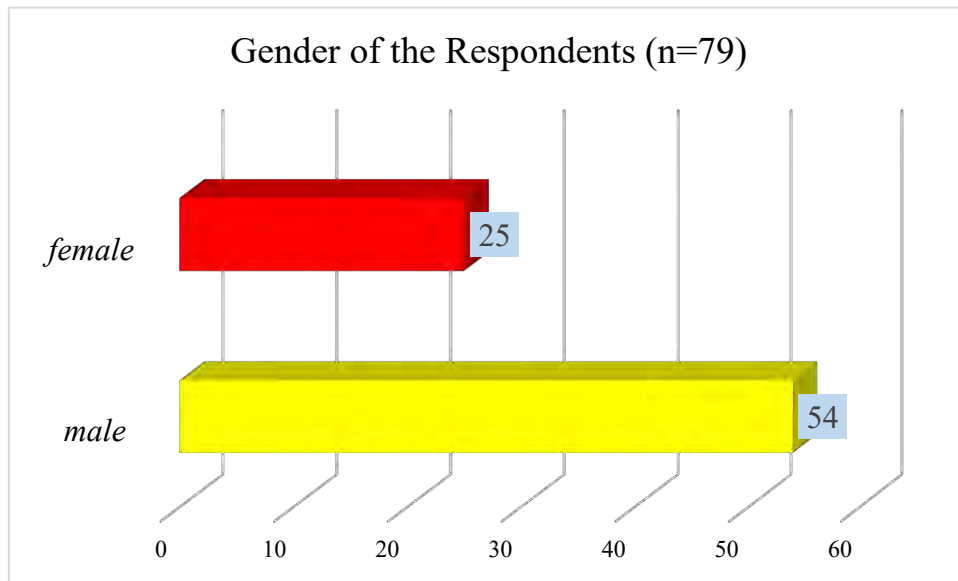


Figure 2: A Bar chart showing the gender of the teachers

Source: Field Data (2020)

n=79

The results from Figure 2 shows that most of the teachers were males (n=54). The females were the least.

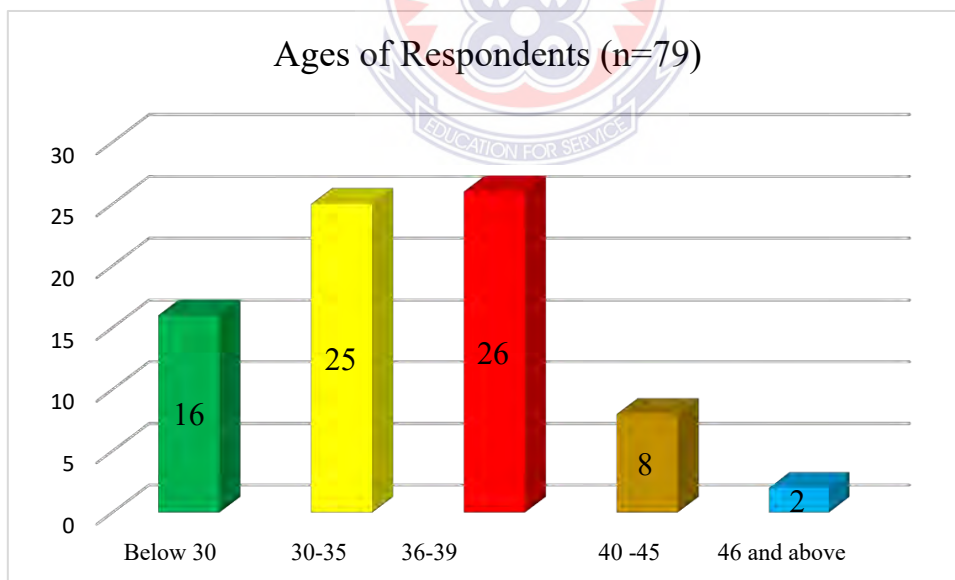


Figure 3: A Bar chart showing the ages of the teachers

Source: Field Data (2020)

n=79

From Figure 3, the results show that most of the teachers were within 36 to 39 years. Those from 46 years and above were the least.

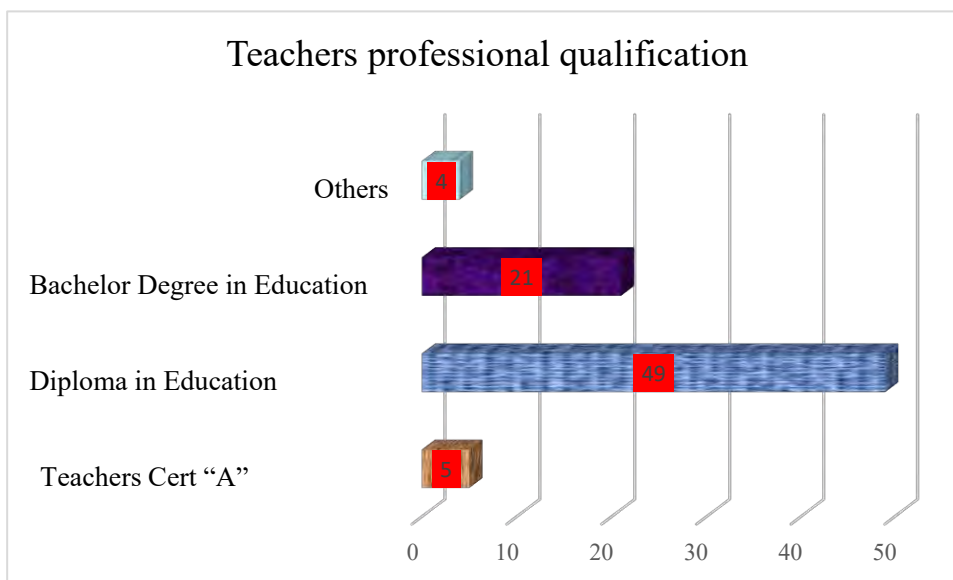


Figure 4: A Bar chart showing the professional qualification of the Social Studies teachers

Source: Field Data (2020)

n=79

In Figure 4, the results suggest that most of the teachers held diploma in basic education. Those with other certs were the least.

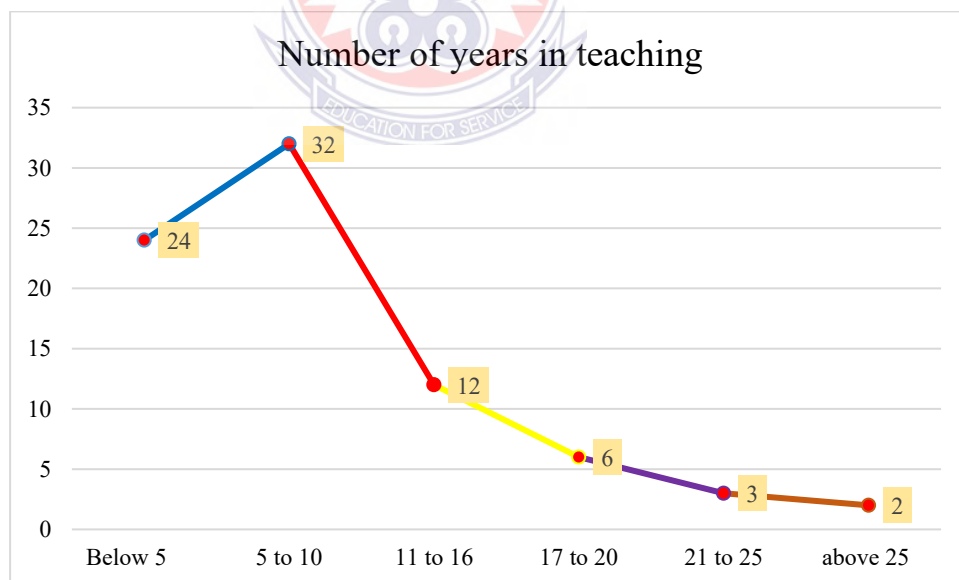


Figure 5: A line graph showing the number of years in teaching of the Social Studies teachers

Source: Field Data (2020)

n=79

The results in Figure 5 indicates that most of the teachers had taught for 5 to 10 years. Those who have taught for more than 25 years were the least.

