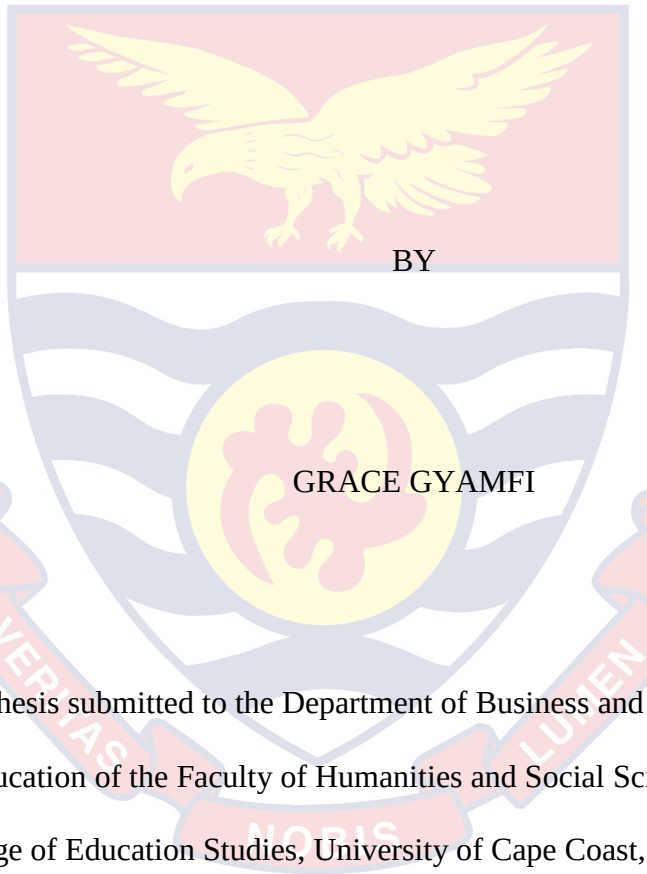
UNIVERSITY OF CAPE COAST

BUSINESS MANAGEMENT TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE AND STUDENTS' ACADEMIC PERFORMANCE IN BUSINESS MANAGEMENT



BY

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DECLARATIONS

Candidate's Declaration

I hereby declare that the 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.

Candidate's Signature…… Date……

Name: Grace Gyamfi

Supervisors' Declaration

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

Principal Supervisor's Signature…… Date……..……

Name: Dr. Eric Mensah

Co-Supervisor's Signature……. Date…….…….

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ABSTRACT

The purpose of this study was to examine Business Management (BM) teachers' PCK influence on students' academic performance in Business Management. The descriptive correlational research design was adopted for the study. A sample of 177 students and 17 teachers was selected from all senior high schools in the Asuogyaman District in the Eastern Region of Ghana. Questionnaires were the sole data collection instrument employed in the conduct of the study. The data collected was analysed using means and standard deviations and linear multiple regression. The study revealed that BM teachers demonstrated high level of content knowledge, pedagogical knowledge and pedagogical content knowledge. Again, the study revealed that there was a statistically significant relationship between Content Knowledge and Pedagogical Content Knowledge (PCK) and the academic performance of students. However, the relationship between pedagogical knowledge and academic performance was not statistically significant. It is concluded that content knowledge significantly predicted academic performance more than pedagogical content knowledge while pedagogical knowledge did not predict academic performance. It is recommended that school authorities in collaboration with the Ghana Education Service organise continuous professional development programmes for teachers on how they can improve and apply their content knowledge and pedagogical content knowledge in their teaching.

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Many people have contributed to the success of this project. First of all, I would like to express my profound gratitude to my supervisors, Dr. Eric Mensah and Dr. Isaac Atta Kwenin for all their guidance and support throughout this project.

To the Asuogyaman District Directorate of Education as well as the headmasters of all the Senior High Schools in the District, I say a big thank you for all your support during the period of my study. Last but not least, I say thank you to all my family and friends.

DEDICATION

To my family.

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CHAPTER ONE

INTRODUCTION

Teaching is seen as a crucial activity in the entire educational process. The teachers' instructional competence in the delivery of the contents that is expected to cause the behavioural change in the learner, is argued to have a direct impact on the behaviour demonstrated by the student at the end of the instructional period. Teachers competence in instruction can be seen from their level of developed content knowledge, pedagogical knowledge and pedagogical content knowledge. It is therefore imperative to examine the developmental level of these dimensions in a teacher and determine their effect on the academic performance of students.

Background to the Study

Education plays significant roles in the socio-economic development of every nation. The quality of the educational system depends on the quality of the teachers and students' performance. According to UNESCO (2010), students' academic performance is an indicator of quality education and quality teachers. Shulman (1987) proposed seven knowledge-based concepts (content knowledge, pedagogical knowledge, curricula knowledge, knowledge of educational context, knowledge of child psychology and pedagogical content knowledge) as determinants of teacher quality. Cochran, King, and DeRuiter (1991) asserted that pedagogical content knowledge (PCK) plays a central role in teacher professional knowledge because it enhances effective teaching. According to Bosu (2010), a teacher who is a subject specialist but lacks pedagogical skills is as deficient as a teacher who has pedagogical skills but is not knowledgeable in the content area. This underscores the need for

teachers to have knowledge in both content and pedagogy to become professionally useful as teachers. Some researchers (Shulman, 1987; Abbitt, 2011) have indicated that several teacher factors (teachers' knowledge base, qualification, teaching experience) influence students' academic performance.

The theory of pedagogical content knowledge has been a phenomenon generally accepted by many countries such as the Netherlands, England, the United States and Australia (Solís, 2009). The basis of the epistemology of pedagogical content knowledge comes from the understanding that education is a complicated occupation that requires knowledge of many subject areas and a cognitive skill that must be developed. Historically, teacher education has revolved around what the teacher's own specialty is. However, teacher education philosophy has changed from single subjects to pedagogy, emphasising universal classroom practices independent of subject matter (Mishra & Koehler, 2006).

As argued by several classical authors (Shulman, 1987; Grossman, 1990; Cochran, King, & DeRuiter, 1991; Graça, 1997), the knowledge base for teaching refers to the area of knowledge needed for teaching in different instructional contexts to obtain the objectives of students' learning and training. Cochran et al. (1991) accord pedagogical content knowledge (PCK) the central role in a teacher's professional knowledge as it is integrated by and an integrator of the other types of knowledge (students, context, general pedagogy and context). This argument was further advanced by Marcon, Graca and Nascimento (2011b) that

> "*... PCK can be considered as one significant tool teachers' use according to their objectives, the reality of the students, and*

characteristics of the teaching and learning context. The knowledge allows teachers to convoke, manage and integrate the components of their knowledge base for teaching to adapt, transform and implement the content knowledge in a comprehensible and teachable way" *(Marcon, Graça, & Nascimento, 2011b, p. 332*).

Among the components of the knowledge-base for teaching, pedagogical knowledge may be depicted through the educational principles and conceptions of teaching expressed by prospective teachers, as well as through the pedagogical strategies they use to plan, organise and manage teaching and learning situations in order to overcome the mere repertoire of content knowledge and pursue broader educational goals and learning (O'Sullivan & Doutis, 1994; Rink, 1997; Morine-Dershimer & Kent, 1999; Seel, 1999; Amade-Escot, 2000; Metzler, Tjeerdsma, & Mozen, 2000; Schincariol, 2002; Whipple, 2002; Behets & Vergauwen, 2006; Grossman, 2008; Rovegno, 2008). The importance of pedagogical knowledge is not overlooked by Shulman (1986) in his reference to the "missing paradigm", that is the untenable absence of the content in educational research, as he also observes that "mere content knowledge is likely to be as useless pedagogically as a content-free skill" (p. 8). In reinterpreting the original proposal by Shulman (1986), Grossman (1990) suggests that general pedagogical knowledge is responsible for bringing together "a body of general knowledge, beliefs, and skills related to teaching", which includes knowledge about the students and the learning, the curriculum and the instruction, and an additional component known as "classroom management" (pp. 5–6). Along with Grossman (1990), Metzler, Tjeerdsma, and Mozen (2000), Morine-Dershimer

and Kent (1999), and Seel (1999) noted that the levels of learners' engagement and achievement are strongly related to the quality and significance of pedagogical strategies adopted by the teachers.

In general, the provision of pedagogical knowledge intends to establish a worldwide theoretical foundations and methodological resources for teaching performance which enable prospective teachers to envisage the tasks and issues involved in teaching and learning regardless of the area in which they work. Marks (1990) examined the sources of PCK and the way those sources interact to derive PCK. The author was able to distinguish three different derivations: (1) a process of interpretation, rooted in subject matter knowledge, in which "content is examined for its structure and significance, then transformed as necessary to make it comprehensible and compelling to a particular group of learners" (p. 7), (2) a process of specification, rooted in general pedagogical knowledge, consisting of "an appropriate instantiation of a broadly applicable idea in a particular context" (p. 8), and (3) a process of synthesis, in which there is no primacy of subject matter or general pedagogical knowledge, but it involves both of them together with prior PCK. Concerned with the questions related to the treatment given to the content of teaching, Amade-Escot (2000) presented didactics as an alternatives to the unsatisfactory ways of research on teaching Business Management (BM) thought about teaching practices. For that purpose, the author divided the analysis of the field into three scales: *macro*, *meso*, and *micro* levels of analysis. Attending to these three levels of analysis makes it possible to examine the prospective teachers' pedagogical knowledge just in the interfaces of learners' performance and learning, curriculum and instruction,

or classroom management and, therefore, to probe how all these components concur to the construction of PCK.