4.2 Analysis of the Research Questions

How the Results Were Computed and Interpreted

The thrust of the study was to explore the technological pedagogical content knowledge of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana. To gain statistical evidence from the teachers, they were made to rate their responses using Strongly Disagree – SD, Disagree – D, Undecided – U, Agree – A, Strongly Agree– SA. Using means values, the scales were scored as (Strongly Disagree =1, Disagree =2, Undecided – 0, Agree = 3, Strongly Agree =4). A criterion value of 2.50 was established for the scale. To obtain the criterion or cut-off value (CV=2.50), the scores were added together and divided by the number scale (4+3+ 0+ 2+1= 10/4=2.50).

To interpret and understand the mean scores, items/statements on technological pedagogical content knowledge of Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana that scored a mean from **0.00 to 2.49** was regarded as low rated construct or statement and as such did not have influence. Those items/statements that scored a mean from **2.50 to 4.00** was regarded as high rated construct and as such had had influence. This therefore means that, the maximum score on the questionnaire was 4.00 (max. =4.00) and the minimum score was 1.00 (min. =1.00). This implies that all mean values must fall with the minimum and the maximum range (1.00-4.00). The standard deviations were also utilised to indicate how the means score deviated from normality. This interpretation is applicable to all the research questions formulated for the study.

4.2.1 Research Question One

What is the Technological Knowledge of JHS Social Studies teachers in the South Dayi District?

Literature suggests that Technological Knowledge (TK) is the knowledge about the method or the manner in which technology knowledge (TK) and content knowledge (CK) are reciprocally related to each other. It represents knowledge of subject matter with technology. This means that for teachers to effectively teach well, they must possess some Technological Knowledge in their quest to teach. This motivated me to obtain evidence from Social Studies teachers at the Junior High School level in the South Dayi District. The found confirmations by the teachers are presented in Table 2.

Table 2: Means and standard deviations results of technological knowledge of JHS Social Studies Teachers in the South Dayi District

Technological Knowledge Scale (TKS)	M	Std. D	Kurtosis		MR
	Stat.	Stat.	Stat.	Stat.	
I can learn technology easily	3.78	.342	.475	.972	1st
I know how to solve my own technical problems as far as the use of I.C.T is concerned.	3.65	.784	.235	.232	2nd
I know a lot of different technologies used in teaching Social Studies.	3.52	.286	.283	.723	3rd
I keep abreast with important new technology	3.23	.543	.532	.345	4th
I have the skills I need to use technology	3.17	.423	.293	.545	5th
Mean of means/SD	3.47	.476	.364	.563	

Source: Field Data (2020) Max. =4.00, Min. =1.00, n=79

Key-M* = Mean, Stat.*= Statistic, Std.D*= Standard Deviation, MR*=Mean Ranking.

In relation to technological knowledge of Junior High School in the South Dayi District, the result show that, most Social Studies teachers in the South Dayi District have some level of technological knowledge in their pursuit to teach their students.

This was palpable after the responses of the teachers scored an overall mean (MM=3.47, SD=.476) greater than the Criterion or Cut off value of 2.50.

Concentrating on the individual items, it was found that most Social Studies teachers in the South Dayi District can learn technology easily (M=3.78, SD=.342, KS=.475, Std.E=.972) and this explains how most teachers have level of technological knowledge in Social Studies. In another account, it was found that most Social Studies teachers in the South Dayi District know how to solve their own technical problems as far as the use of I.C.T is concerned (M=3.65, SD=.784, KS=.235, Std.E=.232).

Moreover, it was found that most teachers know a lot of different technologies used in teaching Social Studies (M=3.52, SD=.286, KS=.283, Std.E=.723). The teachers further reported that they keep abreast with important new technology (M=3.23, SD=.543, KS=.532, Std.E=.345). It was further found that most teachers have the skills they need to use technology (M=3.17, SD=.423, KS=.293, Std.E=.545).

In relation to the technological knowledge, one of the teachers share this with me”
For me as a teacher, I have the basic skills needed to use technology and I know different technologies that are used in teaching Social Studies. I always keep abreast with important new technology. I can learn technology easily depending on its complexity. When it comes to solving my own technical problems as far as the use of ICT is concerned also depends on the kind of the technical problem.” **(Except from the structured interview with Social Studies teacher 1).**

The results from the current study corroborate with the work of Ehman (2002) who conducted a study on the integration of computer technology in an eighth-grade male

Social Studies classroom in the United Arab Emirates. It was conducted in a naturalistic setting where different activities and interactions were observed and explained. Both quantitative and qualitative data were gathered to describe and explain what happened in the eighth-grade Social Studies classroom. A two-tailed paired sample t-test at the .05 significance level was conducted to examine students' change in attitudes regarding each item. The results of the two-tailed t-test showed that the students' perceptions towards computer importance were not significant; in contrast, when it came to the students' perceptions of computer enjoyment and computer anxiety, the results of the two-tailed t-test showed positive improvement.

The results further lend support to the work of Boakye and Banini (2008) on teachers' ICT readiness in Ghana indicated that 71% of teachers in the study did not use ICT in classrooms, 49% of teachers used ICT to prepare lesson notes, 55% of teachers had some knowledge of web browsing, 71% used email, and 78% made efforts to learn how to use the computer. The study concluded that most teachers were not prepared to integrate ICT into their teaching.

4.2.2 Research Question Two

What is the Technological Pedagogical Content Knowledge of JHS Social Studies teachers in the South Dayi District?

According to Koehler and Mishra (2009), technological pedagogical content knowledge (TPACK) is an understanding that emerges from interactions among content, pedagogy, and technology knowledge. Koehler and Mishra (2009) further asserted that TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress

some of the problems that students face; knowledge of students' prior knowledge and theories of meta-physical knowledge. It appears that most teachers are lacking this needed skills. This triggered me to find out the Technological Pedagogical Content Knowledge (TPACK) of Social Studies teachers at the Junior High School level in the South Dayi District. The found results from the teachers are presented in Table 3.

Table 3: Means and Standard deviations results of Technological Pedagogical Content Knowledge (TPACK) of JHS Social Studies teachers in the South Dayi District

Technological Pedagogical Content Knowledge Scale (TPACKS)	M	Std. D	Kurtosis		MR
	Stat.	Stat.	Stat.	Stat.	
I can use strategies that combine content, technologies and teaching approaches.	3.64	.524	.442	.334	1st
I can select technologies to use in my classroom that enhance what I teach and what students learn	3.35	.323	.289	.434	5th
I can teach lessons that appropriately combine social studies technologies and teaching approaches	3.24	.242	.456	.343	4th
I can choose technologies that enhance the content for a lesson	2.77	.344	.932	.393	3rd
Mean of means/SD	3.25	.358	.529	.376	

Source: Field Data (2020)

Max. =4.00, Min. =1.00, n=79

Key-M* = Mean, Stat.*= Statistic, Std.D*= Standard Deviation, MR*=Mean Ranking.

In line with the technological pedagogical content knowledge of Junior High School in the South Dayi District, the teachers reported that they have some level of technological pedagogical content knowledge in their quest to handle their students in Social Studies. This was found after the responses of the teachers recorded an overall mean (MM=3.25, SD=.358) greater than the Criterion or Cut off value of 2.50.

Considering some of the items on technological pedagogical content knowledge, it was asserted by most of the teachers that they can use strategies that combine content,

technologies and teaching approaches (M=3.64, SD=.524, KS=.442, Std.E=.334). It was again found that most of the teachers can select technologies to use in their classroom that enhance what they teach and what students learn (M=3.35, SD=.323, KS=.289, Std.E=.434).

The teachers further indicated that they can teach lessons that appropriately combine Social Studies technologies and teaching approaches (M=3.24, SD=.242, KS=.456, Std.E=.343). Finally, it was found that most of the teachers can choose technologies that enhance the content for a lesson (M=2.77, SD=.344, KS=.932, Std.E=.393).

The above findings were also confirmed by the Social Studies teachers in the South Dayi District through the structured interview. Below is an excerpt by one of the teachers....” *I always teach lessons that appropriately combine Social Studies technologies and teaching approaches. Again, I use strategies that combine content, technologies and teaching approaches to enhance my lesson delivery. I always make sure I choose technologies that enhance the content of the lesson.*” **(Except from the structured interview with Social Studies teacher 2).**

One of the teachers also had this to share....” *when it comes to combining Social Studies technologies and pedagogies, I always make sure the technology matches with the teaching approach. I select technologies that enhance what I teach and what students learn. Again, I use strategies that combine content, teaching approaches and the various technologies.*” **(Except from the structured interview with Social Studies teacher 3).**

The results support the claims of Busaeed (2015) who conducted a similar study exploring female teachers’ perception of utilizing technology in Social Studies in

Saudi Public Schools. A Likert-scale survey was used to collect data. The sample size used for the research was 32 female teachers from public schools in Saudi Arabia. The result showed that the participants had positive perceptions on the use of technology; that they believe technology use to have a positive impact on their teaching and learning of students. It was concluded that lack of support from their school administrators on the use of modern technology was their greatest challenges with using technology in the classroom.

The result share similar findings to the study of Pamuk, Ergun, Cakir, Yilmaz and Ayas, (2013) who conducted a study to investigate the application of Information and Communication Technology in instruction is highly emphasized in the contemporary education of science teachers. A total of 222 pre-and in-service science teachers in Singapore were surveyed. Structural equation models analysis was utilized to examine the model. The results confirm the seven-factor model and indicate that the science teachers' perceived TPC significantly and positively correlated with all the other TPACK factors. It further reveals the relationships between the Science teachers' perceptions of TPACK and their demographic characteristics such as teaching experience, gender, and age. The findings indicated that female Science teachers perceive higher self-confidence in pedagogical knowledge but lower self-confidence in technological knowledge than males.

4.2.3 Research Question 3

How do ICT competencies influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration?

This question examined how ICT competencies influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration. It required respondents to indicate how ICT competencies influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration. Table 4 presents the results of how ICT competencies influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration.

Table 4: Influence of ICT competence on teachers' TPACK integration

Statement	SD (%)	D (%)	U (%)	A (%)	SA (%)	M (SD)
I know how to solve my own technical problems as far as the use of I.C.T is concerned.	4 (5.10)	8 (10.1)	0 (0.0)	62 (78.5)	5 (6.30)	3.71 (0.92)
I can learn technology easily	1 (1.3)	9 (11.4)	0 (0.0)	10 (12.7)	59 (74.7)	4.48 (1.05)
I keep abreast with important new technology	1 (1.3)	15 (19.0)	1 (1.3)	58 (74.7)	4 (5.10)	3.60 (0.88)
I know a lot of different technologies used in teaching Social Studies.	9 (11.4)	8 (10.1)	0 (0.0)	21 (26.6)	41 (51.9)	3.97 (1.40)
I have the skills I need to use technology	11 (13.9)	21 (26.6)	6 (7.8)	21 (26.6)	20 (25.3)	3.22 (1.44)

Source: Field Survey (2021)

Key = SD = Strongly Disagree; D=Disagree; Undecided, A= Agree; SA= Strongly Agree; M= Mean, SD = Standard Deviation

From the data in Table 4, as many as 5 (6.3%) of the teachers strongly agreed that they know how to solve their own technical problems as far as the use of I.C.T is concerned; 62(78.5) of them agreed to this assertion but 8(10.1%) of the teachers disagreed to it; only 4(5.1%) strongly disagreed to this statement. A mean score of 3.71 confirms that, on average, the teachers know how to solve their own technical

problems as far as the use of I.C.T is concerned. Also, a standard deviation 0.92 shows that teachers have a similar response as to how they solve their own technical problems as far as the use of ICT is concerned.

In Table 4, the data also showed that, 59 (74.7%) of the respondents strongly agreed that they can easily learn technology; 10 (12.7%) of the them agreed to this assertion whereas 9 (11.4%) of them disagreed and only 1 (1.3%) of the respondents strongly disagreed to this statement. A mean score of 4.48 indicates that, out of 5 teachers, at least four of them agreed that they can easily learn technology.

The Table further indicated that, 4 (5.1%) strongly agreed that they keep abreast with important new technology to aid them in their lessons; 58 (74.7%) of them agreed to this assertion while 1 (1.3) of the respondents was not sure. But 15 (19.0%) of the respondents disagreed and 1 (1.3%) of the respondents strongly disagreed that they keep abreast with important new technology to aid in their lessons. A mean score of 3.60 indicated that on the average, the teachers are very much abreast with new technology to help them in their lessons.

In Table 4 it was also indicated that, 41 (51.9%) of the respondents strongly agreed to that they know a lot of different technologies used in teaching Social Studies; 21(26.6%) of them agreed to this statement but 8(10.1%) of the teachers disagreed that they know a lot of different technologies used in teaching Social Studies; 9(11.4%) of them strongly disagreed to this assertion. A mean score of 3.97 indicates that all the teachers agreed to the assertion that they know a lot of different technologies used in teaching Social Studies.

The Table further indicated that 20(25.3%) of the respondents strongly agreed that have the skills they need to use technology; 21 (26.6%) of them agreed to this assertion. Whiles 6(7.8%) of the respondents were unsure of their response, 21(26.6%) of them disagreed with this statement and the remaining 11(13.9%) of them strongly disagreed to the statement that they have the skills needed to use technology in their teaching. A mean score of 3.22 indicated that at least 3 out of 5 teacher that will be selected agree that they have the skills needed to use technology in the teaching and learning of social studies in their classrooms.

4.2.4 Research Question 4

What are some other factors that influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration?

This question examined how some other factors that influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration. It required respondents to indicate these factors that influence social teachers' TPACK integration. Table 5 presents the results of the other factors that influence JHS Social Studies teachers' technological, pedagogical and content knowledge integration.