The *macro* level encompassing the structure of the school curriculum refers to the permeability, inter disciplinarily, and coexistence of different subject areas in a school curriculum structure, to the particular contribution of Business Management to the attainment of the educational goals of the entire school system, and ultimately to the justification of the presence of Business Management within a school curriculum. The world has introduced meso level as the immediate level after the macro level. The *meso* level focuses on the organisation of knowledge to be accessible to students. It refers to the ways in which knowledge and content topics may be purposefully and coherently assembled, combined, structured, and sequenced in order to design, implement and evaluate teaching over periods much longer than a single lesson. Teaching strategies, styles, methods, and models are assets that teachers may adopt or adapt to facilitate the construction of new knowledge by the students.

The *micro* level aims at the direct intervention of teachers with students in the classroom. It refers to the planning and implementation of various strategies to meet the demands of specific teaching and learning situations, by attending to the characteristics, interests and needs of the students. The micro level includes the negotiations, adjustments, and changes engendered by the uniqueness of dilemmas and problem situations that permeate the practice of teaching. The structuration and gradual improvement of pedagogical knowledge provide prospective BM teachers with the required conditions to advance consistently in the construction and refinement of the core component of the knowledge base for teaching (Shulman, 1987; Cochran,

et al., 1991; Amade-Escot, 2000; Segall, 2004). This relationship is highlighted by Graça (1997), who describes PCK as "an amalgamation of content and pedagogy, or as the fruit of marriage between subject matter knowledge and general pedagogical knowledge" (p. 86). Based on findings and claims of several authors (O'Sullivan & Doutis, 1994; Rink, 1997; Morine, Dershimer & Kent, 1999; Seel, 1999; Amade-Escot, 2000; Metzler, et al., 2000; Whipple, 2002; Schincariol, 2002; Behets & Vergauwen, 2006; Grossman, 2008; Rovegno, 2008;), it is reasonable to presume that the PCK of those who are beginning their professional preparation in teaching Business Management is primarily constructed at the micro level of pedagogical concerns. In so far as at the very beginning, prospective BM teachers may have great difficulty in visualizing broader contexts, which depends critically on the *meso* and *macro* levels of pedagogical reasoning.

How this process grows throughout a BM teachers' education programme and how it assists PCK construction and whether the PCK construct has any influence in the performance of students in BM is inadequately known and deserves the attention of the research community. Therefore, these issues not only direct the purpose of this investigation but also justify the focus of the research agenda set forth to analyse Business Management teachers' PCK influence on the academic performance of students in Business Management. As part of this agenda, this study intended to examine how the three levels of pedagogical content knowledge emerge in the teaching of BM. The main purpose of pedagogical content knowledge is to bridge content knowledge with the practice of teaching. Hence, this study makes use of the theoretical framework of pedagogical content knowledge as

outlined by Shulman (1986), Brijlall (2011) Ball, Thames and Phelps (2008), and Ozden (2008).

Although substantial resources have been invested in pedagogical content knowledge renewal, recent studies show that teaching and learning in African classrooms continue to be characterised by traditional, teacher-dominated instruction (O'Sullivan, 2002; Chisholm & Leyendecker, 2008). Research also shows that some teachers have undertaken substantial changes and revised their practices, contributing to improved education quality in their schools (Anderson, 2002; Farrell, 2002). Uganda has followed the course of many other African countries and adopted the principles of pedagogical content knowledge in their new curriculum for primary schools. The so called thematic curriculum has recently been developed and after a one-year pilot phase, launched nationwide in February 2007. Tilya (2008) analysed the development of pedagogical content knowledge in education policies in Sub Saharan Africa. He reported that the majority of Sub-Saharan Africa countries have a national policy on content knowledge rather than pedagogical content knowledge in education, including an implementation plan.

Ghana is one of the Sub-Saharan African countries with a national policy and implementation plan for content knowledge in education. Few studies (Agyei & Voogt, 2011a, b; Bosu, 2010; Yeboah-Appiagyei, Joseph, & Fentim, 2014) conducted in Ghana report the poor academic performance of students and the teachers' PCK use in secondary education in Ghana. Agyei and Voogt (2011a, b) showed that Business Management teachers did not integrate pedagogical content knowledge in their instruction in spite of government efforts in the organisation of workshops in most senior high

schools. Major barriers to pedagogical content knowledge integration were the current teaching strategies used in senior high schools, and lack of teachers' and BM teachers' knowledge of ways to integrate pedagogical knowledge and content knowledge during instructional hours may be one of the major reasons for the poor academic performance of BM students in Africa (Tilya, 2008).

The most frequently used strategy in the senior high school classrooms was the chalk and talk approach in which teachers did most of the talking and intellectual work, while students were passive receptacles of the information provided (Ottevanger, van den Akker & de Feiter, 2007; Agyei & Voogt, 2011a). Agyei and Voogt (2011a) reported that for most teachers, effectively integrating pedagogical knowledge and content knowledge in their instruction was a complex innovation which required them to change their routines of teaching (Koehler & Mishra, 2008; Voogt, 2008). Agyei and Voogt (2011a, b) further indicated that most instructors were mainly dependent on lecture-based instruction. Also, most lecturers in the tertiary level did not integrate pedagogical content knowledge instructions in their instructional delivery for prospective teachers (Agyei & Voogt, 2011a, b). This means that the prospective BM teachers' experience in integrating pedagogical content knowledge in teaching is limited, making the programme fall short of a practical approach. This leads to the question whether the trained BM teachers are sufficiently prepared for new teaching methods which are flexible, student-centered and the application of PCK in their teaching to be able to influence the performance of students in BM.

In Ghana, students' academic performance in Business Management is a major concern to various stakeholders. The number of candidates passing the

subject Business Management in West Africa Senior Secondary Certificate Examinations (WASSCE) have dwindled (WAEC Report, 2017). For example, in 2017, out of 2,429 candidates who sat for Business Management, 52.4% had passed (A1-C6) while 47.6% of the students failed (D7-F9). This creates a state of perturbation for many stakeholders of education. This trend of falling academic standards in BM is no different from the situation in the Asuogyaman District.

From personal observation, it appears that Business Management teachers in the Asuogyaman District lack pedagogical content knowledge (PCK) in the teaching of Business Management. The few who have (PCK), also, seems not to have the general PK. A teachers' in-depth knowledge in content of the curriculum and the requisite pedagogy needed to impart knowledge to learners is critical to the academic performance of students.

Statement of the Problem

In Ghana, students' academic performance in Business Management is a key issue to many stakeholders. The annual West African Senior Secondary Certificate Examination (WASSCE) results reveal that students' performance in Business Management, over the years, still needs improvement (WAEC Report, 2018). For example, in 2015, the Chief Examiner reported that there was no significant improvement in candidates' performance. In 2016, the Chief Examiner indicated candidates' performance was slightly lower than that of the previous years'. In 2017, the Chief Examiner reported that there was a marginal improvement in performance in the subject. The Chief Examiner highlighted some weaknesses such as candidates lack in-depth knowledge of the topics. This revelation from the Chief Examiner Report is

connected to the current study because of the view by researchers such as Zohar and Schwartzer (2005) as well as Whipple (2002) that students can have adequate content knowledge if their teachers have adequate pedagogical content knowledge. Thus, making inference from the Chief Examiner Report, it can be said that the lack of in-depth content knowledge of the students can be traced, to some extent, to inadequacy of pedagogical content knowledge among teachers.

The conceptualisation of Pedagogical Content Knowledge framework has been helpful for the transformation of the subject matter for teaching that promotes insightful or successful learning. According to Shulman (1986), this transformation occurs as the teacher interprets the subject matter, finds multiple ways to represent it, and adapts and tailors the instructional materials to alternative conceptions and students' prior knowledge.

A number of studies on poor performance of students in Business Management happening in other countries were linked to teachers' level of PCK. Some of these countries are Austrialia (Creasy, Whipp & Jackson, 2012), Peru (Cueto, León, Sorto & Miranda, 2016), Sweden (Nilsson & Karlsson, 2019), South Africa (Shepherd, 2013), Nigeria (Aina & Olanipekun, 2015) and Malaysia (Hashima, Sailib & Noh, 2015). In Ghana, most studies focused on accounting teachers (Bosu, 2010), pre-service teachers (Pinamang & Cofie, 2017) and student-teachers (Abbitt, 2011; Apau, 2017; Mishra & Koehler, 2006; Owusu, 2014).

It appears that most PCK research do not look at the influence of PCK on the academic performance of students. Aside the fact that there is generally scanty literature on the influence of pedagogical content knowledge on the

academic performance of students, the academic performance of students in Business Management is appears not at the excellent level. In the Asuogyaman District, there appears to be beliefs among BM students that their teachers appear to lack some teaching skills that can make them easily understand concepts taught, thus, leading to poor performances in BM. Such beliefs or claims have however not been substantiated. It was in order to fill the above identified knowledge and geographical gap that, this study was undertaken to investigate the influence of Business Management Teachers' PCK on Business Management students' academic performance in all Senior high schools in the Asuogyaman District - Eastern Region of Ghana. Again, by conducting this study, empirical data can be obtained on teachers' PCK effect on the performance of students in senior high schools in the district.

Purpose of the Study

The purpose of this study was to examine how the Business Management teachers' PCK influences students' academic performance in Business Management. Specifically, the study sought to examine:

1. Senior High School Business Management teachers' level of content knowledge in teaching business management;
2. Senior High School Business Management teachers' level of pedagogical knowledge in teaching business management;
3. Senior High School Business Management teachers' level of pedagogical content knowledge in teaching business management; and
4. The influence of Business Management teachers' pedagogical knowledge, content knowledge and pedagogical content knowledge in

teaching Business Management on the academic performance of Business Management students.

Research Questions

This study was guided by the following questions:

1. What is the content knowledge level of SHS business management teachers in teaching Business Management?
2. What is SHS Business Management teachers' level of pedagogical knowledge in teaching Business Management?
3. What is SHS Business Management teachers' level of pedagogical content knowledge in teaching Business Management?
4. What is the influence of SHS Business Management teachers' pedagogical knowledge, content knowledge, and pedagogical content knowledge in teaching Business Management on the academic performance of Business Management students'?

Significance of the study

The findings of this study would be useful to educational planners, policy makers, and administrators in their policies and decisions concerning the Business Management syllabus. The robustness of this research work is important because the study will inform the management of the Ghana Education Service District offices on the influence of pedagogical content knowledge on the academic performance of management students of the high schools in the various districts. Through the findings of this study, management of senior high schools will be able to strategize to compel teachers to acquire and use appropriate pedagogical and content knowledge in the teaching of management.

The findings of this study will also help policy makers and agencies like the Ministry of Education, on policy formulation especially with regard to improving the academic performance of senior high students in Ghana. The research findings add dimension that may help improve policy direction with regard to improving academic performance as well as factors that spur the standard of education in the country.

Academicians and researchers in the field of education are exposed to the benefit from this study as it will help build the knowledge base in the discipline by adding on the existing literature on pedagogical content knowledge and academic performance. To a larger extent, the study suggested to these educational stakeholders the influence of business management teachers' pedagogical content knowledge on students' academic performance in Business Management. The study also revealed the relevance of pedagogical content knowledge to the success of teaching and its influence on students' performance in Business Management.

The findings of this study would also serve as a reference point or resource to any researcher who would like to conduct investigations into the influence of pedagogical knowledge and students' learning in any similar academic subject. The findings of this research will be available for the intellectual consumption of lecturers, education students and other stakeholders on campus. One other significance of this study is to give tomorrow's teachers an intellectual grounding on the influence of pedagogical knowledge as a key principle of good teaching and the need to apply it in the classroom. Thus, motivating them to adopt proper pedagogy in their teaching and hence acquiring the correct content knowledge in the teaching of the

business management. This study will also serve as a requirement for a successful completion of the researchers master's programme.

Delimitation

This study has numerous factors of concern that the researcher can consider but the focus was on the influence of BM teachers PCK on the academic performance of students in BM. Specificity was given to BM teachers content knowledge level, pedagogical knowledge level and pedagogical content knowledge level in teaching Business Management. The sample for the study consisted of respondents (both Business Management teachers and Business Management students) from all public Senior High Schools in the Asuogyaman District in the Eastern Region of Ghana.

Limitations

Teachers used for the study at the first instance, were hesitant to be a part of the study. This was because, they assumed that the researcher was in to identify some loopholes in their work as teachers. This hesitation delayed the period for the data collection since the researcher had to spend time to explain to them that the study was not meant to be a form of punishment or threat to them but rather to help them improve in their work and help students excel. This hesitation has the tendency of impacting on the responses to be gathered from the respondents.

The use of the descriptive correlational design provided a limitation where the respondents (particularly teachers) felt like the questions were invading their private lives. Another limitation provided in the use of the questionnaire as the data collection instrument was not affording the respondents the freedom to express themselves in terms of any other issue

bordering on the subject of the study. This could have helped bring to light some hidden perspectives that could not be seen from the responses generated from the questionnaires. Finally, not seeking clearance from IRB must cause an indictment on the due diligence followed and a compromise on the protocols on data collection.

Organisation of the Study

The study is divided into five chapters which discuss all the aspect of the research process. Chapter One covers the background to the study; statement of the problem; purpose of the study; research questions; significance of the study; delimitation; limitations of the study and end with the organization of the study. Chapter Two also discusses the relevant literature related to the study. It covers the theoretical framework, conceptual review and empirical review. The review captures writings of vested authorities in related areas of the study. Chapter Three covers the research methods of the study. It comprises research design, population, sample and sampling procedures, data collection instrument, data collection procedures, validity and reliability test and data analysis processing and presentation. Chapter Four focuses on the results of the data collected and its discussion. The last chapter, Chapter Five, deals with the summary, conclusions and recommendations based on the findings of the study as well as suggestions for further studies.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter informs both the theoretical, conceptual and empirical foundations upon which the ideas and opinions developed in the study are constructed. The chapter reviews literature containing thoughts and ideas shared by various authors and researchers and some regulatory bodies. For ease of comprehension, the reviews were organised and presented according to theoretical, conceptual and empirical.

Theoretical Review

The theoretical framework of this study rooted in Shulman's work of pedagogical content knowledge is relevant. This is because Shulman posited that content knowledge, pedagogical knowledge and pedagogical content knowledge of teachers determine to a large extent the performance of students.

Knowledge Base for Teaching Theory

There is a growing consensus about the need for a "more common knowledge base" to good teaching (Sikula, 1996). A lot of knowledge that informs teaching can be categorized in different ways. However, useful knowledge that informs good teaching practice is a central element for framing future teacher education. For example, Cochran-Smith (2003) organized three contrasting views on the knowledge that underpins good teaching: the first view asserted that the knowledge teachers need is the formal knowledge for teaching that has been generated by university-based researchers; the second view recognized and elevated the practical knowledge that very competent and experienced teachers have; and the third view

emphasized that the knowledge teachers need is generated when teachers across the professional lifespan work with others in inquiry communities. By answering the question of "what should a newly licensed teacher know and be able to do?", practical and research studies identified four domains of teaching tasks and knowledge and skills: general principles of teaching and learning, content, content-specific pedagogy, and enabling skills (reading and computational skills) (Reynolds, 1995). In addition, in her empirical study of primary teachers, Turner-Bisset (1999) used the concept of "pedagogical content knowledge" (Shulman, 1986a, 1986b, 1987) to frame a model for knowledge base for practice teaching. Eleven sets of knowledge are presented in this PCK model as listed above. Later, Hegarty (2000) grouped Turner-Bisset's (1999) eleven sets of knowledge into four categories: subject knowledge, teaching knowledge, content knowledge of learners, and knowledge of self. Organizing from above researchers' findings, the domains of teacher knowledge can be categorized as follows:

Subject Matter Knowledge

Substantive subject knowledge, syntactical knowledge, and beliefs about subject are all aspects of content knowledge, or subject matter knowledge (Shulman, 1987; Turner-Bisset, 1999). The substantive knowledge consists of the facts and concepts that comprise the knowledge of a subject. This knowledge also organizes frameworks to cluster the core concepts of a discipline. Syntactical knowledge refers to the means by which the proposition knowledge is generated. Views about subject knowledge indicate that the different conceptions teachers hold about a subject definitely impact teaching practice.

Curriculum Knowledge

With particular grasp of the material and programmes, Shulman (1987) saw curriculum knowledge as "tools of the trade" for teachers (p. 8). Turner-Bisset (1999) further advocated that curriculum knowledge demonstrates that teachers need not only understand the materials and programme of study available for each subject but also be able to evaluate curricular materials critically.

General Pedagogical Knowledge

General pedagogical knowledge is knowledge about teaching, usually gained from practice (Turner-Bisset, 1999). As Hegarty (2000) puts it, this is craft knowledge and encompasses expository skills, classroom management, questioning, and differentiation. Because teaching strategies and approaches have to be explored from the practice of teachers, this craft knowledge is better understood in a context-specific situation.

Knowledge of Teaching

Seeing teaching as transmitting facts or stimulating student response impacts differently on what teachers do and how they do it in classroom teaching. Knowledge of teaching can be described as values about teaching. Research (e.g. Turner-Bisset, 1999) showed that knowledge about teaching from their own school experience shapes the student teachers' perceptions of teaching and their own developing practice.

Knowledge of Learners and Their Characteristics

Knowledge of learners includes cognitive and empirical aspects of describing learners and their characteristics (Turner-Bisset, 1999). Empirical knowledge of learners is knowledge of general characteristics of learners at a

particular age range. The cognitive knowledge of learners is the knowledge of child development, which encompasses the theoretical base of how learners' learning activities should be structured. As demonstrated in research (Cochran, DeRuiter, & King, 1993), for constructivist educators, learning is created by the student, not the teacher. The understanding of how students construct and use their understanding is crucial since each student's knowing is a unique construction, and students' prior knowledge has an influence on learning. Teaching activities are purposeful and are influenced by the social-moral framework in which teachers construct their values of educational ends, purposes, and values.

Knowledge of Educational Contexts

Knowledge of educational contexts, according to Shulman (1986a), is knowledge of schools, classrooms, and all settings where learning takes place. Teachers' understanding of the social, political, cultural, and physical environmental contexts that shape the teaching and learning process contributes to the development of PCK (Cochran et al., 1993). Turner-Bisset (1999) also found in her study that educational contexts have a significant impact on teachers' performances**.**

Pedagogical Content Knowledge

The theoretical framework of this study was rooted in Shulman's work of pedagogical content knowledge. Although content knowledge and pedagogical knowledge are very important to the teaching profession, Shulman has described PCK as the understanding of how topics and strategies in specific subject areas are understood and misunderstood (Shulman, 1986). Over the past years, pedagogical content knowledge has received increasing

attention from researchers across the world denoting that pedagogical content knowledge is not a new idea. This idea was first introduced by Shulman (1986, 1987) 25 years ago. Shulman (1986) embarked on this idea to define what professional knowledge teachers should embrace by distinguishing seven components of teacher knowledge. This involves subject matter content knowledge, general pedagogical knowledge, pedagogical content knowledge, knowledge of educational aims, curricular knowledge, knowledge of the learners and knowledge of other content. However, over time, research has put an increasingly stronger focus on the first three components of Shulman's classification (Bromme, 1995; Baumert & Kunter, 2006).