Table 5: Factors that influence the integration of TPACK

Statement	SD (%)	D (%)	U (%)	A (%)	SA (%)	M (SD)
Not enough access to technologies e.g. computers and projectors	1 (1.3)	2 (2.5)	1 (1.3)	27 (34.2)	48 (60.8)	4.5 (0.8)
Non availability of computer software	0 (0.0)	2 (2.5)	0 (0.0)	37 (46.8)	40 (50.6)	4.5 (0.6)
Lack of time on school time table for integrating ICT	12 (15.2)	11 (13.9)	2 (2.5)	10 (12.7)	44 (55.7)	3.80 (1.58)
Lack of adequate technical support in the school/community.	2 (2.5)	6 (7.8)	1 (1.3)	12 (15.2)	58 (73.4)	4.49 (1.02)
Lack of knowledge about ways to	11	28	1	26	13	3.03

integrate ICT in lesson	(13.9)	(35.4)	(1.3)	(32.9)	(16.5)	(1.39)
ICT integration is not the school priority	12	42	2	12	11	2.59
	(15.2)	(53.3)	(2.5)	(15.2)	(13.9)	(1.31)
No enough training opportunities for ICT integration.	4	19	0	17	40	3.85
	(5.1)	(24.1)	(0.0)	(21.6)	(50.7)	(1.39)
Lack of knowledge to identify ICT tools that will be useful	61	6	0	4	8	1.65
	(77.2)	(7.8)	(0.0)	(5.1)	(10.1)	(1.33)
No access to electricity in the school	0	2	0	6	71	4.85
	(0.0)	(2.5)	(0.0)	(7.8)	(89.9)	(0.53)
No access to internet connectivity in the school	0	3	1	6	69	4.78
	(0.0)	(3.8)	(1.3)	(7.8)	(87.3)	(0.65)
Curriculum does not allow enough time to integrate ICT in teaching	39	12	0	15	13	2.37
	(49.4)	(15.2)	(0.0)	(19.0)	(16.5)	(1.62)
The school is not interested in integrating ICT	41	12	1	14	11	2.2
	(51.9)	(15.2)	(1.3)	(17.7)	(13.9)	(1.57)

Source: Field Survey (2021)

Key = SD = Strongly Disagree; D=Disagree; U= Undecided A= Agree; SA= Strongly Agree; M= Mean, SD = Standard Deviation

Results from Table 5 indicated that 48(60.8%) of the respondents strongly agreed that there are not enough access to technologies like computers and projectors in the school; 27(34.2%) of them agreed to this statement. Whiles 1 (1.3%) of the respondents unsure of the statement. But 2(2.5%) of them disagreed with only 1 (1.3%) of the teachers strongly disagreed that there is not enough access to technologies e.g. computers and projectors. The Table further indicated that the teachers strongly agreed that there are no availability of computer software (mean = 4.5, Standard deviation = 0.6), also a mean of score of 3.80 and standard deviation of 1.58 indicated that the teachers agreed that, there is a lack of time on school time table for integrating ICT.

With respect to lack of adequate technical support in the school and community, 5(73.4%) of the teachers strongly agreed to it; 12 (15.2%) agreed and 1 (1.3%) of

them was undecided. But 6 (7.8%) of them disagreed to it, also 2 (2.5%) of the respondents strongly disagreed to this statement as they were of the view that the technical support in the community and school is enough. A mean score of 4.49 and standard deviation of 1.02 indicates that the respondents strongly agreed that there is a lack of adequate technical support in the school and community.

Table 5 further indicated that with a mean = 3.03 SD= 1.39 and mean= 3.85 SD.= 1.39 respectively, the respondents agreed to the statements that there is a lack of knowledge about ways to integrate ICT in the teaching and learning of social studies and not enough training opportunities for the integration of ICT.

The Table further indicated that 8(10.1%) of the teachers strongly agreed that they lack the knowledge to identify ICT tools that will be useful for the teaching and learning; 4(5.1%) of the respondents agreed to this assertion but 6 (7.8%) of the respondents disagreed to this assertion and 61 (77.2%) of the respondents strongly disagreed to this assertion. A mean score of 1.65 and standard deviation 1.33 indicates that the respondents disagreed that they lack the knowledge to identify ICT tools. The Table also indicated that the teachers strongly agreed there is no access to electricity and internet connectivity in their schools with a mean of 4.85, 4.78 and standard deviation of 0.53, 0.62 respectively.

With respect to the schools' interest in ICT integration, 11 (13.9%) of the teachers strongly agreed that the school is not interested in integrating ICT in the teaching and learning of social studies; 14(17.7%) of the respondents agreed to it. Even though 1(1.3%) of the respondents was not sure of the response, 12(15.2%) of them disagreed to it and 41 (51.9) of the teachers strongly disagreed that the school is not interested in

integrating ICT. A mean score of 2.2 and standard deviation of 1.57 indicates that the teachers disagreed to this assertion.

Other related areas of the TPACK that were also analysed as follows;

What is the content knowledge of JHS Social Studies teachers in the South Dayi District?

Reading previous works, evidences suggest that Social Studies teachers have some level of content knowledge. This idea is supported by the claims of Oliver and Hannafin (2000) who provide many evidence on technological content knowledge of Social Studies teachers. This made me to gather evidence from Social Studies teachers at the Junior High School level in the South Dayi District to establish local evidence. The accrued evidences are presented in Table 5.

Table 6: Means and standard deviations results of content knowledge of Junior High School level in the South Dayi District

Content Knowledge Scale (CKS)	M	Std. D	Kurtosis	Stat. Stat.	Std.E	MR
I understand Social Studies concept well enough to be effective in teaching it.	3.63	.713	.203	.434	1st	
I can use practical examples and illustrations to promote understanding of concepts in Social Studies.	3.53	.235	.362	.834	2nd	
I effectively make use of concepts and relate them to the needs and realities of the society to help students understand what is being taught.	3.39	.283	.239	.344	3rd	
I update my knowledge of social studies by keeping abreast with development in Social Studies.	3.23	.728	.343	.274	4th	
My teacher education has thoroughly prepared me to teach social studies effectively	3.13	.623	.272	.343	5th	
I have sufficient knowledge of the social studies subject	2.72	.233	.234	.252	6th	
Mean of means/SD	3.27	.469	.275	.406		

Source: Field Data (2020)

Max. =4.00, Min. =1.00, n=79

Key-M*= Mean, **Stat.***= Statistic, **Std.D***= Standard Deviation, **MR***=Mean Ranking.

As depicted in Table 6, the result shows that generally, most Social Studies teachers in the South Dayi District have some level of content knowledge in their quest to

teach their students. This was evident after the responses of the teachers scored an overall mean ($MM=3.27$, $SD=.467$) greater than the Criterion or Cutoff value of 2.50.

Dwelling on the individual items, it was found that most the Junior High School Social Studies teachers in the South Dayi District understand Social Studies concept well enough to be effective in teaching it ($M=3.63$, $SD=.713$, $KS=.203$, $Std.E=.434$). This item was ranked first by the teachers. In the second item, it was found that most Social Studies teachers in the South Dayi District can use practical examples and illustrations to promote understanding of concepts in Social Studies ($M=3.53$, $SD=.235$, $KS=.362$, $Std.E=.834$).

In another angle, it was found that most Social Studies teachers in the South Dayi District effectively make use of concepts and relate them to the needs and realities of the society to help students understand what is being taught ($M=3.39$, $SD=.283$, $KS=.239$, $Std.E=.344$). The result further shows that most Social Studies teachers in the South Dayi District update their knowledge of Social Studies by keeping abreast with development in Social Studies ($M=3.23$, $SD=.728$, $KS=.343$, $Std.E=.234$).

In another result, it was found that teacher education has thoroughly prepared them to teach Social Studies effectively ($M=3.13$, $SD=.623$, $KS=.272$, $Std.E=.343$). Finally, it was found that most Social Studies teachers in the South Dayi District have sufficient knowledge of the Social Studies subject ($M=2.72$, $SD=.233$, $KS=.234$, $Std.E=.252$).

It validates the responses of the teachers, some of the teachers were selected and were interviewed to respond to content knowledge of JHS Social Studies teachers in the South Dayi District. One of the teachers' had this to share.....

“I believe that is teachers’ knowledge about the subject matter to be learned or taught and the content to be covered at school as the syllabus specifies. I understand content knowledge and also have sufficient knowledge on the various Social Studies concepts. I always use practical examples and illustrations to promote understanding of concepts in the Social Studies.” (Except from structured interview with Social Studies teacher 4).

One of the teachers also had this to share with me....