General pedagogical knowledge and pedagogical content knowledge in particular, are considered central for successful teaching. Thus, these two concepts are seen as essential complimentary to content knowledge in ensuring instructional quality. Pedagogical content knowledge (PCK), according to Shulman (1986), is a kind of subject matter knowledge for teaching its topics and includes "the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations demonstrations" (p. 9). PCK enables a teacher to make a subject comprehensive to others. Furthermore, PCK includes an understanding of what makes content easy or difficult to understand, an understanding of students' misconceptions related to a certain content and the ability to choose content adequately (Shulman, 1987). Past research has assessed teachers' PCK using paper and pencil tests or interviews (e.g. Riese, 2009; Rohaan, 2009, Baumert, et al., 2009; Loughran, Berry, & Mulhall, 2000).

Pedagogical knowledge is the knowledge of how to teach. Education courses offered in undergraduate, graduate, and re-certification courses are meant to help develop teacher knowledge about teaching just as content classes develop content knowledge. According to Rodgers and Raider-Roth (2006), "Many a times, a teacher is knowledgeable of his or her subject matter without necessarily being able to decompress it in a way that makes it accessible to their students'' (p. 280). Having pedagogical knowledge is the way to "decompress" the subject matter knowledge.

Shulman (1986) says the definition of pedagogical knowledge is any theory or belief about teaching and the process of learning that a teacher possesses that influences that teacher's teaching. This process includes the ability to plan and prepare materials; time and classroom management skills; implementation, problem solving, and teaching strategies; questioning techniques; and assessment (Hudson, 2007).

According to Shulman's (1986) initial definition of PCK, it should include knowledge about misconceptions, knowledge about curriculum and knowledge about difficulties. Regarding the knowledge about misconceptions, one would expect highly knowledgeable teachers to be able to identify misconceptions of their students during instruction. Once a students' misconception is recognized, the teacher would react to it, for example, by giving feedback to the student in one way or another. Sound knowledge about curriculum should lead to a carefully designed content structure. The third component of teachers' PCK is knowledge about difficulties. This relates to the ability of the teacher to cognitively activate his students. Cognitive activation is, in essence, learning opportunities designed by teachers (Baumert

& Köller, 2000). Its elements can be implemented by the assignment of tasks (Kunter et al., 2005) Many theories and modes have been presented in an attempt to explain pedagogical content knowledge. Popular among these theories are the pedagogy, pedagogical knowledge and content knowledge.

Conceptual Review

General Pedagogy

Pedagogy is a term widely used in educational writing but all too often its meaning is assumed to be self-evident. An examination of how the term is used and the implicit assumptions about teaching and education that underlie its use is a valuable way of understanding how the education process is perceived (Bruner, 1986). Many of the strategies that have been developed to redress inequity in schooling have targeted classroom practice and teaching as an important site of change. For this reason, attention has been paid to pedagogy, its meaning and relationship to curriculum (Chevellard, 1991).

Watkins and Mortimer (1999) define pedagogy as any conscious activity by one person designed to enhance the learning of another. Another piece of definition by Alexander (2003) described pedagogy as the art and act of teaching of attendees discourse in order to make learners to get experience. Nimje and Dubey (2013) examined the Socratic lecture model on the teaching pedagogy in changing educational scenario and concluded that the Socratic lecture model allow the teachers to teach in a very smooth way. Sithole and Lumadi (2012) examined the pedagogical challenges faced by business studies teachers in Botswana's junior secondary schools. The study, conducted with the use of interview method, was to know the challenges of the business studies teachers. The results obtained from the study classified these

challenges into three areas such as (1) challenges relating to teaching the subject matter and constraints in using entrepreneurial pedagogies and inadequacy of financial resources); (2) challenges relating to the students themselves (students' lack of prior knowledge in the subject, scaffolding tasks in mixed ability classes, immaturity of students in relation to subject content and misconceptions by students that the subject is difficult). It is a construct that emerged in the literature based on the notion that "teachers of teachers" require specialist knowledge and skills about teaching that are particular to the teaching of teaching.

Pedagogy, taken as an academic discipline, is the study of how knowledge and skills are exchanged in an educational context, and it considers the interactions that take place during learning (Longino & Hammonds, 1990). Pedagogies vary greatly, as they reflect the different social, political, cultural contexts from which they emerge. Theories of pedagogy increasingly identify the student as an agent, and the teacher as a facilitator. Conventional western pedagogies, however, view the teacher as knowledge holder and student as the recipient of knowledge (Alexander, 1992).

The pedagogy adopted by teachers shapes their actions, judgments, and other teaching strategies by taking into consideration theories of learning, understandings of students and their needs, and the backgrounds and interests of individual students. Its aims may include furthering liberal education (the general development of human potential) to the narrower specifics of vocational education (the imparting and acquisition of specific skills). In different cultures at different points of time in history, the meaning and status of pedagogy have shifted. Simon (1981) describes the situation in Britain

where the 'dominant educational institutions have had no concern with theory, its relation to practice, with pedagogy' (p. 11). The absence of critical accounts of pedagogy in Britain contrasts with other western and eastern European countries where pedagogy has a tradition of study. However, in spite of this tradition or because of it, the study of pedagogy is one of confusing, ambiguous and change concept (Best, 1988).

In Best's (1988) view, the status and meaning of pedagogy have changed in recent times and have been 'devalued, deflected from its original meaning or even discredited'. The failure to examine pedagogy limits the potential for effecting change through education. Simon quotes Fletcher's (1889) view that 'without something like scientific discussion on educational subjects, without pedagogy, we shall never obtain a body of organized opinion on education.' This viewpoint is echoed by Shulman (1987). He argued that to advance teacher reform it is essential to develop 'codified representations of the practical pedagogical wisdom of able teachers'.

For Shulman (1987), one of the major problems for understanding teaching is that 'the best creations of its practitioners are lost to both contemporary and future peers, teaching is conducted without an audience of peers. It is devoid of a history of practice' or Shulman, accounts of practice must include the management of students in classrooms and the management of ideas within classroom discourse. Davies (1989) asserts that any developments in pedagogic practice must rely on teacher involvement. A first step in ensuring involvement is for teachers in their training to be helped to understand the problem and how it impacts on students' learning and teachers' expectations, behaviour and attitudes. The theory of pedagogy is relevant in

the study because it posits that the teacher is a facilitator in the classroom who ensures that knowledge is accurately dispensed in the classroom.

Teachers' Pedagogical Knowledge

According to Rodgers and Raider-Roth (2006), a teacher is knowledgeable of his or her subject matter without necessarily being able to decompress it in a way that makes it accessible to their students. Having pedagogical knowledge is the way to "decompress" the subject matter knowledge. Shulman (1986) said the definition of pedagogical knowledge is any theory or belief about teaching and the process of learning that a teacher possesses that influences that teacher's teaching. This process includes the ability to plan and prepare materials; time and classroom management skills; implementation, problem solving, and teaching strategies; questioning techniques; and assessment (Hudson, 2007). Risko, Roller, Cummins, Bean, Block, Anders and Flood (2008). A critical analysis of research on reading teacher education. Reading Research Quarterly, 43, 252-288 Risko et al. (2008) did a massive literature review and critique on studies about teacher pedagogical knowledge in relation to reading. They coded the data and came to the conclusion that pedagogical knowledge is essential for teaching and that it can be changed throughout university education coursework and fieldwork (e.g. student teaching) (Risko et al., 2008). Pedagogical knowledge can be gathered from places other than the university classroom and fieldwork through the university.

Hudson's (2007) study in Australia examined the mentor relationships of final year pre-service mathematics and science primary teachers from nine different universities. Hudson's study showed that cooperating classroom

teachers/mentors in the student teaching experiences greatly influenced pedagogical knowledge. The study showed that pedagogical knowledge is greatly influenced by coursework, fieldwork, and mentors throughout undergraduate study. Experience is another way to gather pedagogical knowledge. A qualitative study was done by Gatbonton (2008) to compare the pedagogical knowledge of novice teachers (teachers with less than two years' experience) and experienced teachers' pedagogical knowledge. Four novice teachers were chosen to teach English as a Second Language (ESL) lessons to adult learners. The recollections of each teacher were about each of the lessons and were recorded and transcribed. The recollections were then compared to experienced ESL teachers' recollections from a previous study that was performed a similar way by the same researcher.

Gatbonton (2008) found that the pedagogical knowledge was similar between the two groups, but the experienced teachers' group seemed to have more detailed pedagogical knowledge, especially in regard to student attitudes and behaviours. This study shows that college courses and fieldwork are helpful in developing a teacher's pedagogical knowledge, but several years' experience will help build upon that knowledge to make it more specialized and useful. Zohar and Schwartzer (2005) conducted two studies on pedagogical knowledge in the context of higher order thinking. In the first study, one hundred and fifty science teachers in Israel were chosen that worked either at the middle-school or high-school level. The high-school teachers taught biology, physics, or chemistry. An instrument was developed that consisted of background information of the teacher and Likert-scale type questions about teachers' attitudes about student thinking, teachers' beliefs

about correcting wrong answers, teachers' attitudes regarding higher-order thinking, and teachers' attitude regarding the role of cognitive conflict (Zohar & Schwartzer, 2005). A final score was calculated for each teacher, as well as an analysis of variance, a correlation between scores and teaching experience, and other calculations. The results showed that middle-school teachers had significantly higher scores than the high school teachers. The scores of biology teachers were greater than those of physics or chemistry teachers. Surprisingly, the study found that more years of experience equaled lower scores on the questionnaire, therefore indicating a lower pedagogical knowledge in regard to higher-order thinking (Zohar & Schwartzer, 2005).

The second study by Zohar and Schwartzer (2005) made use of classroom observations. The participants were fourteen science teachers who attended a year-long professional development course. The course was for middle- and high-school teachers who wanted to "learn how to incorporate more thinking activities into science instruction" (Zohar & Schwartzer, 2005, p. 1607). The teachers were observed early in the course and late in the course. The findings from the two observations showed "that the classroom observations instrument had a reasonable inter-rater reliability and was quite sensitive for the purpose of detecting changes in teachers' pedagogical knowledge following a professional development course" (Zohar & Schwartzer, 2005, p. 1617). In 2007, Swars, Hart, Smith, Smith, and Tolar studied 103 prospective elementary teachers in a teacher preparation programme at an urban university. The participants entered the program over several semesters and stayed in the program for two years. In the teacher preparation program, the teachers took methods courses, had field placements,

and had a final semester of student teaching. Each pre-service teacher took two mathematics methods courses in consecutive semesters. Two assessments about mathematical beliefs were administered four times each during the program. Leach and Moon (1999) believed a pedagogical setting is 'the practice that a teacher, together with a particular group of learners creates, enacts and experiences'. The pedagogical 'knowledge base' of teachers includes all the required cognitive knowledge for creating effective teaching and learning environments. Pedagogical knowledge (PK) is a teacher's deep knowledge about the processes and practices or methods of teaching and learning. They encompass, among other things, overall educational purposes, values, and aims. This generic form of knowledge applies to understanding how students learn, general classroom management skills, lesson planning, and student assessment. It includes knowledge about techniques or methods used in the classroom; the nature of the target audience; and strategies for evaluating student understanding. A teacher with deep pedagogical knowledge understands how students construct knowledge and acquire skills and how they develop habits of mind and positive dispositions toward learning. As such, pedagogical knowledge requires an understanding of cognitive, social, and developmental theories of learning and how they apply to students in the classroom. Planning and teaching any subject is a highly complex cognitive activity in which the teacher must apply knowledge from multiple domains (Lein-hardt & Greeno, 1986; Resnick 1987; Wilson, Shulman, & Richert, 1987).

Enriching Pedagogical Knowledge

Pedagogy has variously been defined by scholars to mean different things depending upon the context of its usage. Pedagogical knowledge is a strategy and style which allow the teacher to present his lesson in a stimulating way (Korau, 2010). If a teacher is able to present his lesson in such a way that learners appreciate and appeals strongly, it means the pedagogical knowledge of the teacher is sound and implies that the teacher is pedagogically knowledgeable (Tsafe, 2013).

In general terms, pedagogical knowledge (PK) is a teacher's deep knowledge about the processes and practices or methods of teaching and learning. Pedagogical knowledge encompasses, among other things, overall educational purposes, values, and aims. This generic form of knowledge applies to understanding how students learn, general classroom management skills, lesson planning, and student assessment. It includes knowledge about techniques or methods used in the classroom; the nature of the target audience; and strategies for evaluating student understanding. A teacher with deep pedagogical knowledge understands how students construct knowledge and acquire skills and how they develop habits of mind and positive dispositions toward learning. As such, pedagogical knowledge requires an understanding of cognitive, social, and developmental theories of learning and how they apply to students in the classroom. Planning and teaching any subject are highly complex cognitive activities in which the teacher must apply knowledge from multiple domains (Lein-hardt & Greeno, 1986; Resnick 1987; Wilson, Shulman, & Richert, 1987).

Shulman (1987) regards general pedagogical knowledge as the broad principles and strategies of classroom management and organisation that appear to transcend subject matter. Brown and McIntyre (1993) provide ten (10) qualities proposed by pupils that create good teaching and a further 4 proposed by teachers:

1. Creation of a relaxed and enjoyable atmosphere in the classroom.
2. Retention of control in the classroom.
3. Presentation of work in a way that interests and motivates.
4. Providing conditions so that pupils understand the work.
5. Making clear what pupils are to do and achieve.
6. Judging what can be expected of a pupil.
7. Helping pupils with difficulties.
8. Encouraging pupils to raise expectations of themselves.
9. Development of personal mature relationships with pupils.
10. Teachers' personal talents.
11. Considering how planning interacts with the management of classes and lessons.
12. The management of lesson introductions.
13. Managing question and answer sessions.
14. Building the confidence and trust of pupils (pp. 129).

Leach and Moon (1999) believed a pedagogical setting is 'the practice that a teacher, together with a particular group of learners, creates, enacts and experiences' (p. 267). The pedagogical 'knowledge base' of teachers includes all the required cognitive knowledge for creating effective teaching and learning environments. Pedagogy comprises what teachers do in the classroom

and also their ideas, knowledge and attitudes in relation to the learners, the teaching and learning process and the curriculum.

Content Knowledge

According to Kimberly (2009), teachers must be knowledgeable in their area of study. In truth, if a teacher is not enlightened in his/her subject, then any hope of effectiveness goes right out the window. Hence, effective teaching could be measured by the level of a teachers' subject matter competence which Mullens, Murnane and Willett (1996) regarded as a prime predictor of students' learning.

The way the students perceive the teaching in terms of their (teachers) knowledge of content of subject matter may significantly affect the students' academic performance (Darling-Hammond, 2000). Because of this, the teacher should therefore master the subject matter before teaching commences. Most teachers go into teaching without knowing what to teach. It is to be noted that pedagogical knowledge is not exactly the same as knowledge of subject matter, they nevertheless are, intimately linked, because teachers' mastery and use of them in the classroom indicate the depth of their knowledge of subject matter (Fakeye, 2012). Teachers' knowledge of subject matter continues to draw an increasing attention from policy makers in recent years all over the world, since more emphasis is given to highly qualified teachers (Crespo & Nicole, 2006).

Teachers' Content Knowledge

Content knowledge has been a major concern because it is generally accepted that teachers who know these subjects are better able to teach them. Content Knowledge Theory (TCK) is a practice-based theory that describes

the content knowledge involved in the teaching of a subject (Shulman, 1986). The theory is constructed from a form of job analysis, where content-based tasks are identified through an analysis of teachers' work to identify particular examples of recurrent content based tasks of teaching. CKT is then inferred through an analysis of the content demands that teachers encounter in carrying out these tasks. The critical point to remember is that content knowledge is only considered CKT when a logical justification can be made for a direct application to teaching practice (Phelps & Schilling, 2004). Content Knowledge conceptualization is rooted in Vergnaud's theory of conceptual fields (1990), in which representations and invariants are inseparable in the process of developing a situational understanding of a concept. In the CK categories, we consider the conceptual knowledge of the contents and the familiarity with the representations of those subjects.

Conceptual knowledge (CK) includes both specific knowledge and representational knowledge. The specific knowledge includes the uses and invariants of the concept of fractions and general knowledge on how they operate or are justified, including testing processes. Representational knowledge (RK) includes the knowledge that relates ideas with different forms of representation. Some indicators of this are the use of outlines, illustrations, drawings, or the use of materials such as ribbons, paper and cord. This theory is also reviewed in the study because it informs the fact that knowledge of content is fundamental in the academic performance of students.

Pedagogical Content Knowledge

Pedagogical Content Knowledge (PCK) is an education term that describes several interconnected domains of knowledge that are useful to the

science educator teaching in a school or in an out of school context (Shulman, 1986). The most important domains are subject specific content knowledge and knowledge of the pedagogy used in teaching a subject. The broader contextual knowledge that frames the teaching may also be important. This pedagogical content knowledge can be complex, since it is only one aspect of an educator's professional knowledge, and may be tied to the specific educator, the specific topic, and even the specific teaching situation (Abell, 2007; Van Driel & Berry, 2010). PCK may represent a repertoire of pedagogical approaches that the experienced educator develops after teaching a topic multiple time (Hashweh, 2005).

Hashweh's (2005) definition highlights how the experiences of a teacher's background influence their practice. It implies that only 'experienced' teachers have a strong PCK. In relation to inquiring about "What teachers do and how and why they do it?" this definition has seven entities that are drawn from the literature. These include:

1. PCK represents personal and private knowledge.
2. PCK is a collection of basic units called teacher pedagogical constructions.
3. Teacher pedagogical constructions result mainly from planning and also from the interactive and post-active phases of teaching.
4. Pedagogical constructions result from an inventive process that is influenced by the interaction of knowledge and beliefs from different categories.
5. Pedagogical constructions constitute both a generalized event-based and a story-based kind of memory.

6. Pedagogical constructions are topic specific.
7. Pedagogical constructions are (or ideally should be) labelled in multiple interesting ways that connect them to other categories and subcategories of teacher knowledge and beliefs (p. 122).

Pedagogical content knowledge is also seen as the knowledge of how to transform formal subject matter knowledge into meaningful learning outcomes for students and involves an understanding of a particular topic and how teachers explain the topic or concepts to make sense to the students in the classroom (Korau, 2011). Pedagogical content knowledge differs from subject matter knowledge in the sense that it has a significant role in characterising and identifying teachers' knowledge regarding their students' difficulty with subject matter and ability to connect ideas, use examples, provide explanations, and apply strategies when encountering concepts (Wilson, Floden, & Ferrini-Mundy, 2002). Researchers found that Pedagogical content knowledge factors such as teachers' pedagogical preparation, their use of routines in the classroom, and their degree content coverage influenced students' academic achievement growth (Cankoy, 2010; Rowan, Correnti, & Miller, 2002).

According to Pompea and Walker (2017), pedagogical content knowledge is viewed on a continuum, with educators acquiring more of it through appropriate training and experience. Educators acquire it before they begin teaching, during their pre-service training, and during the teaching careers. The key hope from an educational improvement perspective is that the gains in teacher pedagogical content knowledge will lead to learning gains in students. A teacher with better content knowledge who knows how to teach

the subject to a specific audience should create student gains over a less prepared or less experienced teacher. A key point, however, is that it is very difficult to provide enough additional training to educators once they have begun teaching. The daily demands of the position make less time available for improving content knowledge or in learning additional pedagogically useful approaches.