“For me, I understand social studies concept well enough to be effective in teaching it. In my teaching, I believe I can use practical examples and illustrations to promote understanding of concepts in Social Studies. I effectively make use of concepts and relate them to the needs and realities of the society to help students understand what is being taught. Again, I update my knowledge on Social Studies by keeping abreast with development in the Social Studies” (Except from the structured interview with Social Studies teacher 5).

The results are in line with the work of Demici (2009) and Teo (2008) who revealed that teachers’ have positive attitudes towards GIS was an important determinant to the successful integration of GIS into geography lessons. Studies have shown that teachers’ attitudes towards technology influence their acceptance of the usefulness of technology and its integration into teaching (Huang & Liaw, 2005).

Similarly, the results support a survey of UK teachers also revealed that teachers’ positivity about the possible contributions of ICT was moderated as they became ‘rather more ambivalent and sometimes doubtful’ about ‘specific, current advantages’ (Becta, 2008, p.45).

The results share a common ground with the study of Ruto and Ndaloh (2013). They conducted a study on the use of instructional materials for the teaching of History and Government in Kenya found that 62% of teachers in the study used textbooks frequently while 54% used maps. Again, 80% of the respondents are reported to have

never used the radio in teaching History and Government in their schools with only 3% reporting frequent usage.

Similarly, my results are corroborated by the results of Oppong (2009) which reported that apart from the History textbook, History teachers do not make use of other instructional and technologically oriented resources such as audio media, visual media and audio-visual media in History teaching.

The results from the study show that the use of technological tools for instruction is an area which has not been explored by most History teachers. Likewise, a study by Yidana (2007) on teachers' level of technology adoption for instructional purposes revealed that 50% of participants were in the low technology users' category, 34.8% of participants were in the moderate technology users' category, while only 14.4% fell within the high users' category.

What is the Pedagogical content knowledge of JHS Social Studies teachers in the South Dayi District?

Pedagogical content knowledge of social studies includes the skills, beliefs and conceptions about teaching. It further encompasses knowledge of how students learn, instructional planning and implementation, classroom management, and student assessment and thus encapsulates the conception of the overall purposes of education, values, goals and strategies of education as well as the processes and practice of teaching and learning. This gives evidence to how pedagogical content knowledge is very essential in Ghanaian classroom. This triggered me to obtain evidence from Social Studies teachers at the Junior High School level in the South Dayi District. The ensued evidences are presented in Table 7.

Table 7: Means and standard deviations results of pedagogical knowledge of Junior High School level in the South Dayi District

Pedagogical Knowledge Scale (PKS)	M Stat.	Std. D Stat.	Kurtosis Stat.	Std.E	MR
I adopt my teaching based upon what students understand or do not understand	3.49	.643	.345	.123	1st
I know how to assess student performance in a classroom	3.43	.743	.345	.432	2nd
I am familiar with common student understanding and misunderstanding.	3.41	.845	.232	.235	3rd
I adopt my teaching style to different learners	3.12	.434	.223	.245	4th
I use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/ project based learning etc.)	3.09	.456	.643	.543	5th
I know how to organize and maintain discipline in classroom.	2.92	.434	.225	.454	6th
Mean of means/SD	3.22	.498	.320	.336	

Source: Field Data (2020)

Max. =4.00, Min. =1.00, n=79

Key-M* = Mean, Stat.*= Statistic, Std.D*= Standard Deviation, MR*=Mean Ranking.

As portrayed in Table 7, the results indicated that, most Social Studies teachers in the South Dayi District have some level pedagogical knowledge in their pursuit to teach their students. This was obvious after the responses of the teachers scored an overall mean (MM=3.22, SD=.498) greater than the Criterion or Cutoff value of 2.50.

In this regards, it was found that most Social Studies teachers in the South Dayi District adopt their teaching based upon what students understand or do not understand (M=3.49, SD=.643, KS=.345, Std.E=.123) and this explains how the teachers possess higher knowledge in pedagogical knowledge.

In another related results, it was found that most Social Studies teachers in the South Dayi District know how to assess student performance in a classroom (M=3.43, SD=.743, KS=.345, Std.E=.432). It was again found that most Social Studies teachers

are familiar with common student understanding and misunderstanding (M=3.41, SD=.845, KS=.232, Std.E=.235).

The results further suggested that most Social Studies teachers know how to assess student performance in a classroom (M=3.13, SD=.332, KS=.233, Std.E=.323). Similar results were recounted as the teachers asserted that they adopt their teaching style to different learners (M=3.12, SD=.434, KS=.223, Std.E=.245). It was again found that most of the teachers use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/ project based learning etc.) (M=3.09, SD=.456, KS=.643, Std.E=.543). Finally, it was found that most teachers know how to organize and maintain discipline in classroom (M=2.92, SD=.434, KS=.225, Std.E=.454).

In another interaction, one of the teachers indicated this.....

“For me, I use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/project based learning). I adopt my teaching based on what students understand or do not understand, my teaching style is also based on different learners. I am familiar with common student understanding and misunderstanding.” **(Except from the structured interview with Social Studies teacher 6).**

The results are in line with the study of Buabeng-Andoh (2012) who explored Social Studies teachers’ perception of Pedagogical knowledge in giving instruction and revealed that majority of the respondents perceived that technology can offer opportunities to teachers to obtain educational resources from the internet to enrich course content and also can improve the teaching and learning process. Again, majority of the respondents indicated that technology can enhance students’ participation and feedback and also improve students’ collaboration. The study concluded those teachers’ perceptions on the

application of technology in the teaching and learning environment was positive.

What is the Technological Pedagogical Knowledge of JHS Social Studies teachers in the South Dayi District?

Reading the assertions of Schmidt, Baran, Thompson, Mishra, Koehler and Shin (2009), Technological Pedagogical Knowledge (TPK) is referred as knowledge of using technology to implement different teaching methods. It is the knowledge of how various technologies can be used in teaching and to understanding that using technology may change the way teachers teach. Social Studies Teachers need to be exposed to Technological Pedagogical Knowledge (TPK) to enable them teach effectively. This made the researcher to find out the Technological Pedagogical Knowledge (TPK) of Studies teachers at the Junior High School level in the South Dayi District. The found confirmations by the teachers are presented in Table 8.

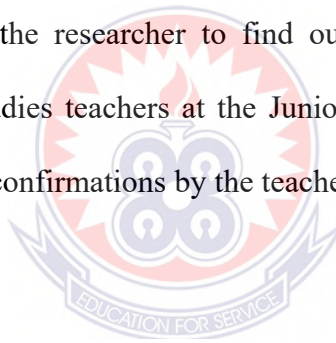


Table 8: Means and Standard Deviations Results of Technological Pedagogical knowledge of Junior High School level in the South Dayi District

Technological Pedagogical Knowledge Scale (TPKS)	M	Std. D	Kurtosis		MR
			Stat.	Stat.	
I think critically about the type of technology to use in my classroom	3.43	.432	.334	.395	1 st
I can adopt the use of the technologies to different teaching activities	3.13	.240	.434	.145	2 nd
I know about technologies that I can use for understanding and teaching Social Studies	3.02	.424	.322	.363	3 rd
My teacher education program has enabled me to think deeply about how technology could influence teaching approaches I use in my classroom	2.94	.334	.232	.323	4 th
I can choose technologies that enhance students' learning for a lesson	2.65	.233	.455	.132	5 th
Mean of means/SD	3.03	.333	.375	.263	

Source: Field Data (2020)

Max. =4.00, Min. =1.00, n=79

Key-M* = Mean, Stat.*= Statistic, Std.D*= Standard Deviation, MR*=Mean Ranking.