Pedagogical Content Knowledge is consistent with and similar to Shulman's idea of knowledge of pedagogy that is applicable to the teaching of specific content. Central to Shulman's conceptualization of PCK is the notion of the transformation of the subject matter for teaching. Specifically, according to Shulman (1986), this transformation occurs as the teacher interprets the subject matter, finds multiple ways to represent it, and adapts and tailors the instructional materials to alternative conceptions and students' prior knowledge. PCK covers the core business of teaching, learning, curriculum, assessment and reporting, such as the conditions that promote learning and the links among curriculum, assessment, and pedagogy.

An awareness of common misconceptions and ways of looking at them, the importance of forging connections among different content-based ideas, students' prior knowledge, alternative teaching strategies, and the flexibility that comes from exploring alternative ways of looking at the same idea or problem are all essential for effective teaching. Pedagogical content knowledge identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organised, represented, and adapted to

the diverse interests and abilities of learners, and presented for instruction (Shulman, 1987).

Concept of Academic Performance

According to Encarta English Dictionary (2009), the word 'performance' could mean an accomplishment of a task in line with what is required of an individual in a given setting. It could also connote the tendency of the way in which somebody does a job which is judged by an awaiting reward. The academic performance (learning achievement) of pupils/students' in schools remains a top priority for many educators, parents and national governments. Positive academic achievement of students makes the difference in terms of nurturing the children for locally, regionally, nationally and globally levels development (Farooq, Chaudhry, Shafiq, & Berhanu, 2011). The socio- economic development of any country is directly linked with student academic performance in schools. Students' academic performance plays an important role in producing the best quality graduates who will one day become leaders and human capital for the country's economic and social transformation (Mushtaq & Khan, 2012). Authors such as Campbell (1990) and Rose (1999) as cited in (Sonnentag & Frese, 2002) agreed that when conceptualising performance in any organization or entity, one has to differentiate between an action (that is., behavioural) aspect and an outcome aspect of performance. The performance in this context conceptualises the action to be teaching and learning and academic achievement of pupils in schools as outcomes.

According to Mushtaq and Khan (2012: 18), academic performance is the extent to which a student, teacher or institution has achieved their short or

long-term educational goals. Cumulative GPA and completion of educational benchmarks such as secondary school diplomas and bachelor's degrees represent academic performance. Academic performance is commonly measured through examinations or continuous assessments but there is no general agreement on how it is best evaluated or which aspects are most important that is procedural knowledge such as skills or declarative knowledge such as facts. Furthermore, there are inconclusive results over which individual factors successfully predict academic performance, elements such as test anxiety, environment, motivation, and emotions require consideration when developing models of school achievement.

Academic performance is measured in terms of past examination performance, performance in midterms and failure in modules (Roy, 2004; Tan & Yates, 2007). Academic performance is important because it is strongly linked to positive outcomes. Not surprisingly, research shows that adults with high levels of education are more likely to be employed and to earn higher salaries (US Department of Education, 2001). Beyond work and wages, academic performance is important because working Americans will need higher levels of education to tackle the technologically demanding occupations of the future (Brown, 1999). Furthermore, the number of jobs requiring a college education is expected to grow more than twice as fast as those not requiring a college education over the next ten to twenty years (Fleetwood & Shelley, 2000; Rentner & Kober, 2001). Academically performed students will have more employment opportunities than those with less education. Academic performance can be measured in several ways. According to a study by Martha (2010) the most significant and suitable way

to measure the performance of undergraduates in Malaysia is the Cumulative Grade Point Average (CGP).

There are two types of broader factors that generally affect the students' academic performance in schools. These are internal and external school factors. The identified internal factors that influence children academic performance in school include: teachers' role; students' competence in the language of instruction; class schedules; class sizes; availability of textbooks, and the conduct of regular assessment. Other internal factors include: effective internal supervision, the availability of teaching and learning materials and others (Mushtaq & Khan, 2012). It is important to highlight that while school environment can have a strong influence on students' academic performance, other external factors such as: economic status of household, parental educational attainment, family size and other home-based factors can equally indirectly influence pupils' outcomes. There is sufficient evidence from the fields of education and psychology that the home-based socio- economic status has significant impacts on child's academic performance in school (Mushtaq & Khan, 2012). Several researches pointing to the household factors affecting a child academic performance in school has consistently shown that parental involvement in children's education does make a positive difference to pupils' academic achievement (Kispal, 2008).

Students' Performance

In the view of Dreyer (1994) and Zangqa (1994) there are three requirements for academic achievement that should be met by the school. They are:

a. Children must be helped to recognize their potentials.

b. They should have to be motivated to utilize these potentials.

c. The school must recognize learners' potentials.

These requirements indicate that the school is the place where students can realise or actualise their academic potentials. However, the achievement of academic success is not the work of the school alone but several other factors including teacher factors. Studies have thus consistently shown that teacher quality whether measured by content, experience, training and credentials or general intellectual skills is strongly related to students' achievement (Adediwura & Bada, 2007; Darling-Hammond, 2000; Zuzovsky, 2009).

Conceptual Framework

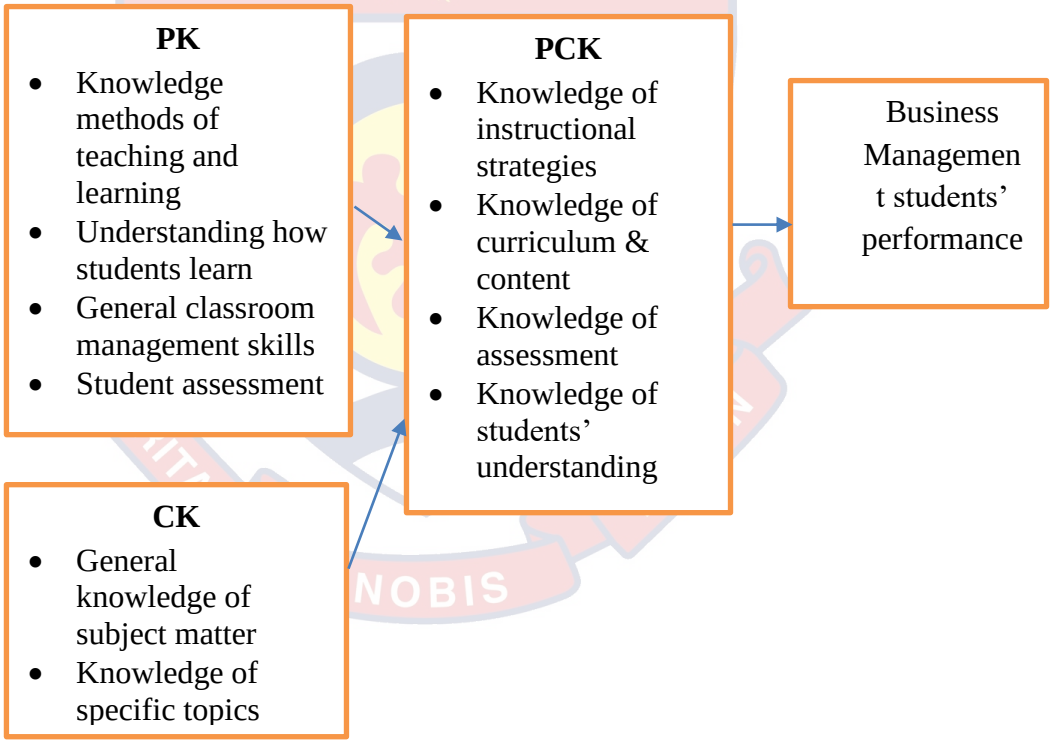

Figure 1: Teacher knowledge base and students' academic performance

Source: Author's own construct (2019).

It can be inferred from the conceptual framework depicted in figure 1 that, subject matter knowledge and pedagogical knowledge together determine the pedagogical content knowledge of BM teachers. Content knowledge is

what is usually taught directly in classes whiles pedagogical knowledge relates to how the teacher would teach a subject. It might include an awareness of student misconceptions or the naïve theories that they bring to the subject when they are first learning about them. It might also be assessment of which concepts can be taught at which grade levels or to which students. If content knowledge is "what is being taught" and pedagogical knowledge is "how it is being taught", then pedagogical content knowledge involves applying knowledge of how to teach to teach specific content knowledge. This ultimately influences the academic performance of students in BM. The conceptual framework is relevant in the study because it gives a pictorial description of the key variables in the study and the relationship that exists among them.

Empirical Review

It was deemed necessary to review other studies that have been conducted in the exact line of the current study being conducted. To make the review comprehendible, studies were reviewed in accordance with the research questions formulated to underpin the study.

Content Knowledge

Makewa, Role, Too and Kiplagat (2012) investigated teacher-related factors associated with performance in mathematics in public day primary schools in Nandi Central district, Kenya. A total of seventy-four (74) mathematics teachers participated in the study. Sampling techniques used to obtain the samples for the study included: stratified, random, and purposive. A questionnaire was used to collect data which had been validated and subjected to a pilot study to establish its reliability. Descriptive statistics and inferential

statistic (t-test) were used to analyse the data. Based on the findings of the study, a majority of mathematics teachers in Nandi Central district public day primary schools were found to be trained with a teaching experience of between 11–20 years. An average rating was given on the mathematics teachers' use of learning resources, teaching methodology, teacher preparation, commitment, and assessment and evaluation. Moreover, teachers in high performing schools rated the attitudes toward mathematics, teaching methodology, commitment, preparation, and use of learning resources, evaluation and assessment higher than their counterparts in the low performing schools. The study recommended that future research should link research on teacher preparation with teacher induction with professional development.

Kasiisa and Tamale (2013) studied the impact of teachers' qualification on the performance of Primary social studies in Eastern Uganda. A cross-sectional survey design was adopted with a sample size of 128 Senior Primary Schools social studies teachers. The research findings revealed that students taught by teachers with higher qualifications performed better than those taught by teachers with lower qualifications. Based on the research findings, it was recommended that experienced teachers with professional qualifications should teach social studies.

Abe (2014) studied the effect of teachers' qualification on students' performance in mathematics. Three hundred students were randomly selected from ten schools out of sixteen schools on purpose in Ikere Local Government Area of Ekiti State. The criterion for the selection of mathematics teachers was based on teacher qualification. T-test statistic was used to test the three hypotheses in the study. According to the results, there was a significant

difference in the performances of students taught by professional teachers. A difference was also registered between students taught by NCE (Nigeria Certificate in Education) teachers and B.Sc Ed. Teachers and also between B.Sc teachers and B.Sc Ed. teachers. In its recommendation, the study suggested that only qualified mathematics teachers should be allowed to teach mathematics at the secondary school level. Furthermore, the study recommended that holders of lesser qualifications such as Nigeria Certificate in Education (NCE) be allowed to proceed in their education either through part-time or study leave. In the same vein, the study recommended that teachers without teaching qualification should be advised to pursue their Post Graduate Diploma in Education (PGDE). This may improve their teaching method in order to improve the performance of students in mathematics.

Mosha (2014) revealed that students were highly motivated to learn English for future expectations such as local and international communication, academic advancement and employment prospects. However, students' performance was affected by shortage of English teachers and absence of teaching and learning materials. The findings revealed that due to incompetence from untrained and un-qualified teachers, cases of unprofessional malpractices such as skipping topics deemed difficult were prevalent. In addition to this, a host of other factors such as infrequent use of English language at school and home, large class size, teachers' responsibilities, poor conducive teaching and learning environment in the classrooms, limited home support environment and poverty had negative influence on proficiency in English. Part of the study's recommendation is the

need to offer in-service teacher training to equip teachers of English with competent skills in the subject.

Omo (2011) maintained that the quality of teachers is strongly correlated to students' performance. The study presented evidence on teacher quality impact on student achievement with a sample of 400 students and 200 teachers from 40 purposively selected secondary schools in Ibadan metropolis in Nigeria. The schools were classified into four categories including: public elite schools; public non-elite schools; private elite schools and private non-elite schools. A composite measure of the quality of the teachers covering qualification, experience, patience, creativity, and communication skills was utilized. The students' performance was measured by their scores in the two compulsory subjects of English Language and Mathematics in the general school leaving certificate examination. Descriptive and inferential statistical analysis were used to analyse the data. The results revealed that the observed variations in the students' performance across the four categories of the schools were significantly explained by the differences in the quality of the teachers. The study concluded that the quality (qualification, experience, patience, creativity and communication skills) of teachers matters for student performance in schools.

Farooq and Shahzadi (2006) compared the effectiveness of teaching of professionally trained and untrained teachers and the effect of students' gender on secondary school students' achievement in Mathematics. Data were collected from four public and private boys and girls high schools' record. Four hundred secondary school graduates (Two hundred boys and two hundred girls) taught by trained and untrained teachers of mathematics were

selected conveniently. The results of the study supported the fact that the students taught by trained teachers showed better results in Mathematics and gender has no significant effect on achievement in mathematics

Darling-Hammond (1999) investigated students' test results in reading and mathematics. In the study, 44 states with 65 000 teachers were included. The data comprised several variables indicating teacher competence such as certification and experience. A number of other variables were included in the study such as education policy, demographics, student characteristics and school characteristics. Controlling for student background, teacher certificate and subject matter knowledge were shown to correlate with students' test results and to have great explanatory power.

Yeboah-Appiagyei, Joseph and Fentim (2014) examined the effects of professional qualifications of financial accounting teachers on academic performance of SHS financial accounting students in the Tamale Metropolis of Ghana. Twenty- nine (29) teachers from the seven (7) senior high schools in the metropolis were selected for the study. It was a descriptive study where questionnaire was used to collect the data. The study revealed that financial accounting students perform academically better in financial accounting when they are taught by professional financial accounting teachers. This implies that teachers who possess sound professional training and qualification are well equipped with the requisite competencies that enable them to promote effective teaching and learning. The study also recommended that, the government through the Ministry of Education should consider reinstating retired financial accounting teachers who are still energetic. As it is often said, “experience is the best teacher,” reengaging the services of retired financial

accounting teachers would help to harness their rich experience on the teaching of the subject.

Darling-Hammond, Holtzman, Gatlin, and Heilig (2005) examined whether certified teachers are generally more effective than those who have not met the testing and training requirements for certification and also linked students' characteristics and achievement with data about their teachers' certification status, experience, and degree levels from 1995-2002. Data was collected to ascertain the effectiveness of Teach for America (TFA) recruits from selected universities who received a short-term training before they begin teaching compared to experienced certified teachers. A series of regression analyses focusing on the 4th and 5th grade students' achievement gains on six different reading and mathematics tests was done over a six-year period. It was found out that certified teachers consistently produced stronger student achievement gains than did the uncertified teachers. Additionally, the study concluded that teachers' effectiveness strongly related to the preparation the teachers had received for teaching.

Pedagogical Content Knowledge

Several studies regarding PCK focused its research areas on both pre-service teachers (Gomez & Housner, 1992; Housner, Gomez, & Griffey, 1993; Tuan, Yeng, Whand, & Kaou, 1995) and in-service teachers (Marks, 1990). Some researchers applied the model of PCK to teacher education programmes (Cochran et al., 1993; Wilkes, 1994). For example, seeing Shulman's (1987) model of pedagogical reasoning as a set of processes for the development of PCK, Wilkes (1994) applied it to a pre-service teacher education programme of business education studies. Cochran et al. (1993) described PCK based on a

constructivist view of teaching and teacher preparation, emphasizing knowing and understanding as active processes. In their study, Cochran et al. (1993) found that pedagogical content knowing requires teachers to understand students' learning and the environmental context in which teaching and learning occur. Researchers have also shown their interests in the investigation of the development of teachers' PCK and its impact on teaching practice (Fennema & Franke, 1992). Studies focused either on specific subjects such as science (Magnusson, Borko, & Krajcik, 1994), mathematics (Adams, 1998), chemistry (Tuan et al., 1995), geography (Ormrod & Cole, 1996), or English (Grossman, 1990), or on levels of expertise including teacher training, novice, and experienced teacher (Rink, French, Lee, Solmon & Lynn, 1994). Literature also included a related study of college level teaching (Lenze & Dinham, 1994). In her research of knowledge base for teaching in teacher education, Grossman (1990) investigated both the nature of PCK in English among beginning teachers and the role of subject-specific teacher education course work in contributing to graduates' knowledge and values about teaching English. In the process of unpacking the concept of PCK, the differences in what teachers believe and value were being pictured. How the values get practised in the classroom was also explored. On the other hand, in their science teachers' PCK study, Loughran et al. (2000) summarized that PCK is a combinational notion in which the different mixtures of elements influence the richness of the PCK.

The changes in any of the elements inevitably influence the nature of the PCK that is being portrayed. According to the research by Loughran et al. (2000), the elements that influence the development and structure of PCK are

perspectives in learning; perspectives in teaching; the understanding of content; time teaching time/length of unit/unit of work; context school/class rom/year level; understanding of students; views of scientific knowledge; pedagogical practice; decision making; reflection; and explicit vs. tacit elements of knowledge of practice/values/ideas. To understand PCK well is to understand the mixture of interacting elements which, when combined, help to give insights into PCK. Further lines of research based on the thread of Shulman (1986a, 1986b, 1987) evolved the study of constructions and sources of teacher knowledge (Cochran et al.,1993; Grossman, 1990; Turner-Bisset, 1999; Wilson, Shulman, & Richert, 1987). In the definition of knowledge bases for teaching and their interrelationships, Grossman (1990) characterized "four general areas of teacher knowledge…as the cornerstones of the emerging work on professional knowledge for teaching: general pedagogical knowledge, subject matter knowledge, pedagogical content knowledge, and knowledge of context" (p. 5). In her 1991 definition, Grossman categorized four aspects of PCK: (1) knowledge of purpose and goals for the subject area (focus on the subject matter); (2) knowledge of student, prior knowledge, misconceptions, and difficulties with the subject (focus on students); (3) curricular knowledge, both intra- and inter-course, within the discipline (focus on curriculum); and (4) knowledge of instructional strategies for the subject area (focus on pedagogy). In a study of primary teachers, Turner-Bisset (1999) developed a model of teaching knowledge in which eleven sets of knowledge are presented.

In this model, PCK is the set which contains all of the other sets: substantive subject knowledge, syntactic subject knowledge, beliefs about the

subject, curriculum knowledge, general pedagogical knowledge, knowledge or models of teaching, knowledge of learners: cognitive, knowledge of learners: empirical, knowledge of self, knowledge of educational contexts, knowledge of educational ends. In an attempt to apply PCK to teaching and teacher preparation, Cochran et al. (1993) proposed a modification of PCK based on a constructivist view of learning and teaching. Instead of focusing on the changes of understanding subject matter knowledge, which implied PCK is simply a new type of traditional subject matter knowledge, Cochran et al.'s (1993) extended the definition of pedagogical content knowing, maintaining it was more than a new type of content knowledge. It comprised an integration of four components which include the knowledge of students, the knowledge of environmental contexts, the knowledge of subject matter, and the knowledge of pedagogy.

The following study done by Ahtee and Johnson (2006) is an example of the attitudes influencing PCK. A questionnaire was given to eighty-nine Finnish and ninety-eight English pre-service elementary teachers in 2006 after they participated in a teaching demonstration about a physics topic. The participants were not physics majors. After the demonstration, the prospective teachers were given a questionnaire about the topic. The questionnaire showed that poor attitudes by these persons about physics affected their PCK negatively because they did not understand the topic which means they could not accurately guess student responses and difficulties (Ahtee & Johnston, 2006).