In line with the technological pedagogical knowledge of Junior High School in the South Dayi District, the teachers reported that they have some level technological pedagogical knowledge in their pursuit to teach their students. This was profound after the responses of the teachers recorded an overall mean (MM=3.03, SD=.333) greater than the Criterion or Cutoff value of 2.50. It was found that most teachers think critically about the type of technology to use in their classroom (M=3.43, SD=.432, KS=.434, Std.E=.395).

In another evidence, it was found that most of the teachers can adopt the use of the technologies to different teaching activities (M=3.13, SD=.240, KS=.434, Std.E=.145). Knowing about technologies that they can use for understanding and teaching Social Studies was found to be high among the students (M=3.02, SD=.424,

KS=.322, Std.E=.362). Moreover, it was found teacher education program has enabled them to think deeply about how technology could influence teaching approaches they use in their classroom (M=2.94, SD=.334, KS=.232, Std.E=.323). The final aspect was that most of the teachers can choose technologies that enhance their students' learning for a lesson (M=2.65, SD=.233, KS=.455, Std.E=.132).

The results are in line with the study of Koh, Chai and Tsai (2010) who conducted a study to determine teachers view on technological pedagogical content knowledge (TPACK), their self-efficacy, and whether these views changed according to sex, age, period of service, faculty graduated from, branch access to the internet, the use of technology level and access to in-service training which is oriented to the use of technology (TK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technological content knowledge (TCK) and technological pedagogical knowledge (TPK). According to this study, teachers' self-efficacy perceptions on, CK and PCK, and did not change according to sex while there was significant statistical difference between teachers' TK ($t(278) = 3.035, p < 0.05$) and TPACK ($t(278) = 2.124, p < 0.05$) on self-efficacies and the variable of sex.

4.3 Results from the Observations

To validate the responses of the technological pedagogical content knowledge (TPACK), an observation was conducted to crosscheck the activities of the teachers with respect to their technological pedagogical content knowledge (TPACK). In measuring the constructs, were scored as 1= Not at all competent, 2=Somehow competent, 3=Competent, 4=Very competent. Statistically, the results were interpreted as any item that scored a means from 3.50 to 4.00 was regarded as Very competent, 2.50 to 3.49 was regarded as Competent, from 1.50 to 2.49 was observed

Somehow competent and finally, 1.49 and below was referred to as Not at all competent. The results are presented in Table 8.

Table 9: Observation checklist results

Statements on the observational checklist	M	SD	Rank	Remarks
Teachers can use technological resources to extend teaching of Social Studies beyond the classroom.	2.14	.344	1 st	Somehow competent
Teachers can represent and formulate the “Social Studies” content that integrate technology and makes it comprehensible to learners.	2.10	.243	2 nd	Somehow competent
Teachers have knowledge on modern/advanced technologies such as computer, internet, interactive white board, digital video and overhead projectors.	2.01	.353	3 rd	Somehow competent
Teachers have knowledge on standard technologies such as books, dry erasers boards, chalkboards.	1.74	.343	4 th	Somehow competent
Teachers blend technological tools with student initiated investigations, discussions, compositions, or projects across Social Studies content area.	1.29	.423	5 th	Not at all competent
Teacher uses technological resources to deliver the curriculum content of Social Studies to students.	1.22	.430	6 th	Not at all competent

Source: Field Data (2020)

(n=79)

More clear evidence is ensued in Table 9 as the personally and obviously observed that some indicators that measure the technological pedagogical content knowledge (TPACK) of teachers in the South Dayi District. The results gave ample evidence to believe that most Social Studies teachers in the South Dayi District do not really have the required technological pedagogical content knowledge (TPACK) as being self-reported in the questionnaire results.

The observation results exposed the teachers’ stance that they have the required technological pedagogical content knowledge (TPACK). For example, it was found

that Teachers cannot really use technological resources to extend teaching of Social Studies beyond the classroom ($M=2.14$, $SD=.344$).

In another result, it was found that teachers cannot really represent and formulate the “Social Studies” content that integrate technology and makes it comprehensible to learners ($M=2.10$, $SD=.243$). This results contradicts the assertions of the teachers that they possess the required technological pedagogical content knowledge (TPACK).

In another related observational evidence, it was found that teachers do not really have knowledge on modern/advanced technologies such as computer, internet, interactive white board, digital video and overhead projectors. Some of them lacked the basic technologies such as computer, internet, interactive white board, digital video and overhead projectors to be able to teach the needed Social Studies skills ($M=2.01$, $SD=.353$).

In furtherance to the above, it was observed that teachers do not really have knowledge on standard technologies such as books, dry erasers boards, chalkboards and this could have some consequences on the teaching of the Social Studies ($M=1.74$, $SD=.343$). In another related result, it was found that teachers do not blend technological tools with student-initiated investigations, discussions, compositions, or projects across Social Studies content area. The final observation suggested that teachers uses technological resources to deliver the curriculum content of Social Studies to students. To this end, it can be conclusive that teachers are not component technological pedagogical content knowledge (TPACK).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Overview

The main thrust of the study was to assess the factors influencing the integration of Technological and Pedagogical Content Knowledge of Social Studies Teachers in the South Dayi District in the Volta Region of Ghana. Thus, this chapter seeks to present a summary of the research process as well as the key findings that emerged from the study. Based on the findings, conclusions were drawn and recommendations were provided which empowered appropriate suggestions to be made for further research, policies and theories.

5.1 Summary of the Study

Literature gives evidence to believe that the world is experiencing rapid changes to which the educational front is becoming more aware of continuous shifts in the learning environments, and the need for the current generation of Social Studies teachers to exhibit and appreciate the need for integration of new knowledge in the teaching and learning process. As Berson (2000) asserts, one of the major purposes of Social Studies is to promote effective citizens who possess the critical thinking and decision-making skills to function in a democratic society. Thus, reflective inquiry, problem solving and decision-making skills are considered essential for the contemporary Social Studies education.

The assertions claimed by previous studies coupled with observations and experiences made me to examine and assess the factors influencing the integration of

Technological and Pedagogical Content Knowledge of Social Studies Teachers in the South Dayi District in the Volta Region of Ghana. The study explicitly sought to:

1. examine the technological knowledge of JHS Social Studies teachers in the South Dayi District.
2. assess the Technological Pedagogical content knowledge of JHS Social Studies teachers in the South Dayi District.
3. Examine how ICT competences influence JHS Social Studies teachers' integration of technology, pedagogy and content knowledge in teaching.
4. Examine the factors that influence JHS Social Studies teachers' integration of technology, pedagogy and content knowledge in teaching.

To achieve these objectives, the study was engrained in the descriptive survey. Questionnaire and observations data were collected at the same time and analysed in balancing manner to validate each other. A total of 79 questionnaires were disseminated to the teachers, retrieved and returned and for analysis. A self-developed questionnaire and observation guide formed the basis for the data collection. The quantitative data were analysed using descriptive statistics (means, standard deviations, frequency and percentages) whilst the qualitative data were analysed using thematic data analysis approach. The research instruments were pre-tested and reliability and validity were ensured. Ethical issues were also considered before the actual data collection.

5.2 Key Findings

The following findings were found and established for the study.

1. In relation to research question one, which was to examine the technological knowledge of JHS Social Studies teachers in the South Dayi District was assessed. From the self-reported data, it was found that the teachers can learn technology easily, know how to solve their own technical problems as far as the use of I.C.T is concerned, know a lot of different technologies used in teaching Social Studies, keep abreast with important new technology etc. But the observational results disproved the teachers.
2. The research question two was to assess Technological Pedagogical Content Knowledge of JHS Social Studies teachers in the South Dayi District. The results from the teachers indicated that they possessed some Technological Pedagogical Content Knowledge. Examples of some of the reports were that they can use strategies that combine content, technologies and teaching approaches, they can select technologies to use in their classroom that enhance what they teach and what students learn, can teach lessons that appropriately combine Social Studies technologies and teaching approaches and they can choose technologies that enhance the content for a lesson. However, the observational results were in contrary to the teachers self-reported data.
3. In the research question three, which was to assess how ICT competences influence JHS Social Studies teachers' integration of technology, pedagogy and content knowledge in teaching? It was found that, majority of teachers know how to solve their own technical problems as far as the use of I.C.T is concerned, can easily learn technology, are very much abreast with new technology to help them in their lessons, know a lot of different technologies

used in teaching Social Studies and finally, have the skills needed to use technology in the teaching and learning of social studies in their classrooms.

4. In relation to research question 4, which was to examine some factors that influence JHS Social Studies teachers' integration of technology, pedagogy and content knowledge in teaching, majority of teachers agreed that the following are some of the factors that influence the integration of TPACK into teaching and learning of Social Studies in the South Dayi District, not enough access to technologies e.g. computers and projectors, no availability of computer software, lack of adequate technical support in the school and community, not enough training opportunities for the integration of ICT and no access to electricity and internet connectivity in the Schools.

5.3 Conclusion

5. Based on the findings of the study, the following conclusions are drawn that even though teachers proffered to possess the technological knowledge, and the Technological Pedagogical content knowledge but it appears that in the classroom, they are not really practicing the knowledge they claim they possess. The results further gave evidence to settle that some factors are greatly influencing the integration of TPACK in the various Schools in the District i.e. not enough access to technologies e.g. computers and projectors, no availability of computer software, lack of adequate technical support in the school and community, not enough training opportunities for the integration of ICT and no access to electricity and internet connectivity in the Schools.

From the study, I can infer that Junior High School Social Studies teachers in the South Dayi District in the Volta Region of Ghana possessed the requisite content

knowledge needed to successfully nurture students to become successful citizens of the society.

Again, I can conclude that Junior High School Social Studies teachers in the South Dayi District possessed the needed knowledge that can transform the subject matter through the use of technological resources such as multimedia/hypermedia to support students learning to encourage higher order thinking skills like analysis, synthesis, and evaluation to become active learners rather than memorizing knowledge.

Moreover, I can settle that Social Studies teachers in the Junior High School Social Studies teachers in the South Dayi District possessed the technological pedagogical knowledge needed to find novel ways where technological applications can be modified to suit their classroom teaching and learning practices.

Finally, from the study, I can infer Social Studies teachers in the Junior High School Social Studies teachers in the South Dayi District possessed the competence, the technological skills, technological-supported pedagogical skills and technological related- classroom management skills needed to effectively fit the computer (technology) to the curriculum and not the curriculum to the computer.

5.4 Recommendations

The following recommendations have been made regarding the result of the study for policy and practice. It is envisaged that these recommendations, when taken into consideration would bring about efficiency and effectiveness in the teaching and learning of Social Studies in the South Dayi District.

1. In order to improve Social Studies teachers 'technological knowledge, it is recommended that Social Studies Teachers' technological Knowledge must be

enhanced through training programmes such as frequent delivering of workshops, seminars and in-service training to sharpen their technological skills, academic and professional competences in order to improve the teaching of Social Studies in the South Dayi District in the Volta Region of Ghana. The above recommendation is in line with the findings from research questions 1.

2. Due to the boundless nature of technological pedagogical content knowledge of Social Studies, it is imperative that Regional Director of Education and the Social Studies curriculum specialists/experts from the Ministry of Education organize short fresher courses and professional development courses for Social Studies teachers to enable them sharpen their academic and professional competences. This would lead to the improvement in the choice of modern trend for the teaching and learning of the subject “Social Studies”. The above commendation is also in line with findings from research question 2 & 3.
3. With the findings from research question 4, it is recommended that government and other stakeholders (parents, Social Studies teachers, Social Studies international bodies) within the society should ensure that the various Schools are provided with the basic technological tools i.e. computers, projectors and other educational soft wares to enhance effective and efficient integration of technology into the teaching of Social Studies.
4. Also, supervisors and school headmasters should also engage in some form of clinical supervision for the Social Studies teachers in order to encourage them integrate technology fully into their teaching.

5. Lastly, in order to facilitate effective and efficient technological integration among Social Studies teachers, a new course should be developed and mounted within our teacher training institutions. The course must be developed in two parts. The concentration of the first phase must be the development of technological skills and competencies while the second phase should then focus on helping the Social Studies teacher trainees to blend their technological skills with their pedagogical techniques and subject content. This is also in line with the findings from research questions 1, 2 & 3.

5.5 Suggestion for Further Studies

The study assessed the Technological and Pedagogical Content Knowledge of Social Studies Teachers in the South Dayi District in the Volta Region of Ghana. To further extend literature in this area, the following areas are suggested for further studies

1. A comprehensive study should be conducted on the same topic on a larger sample size across other schools, districts, municipalities so that the findings could be generalised. Students could also be included in such a study to compare their responses to that of the teachers to ascertain whether teachers are making effort in their teaching.
2. Other research approaches (e.g. correlational designs) should be used to replicate the study to see if the findings would be the same.

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APPENDICES

APPENDIX A

Questionnaire for Teachers

UNIVERSITY OF EDUCATION, WINNEBA, SOCIAL STUDIES

DEPARTMENT OF BASIC EDUCATION

Dear Sir/Madam,

This questionnaire is designed to obtain information for the purpose of thesis writing at the University of Education, Winneba. It is intended to find out the content knowledge of teachers in social studies, how social studies teachers apply methods in teaching Social Studies and the technological skills Social Studies teachers apply in teaching Social Studies. As such there are no right or wrong answers. Please answer the questions as frankly as possible. The information you provide will be treated as confidential and your anonymity is highly assured.

QUESTIONNAIRE FOR TEACHERS

SECTION A

BIOGRAPHIC DATA

Please respond by ticking [] in the appropriate box the response applicable to you.

Gender:

Male []

Female []

Age:

Below 30 []

30-35 []

36-39 []

40-45 []

Above 45 []

What is your highest professional qualification?

Teachers Cert “A” []

Diploma in Education []

Bachelor Degree in Education []

Other, please specify

What is your highest academic qualification?

Including the current year, how many years have you taught Social Studies?

Below 3 []

5- 10 []

11- 16 []

17- 20 []

21- 25 []

Above 25 []



Section B

Content Knowledge of Social Studies Teachers

CONTENT KNOWLEDGE	SD	D	U	A	SA
I have sufficient knowledge of the social studies subject					
I update my knowledge of social studies by keeping abreast with development in Social Studies.					
I understand social studies concept well enough to be effective in teaching it.					
My teacher education has thoroughly prepared me to teach social studies effectively					
I can use practical examples and illustrations to promote understanding of concepts in Social Studies.					
I effectively make use of concepts and relate them to the needs and realities of the society to help students					

understand what is being taught.					
PEDAGOGICAL KNOWLEDGE					
I know how to assess student performance in a classroom					
I adopt my teaching based upon what students understand or do not understand					
I adopt my teaching style to different learners					
I use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/ project based learning etc.)					
I am familiar with common student understanding and misunderstanding.					
I know how to organize and maintain discipline in classroom.					

SECTION D**TECHNOLOGICAL KNOWLEDGE**

I know how to solve my own technical problems as far as the use of I.C.T is concerned.					
I can learn technology easily					
I keep abreast with important new technology					
I know a lot of different technologies used in teaching Social Studies.					
I have the skills I need to use technology					

SECTION E**TECHNOLOGICAL PEDAGOGICAL KNOWLEDGE**

I know about technologies that I can use for understanding and teaching Social Studies					
I can choose technologies that enhance students' learning for a lesson					
My teacher education program has enabled me to think deeply about how technology could influence teaching approaches I use in my classroom					
I think critically about the type of technology to use in my classroom					
I can adopt the use of the technologies to different teaching activities					

SECTION F**TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE**

I can teach lessons that appropriately combine social studies technologies and teaching approaches					
I can select technologies to use in my classroom that enhance what I teach and what students learn					
I can use strategies that combine content, technologies and teaching approaches.					
I can choose technologies that enhance the content for a lesson					

SECTION G**CHALLENGES FACED IN USING TECHNOLOGY**

Not enough access to technologies e.g. computers and projectors					
Non availability of computer software					
Lack of time on school time table for integrating ICT					
Lack of adequate technical support in the school/community.					
Lack of knowledge about ways to integrate ICT in lesson					
ICT integration is not the school priority					
No enough training opportunities for ICT integration.					
Lack of knowledge to identify ICT tools that will be useful					
No access to electricity in the school					
No access to internet connectivity in the school					
Curriculum does not allow enough time to integrate ICT in teaching					
The School is not interested in integrating ICT					

APPENDIX B

Observation Check List

TECHNOLOGY PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) OF SOCIAL STUDIES TEACHER

Statement Scale: 1= Not at all competent, 2=Somehow competent, 3=Competent, 4=Very competent

TPACK	1	2	3	4
Teachers have knowledge on standard technologies such as books, dry erasers boards, chalkboards.				
Teachers have knowledge on modern/advanced technologies such as computer, internet, interactive white board, digital video and overhead projectors.				
Teacher uses technological resources to deliver the curriculum content of Social Studies to students.				
Teachers blend technological tools with student-initiated investigations, discussions, compositions, or projects across Social Studies content area.				
Teachers can represent and formulate the “Social Studies” content that integrate technology and makes it comprehensible to learners.				
Teachers can use technological resources to extend teaching of Social Studies beyond the classroom.				

APPENDIX C

Content Knowledge of Social Studies Teachers

STRUCTURED INTERVIEW ON TECHNOLOGY PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) OF SOCIAL STUDIES TEACHERS

Please Tick or Circle the appropriate option.

1. Do you have sufficient knowledge of the Social Studies subject?
 - a. Yes
 - b. No
 - c. Don't know
2. Do you update your knowledge of Social Studies by keeping abreast with development in Social Studies?
 - a. Yes
 - b. b. No
 - c. c. Occasionally
3. Do you understand social studies concepts well enough to be effective in teaching it?
 - a. Yes
 - b. No
4. Did your teacher education thoroughly prepared you to teach Social Studies effectively?
 - a. Yes
 - b. No
5. Can you use practical examples and illustrations to promote understanding of concepts in Social Studies?
 - a. Yes
 - b. No
6. Can you effectively make use of concepts and relate them to the needs and realities of the society to help students understand what is being taught?
 - a. Yes
 - b. No



Pedagogical Knowledge of Social Studies teachers

7. Do you know how to assess student performance in a classroom?
 - a. Yes
 - b. No
8. Do you adopt your teaching based upon what students understand or do not understand?
 - a. Yes
 - b. No
9. Do you adopt your teaching style to different learners?
 - a. Yes
 - b. No
10. Do you use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/project based learning)?
 - a. Yes
 - b. No
11. Are you familiar with common student understanding and misunderstanding?
 - a. Yes
 - b. No
12. Do you know how to organize and maintain discipline in classroom?
 - a. Yes
 - b. No



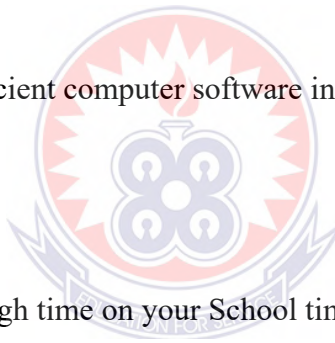
Technological Knowledge

13. Do you know how to solve your own technical problems as far as the use of I.C.T is concerned?
 - a. Yes
 - b. No
 - c. Not all
14. Can you learn technology easily?
 - a. Yes
 - b. No
 - c. It depends on its complexity

15. Can you keep abreast with important new technology?
 - a. Yes
 - b. No
16. Do you know a lot of different technologies used in teaching Social Studies?
 - a. Yes
 - b. No
17. Do you have the skills you need to use technology?
 - a. Yes
 - b. No
 - c. Not all

Challenges faced in using technology

18. Do you have enough access to technologies e.g. computers and projectors?
 - a. Yes
 - b. No
 - c. Not enough
19. Do you have sufficient computer software in your School?
 - a. Yes
 - b. No
 - c. Not adequate
20. Do you have enough time on your School time table for integrating ICT?
 - a. Yes
 - b. No
 - c. Not adequate
21. Do you have adequate technical support in your School/community?
 - a. Yes
 - b. No
 - c. Not adequate
22. Do you have enough knowledge about ways to integrate ICT in lesson?
 - a. Yes
 - b. No
 - c. Not adequate
23. Is ICT integration your school's priority?
 - a. Yes



b. No

23. Did you have enough training opportunities for ICT integration?

a. Yes

b. No

c. Not adequate

24. Do you have adequate knowledge to identify ICT tools that will be useful?

a. Yes

b. No

c. Not adequate

25. Do you have access to electricity in the school?

a. Yes

b. No

26. Do you have access to internet connectivity in the school?

a. Yes

b. No

27. Does the Curriculum allow enough time to integrate ICT in teaching?

a. Yes

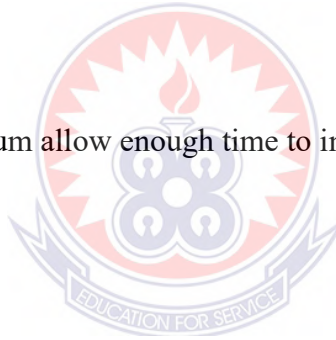
b. No

c. Not adequate

28. Is your School interested in integrating ICT?

a. Yes

b. No



Thank You.

APPENDIX D

Reliability Test Results of the Instrument

CONTENT KNOWLEDGE OF SOCIAL STUDIES TEACHERS

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.827	06

APPENDIX E

Reliability Test Results of the Instrument

PEDAGOGICAL KNOWLEDGE OF SOCIAL STUDIES TEACHERS

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.745	06

RELIABILITY TEST RESULTS OF THE INSTRUMENT

TECHNOLOGICAL KNOWLEDGE

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.805	06

RELIABILITY TEST RESULTS OF THE INSTRUMENT

TECHNOLOGICAL PEDAGOGICAL KNOWLEDGE

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.765	05

RELIABILITY TEST RESULTS OF THE INSTRUMENT

TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	.711	N of Items	04
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RELIABILITY TEST RESULTS OF THE INSTRUMENT

CHALLENGES FACED IN USING TECHNOLOGY

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.734	12

APPENDIX F

Introductory Letter



Date: December 11, 2019

The District Director
South Education Directorate
Ho, V/R

Dear Sir/ Madam,

LETTER OF INTRODUCTION


We forward to you, a letter from Mr. Asempa David a second year M.Phil student of the Department of Basic Education, University of Education, Winneba, with registration number 81800300007.

Mr. Asempa David is to carry out a research on the Topic *“Technological and Pedagogical Content Knowledge of Social Studies Teachers in the South Dayi District in the Volta Region”*.

We would be grateful if permission is granted him to carry out his studies in the Municipality.

Thank you.

Yours faithfully,


MRS. SAKINA ACQUAH (PHD)
(Ag. Head of Department)