Halim and Meerah (2002) conducted a similar study in Malaysia involving secondary science prospective teachers. Knowledge of student

understanding and knowledge of strategies for teaching topics (two levels of PCK) were examined. Twelve secondary science pre-service teachers were interviewed about various physics topics. Only some of the pre-service teachers were planning to be physics teachers. The study showed that the level of PCK was greatly affected by the student teachers' preparedness in the subject (Halim & Meerah, 2002). Therefore, poor content knowledge can equal poor PCK. In contrast, a deep understanding of content in a subject area can greatly influence one's PCK as the following study suggested.

Ozden (2008) conducted a study in Turkey. The participants were twenty-eight science pre-service teachers. The participants wrote a lesson plan for a two-hour lesson on a particular science topic for fifth-grade students. The participants then took a content-knowledge test about the topic on which they wrote the lesson plan. Finally, the student teachers were interviewed about writing of the lesson plan. The results of the study "emphasized that content knowledge had positive influences on pedagogical content knowledge and effective teaching" (Ozden, 2008, p. 639). The study called for more PCK to be emphasized and discussed in teacher education programmes (Ozden, 2008). Fortunately, poor preparedness in the content area can be corrected.

Jones and Moreland (2004) conducted a study done in New Zealand to examine and expand upon PCK in technology education. Teaching technology in the classroom is a newer mandate in New Zealand, and many teachers were not sure what to do with it in the classroom because they were not technology majors. To empower them in the area of technology, the teachers were to reflect upon case studies in their own and others' classrooms, use a planning

framework, negotiate interventions, participate in workshops, provide classroom support, participate in teacher meetings, use student portfolios, and use summative profiling (Jones & Moreland, 2004). By participating in this study, teachers felt better about the content they were teaching and felt that student learning was enhanced. This study showed that the quality of PCK can be improved: it can be developed through experience, coursework, and professional development.

The following qualitative study is another example of a study that shows that PCK can be altered. Major and Palmer (2006) conducted a study that involved thirty-one faculty members of a private university in the United Kingdom. The study wanted to discover whether teacher PCK would change if the teachers were challenged with a different teaching approach. The study included faculty from assistant professor to full professor. They were given in-depth interviews about PCK and the new teaching initiative. The study found that PCK could be transformed depending on the expertise of the faculty member. It also showed that PCK involved knowledge of students, content, teaching, strategies, and purposes (Major & Palmer, 2006).

Raheem and Amali (2013) found a positive correlation between teachers' pedagogical skills and students' performance in Social Studies while there was no correlation between teachers' use of instructional materials and students' performance in Social Studies. The study therefore recommended that government at all levels with a meaningful and purposive collaboration with the organized private sector should periodically provide windows of opportunities like learned workshops, seminars and in-service trainings for social studies teachers to equip and improve their knowledge of teaching.

Enzi (2017) examined teachers' effectiveness at the hiring stage. Using the German setting of teacher training, Enzi investigated the relationship of teachers' pre-service cognitive and pedagogical skills as measured by two state examinations and the high-school GPA on later effectiveness. Enzi applied standard value-added models to rich German student-achievement panel data and found that being in the top quartile in these skill domains is linked with significantly higher teacher effectiveness. Better teacher skills are associated with a more efficient way of classroom management.

Pinamang and Cofie (2017) investigated pre-service teachers' content and pedagogical knowledge in teaching geometric transformation. Eighty-two pre-service teachers from two Colleges of Education in the Ashanti region of Ghana consisted the sample size. The study was a quantitative study which employed survey as a strategy of enquiry with a Geometric Transformation Achievement Test (GTAT) as the instrument used for data collection. The GTAT was given to pre-service teachers to identify how knowledgeable they are in content and pedagogical knowledge in geometric transformation. The results indicated a high level of content knowledge but low level of pedagogical content knowledge among the pre-service teachers in geometric transformation. A correlation analysis was also performed to identify the relationship between pre-service teachers' content and pedagogical knowledge in geometric transformation and the results indicated a weak positive significant relationship between pre-service teachers' content knowledge and pedagogical content knowledge, $r\ (82) = .044$, $p < .05$, two–tailed. It was therefore recommended that geometric transformation content and pedagogical courses at the Colleges of Education be made more practical and

that pre-service teachers should be given ample opportunity to practice what they are going to teach at the basic level.

Kleickmann, Richter, Kunter, Elsner, Besser, Krauss, and Baumert (2012) constructed tests to directly assess mathematics teachers' CK and PCK. Based on these tests, they compared the PCK and CK of four groups of mathematics teachers at different points in their teaching careers in Germany. Confirmatory factor analyses showed that PCK and CK measurement was satisfactorily invariant across the teacher populations considered. As expected, the largest differences in CK and PCK were found between the beginning and the end of initial teacher education. Differences in the structures of teacher education were reasonably well reflected in participants' CK and PCK.

Odumosu, Olisama and Areelu (2018) also explored the impact of teachers' content and pedagogical content knowledge on students' achievement in algebra. Using a test re-test quasi- experimental design with a 3x3x2x2 factorial matrix, the researchers purposively sampled 421 senior secondary school II students and 12 mathematics teachers from eight (8) public and four (4) private schools in Education District 5 of Lagos State. The three instruments used are TCTA, OSTP and SATA. OSTP has Spearman' rho reliability coefficient of 0.77, while the TCTA and SATA produced reliabilities of 0.79 and 0.81 respectively using the Gutman' split half reliability method. The three instruments developed were validated and used for data collection. Data were analysed using graphs and ANCOVA. The results $F(2, 387) = 0.56$; $p = 0.67$ revealed that all categories of the subject were equally affected by TCK in algebraic achievement after exposure to teacher' content knowledge. However, $F(2, 387) = 12.91$; $p = 0.00$ indicated

that students were not equally affected by TPK in algebraic achievement test. On the other hand, F(1, 387) = 0.11; p = 0.90 indicated that gender has no significant effect on students' achievement in algebra after exposure to teachers' content and pedagogic knowledge. Furthermore, F(1, 387) = 0.21; p = 0.81 showed that school type has no significant effect on students' achievement in algebra after exposure to teacher' content and pedagogic knowledge. Also, F(1, 387) = 0.90; p= 0.34 revealed no significant interaction effect of content and pedagogical knowledge, gender and school type on students' achievement in algebra. In view of the findings, the study recommended that teachers of Mathematics, with in-depth knowledge of the subject and well-groomed in teaching pedagogy should be allowed to teach algebra in schools.

Lenard and Lenard (2019) explored English for Specific Purposes (ESP) teachers' teaching experience. For that purpose, 47 ESP teachers working at 7 Croatian universities voluntarily participated in an anonymous survey whose results were processed in SPSS. The results indicated that the teachers compiled their teaching materials consulting various available resources, but rarely cooperate with their specialized course colleagues despite recognizing the importance and fruitfulness of such cooperation. In spite of feeling less confident about content knowledge, the teachers prepare thoroughly and present content in an appealing and interesting way. Finally, the teachers carried out course evaluations implementing students' suggestions into their courses, all of which pointed to the teachers' carefully considering all elements of the teaching process constantly aiming to improve both their own performance and students' performance.

Cheung, Wan and Chan (2018) based on the framework of technological-pedagogical-content knowledge (TPACK), the study explored the disparity in efficiency of adopting students' response system (SRS). A concurrent mixed method design was adopted to delineate factors conducive to efficient adoption of SRS through closed-ended survey responses and qualitative data. Participants were purposefully sampled from diverse academic disciplines and backgrounds. Seventeen teachers from various disciplines (i.e., tourism management, business, health sciences, applied sciences, engineering, and social sciences) at the Hong Kong Polytechnic University formed a teacher focus group for the current study. In the facilitated focus group, issues relating to efficient use of clickers, participants explored questions on teachers' knowledge on various technologies, knowledge relating to their subject matters, methods and processes of teaching, as well as how to integrate all knowledge into their teaching. The TPACK model was adopted to guide the discussions. Emergent themes from the discussions were extracted using NVivo 10 for Windows, and were categorized according to the framework of TPACK. The survey, implemented on an online survey platform, solicited participants on teachers' knowledge and technology acceptance. The close-ended survey comprised 30 items based on the Technological Pedagogical Content Knowledge (TPACK) framework and 20 items based on the Unified Theory of Acceptance and Use of Technology (UTAUT). Participating teachers concurred with the suggestion that use of clickers is instrumental in engaging students in learning and assessing formative students' progress. Converging with the survey results, several major themes contributing to the successful implementation of

clickers, namely technology, technological-pedagogical, technological-content, technological-pedagogical-content knowledge, were identified from the teacher focus groups. The most and second most frequently cited themes were technological-pedagogical-content knowledge and the technological knowledge respectively. Findings from the study of Cheung et al. (2018) triangulated with previous findings on TPACK and use of clickers, particularly, the influence of technological-pedagogical-content knowledge and technological knowledge on successful integration of innovations in class. Furthermore, the study highlighted the impact of technological-pedagogical and technological-content knowledge for further research to unfold technology adoption with these featured TPACK configurations, as well as rendering support to frontline academics related to integration of technology and pedagogy.

Nilsson and Karlsson (2019) investigated how the use of the reflective tool, content representations (CoRes) in combination with video and associated digital tools might be used as a means for capturing student teachers' professional knowledge of practice. The study explored how a group of 24 secondary science student teachers were provided with Content Representations (CoRe) and video annotations to support their reflection-on-action during their practicum. Video annotations, alongside a written reflection of critical incidents in the student teachers' teaching constituted data for analysis. The findings were that the different tools enabled the student teachers to connect captured examples of teaching instances with theoretical issues, and in this way offered the ability to see as well as to analyse their teaching practice. As such, the CoRe, together with the video annotation tool,

proved to be successful in scaffolding and structuring student teachers' reflection-on-action, allowing them to connect their reflections to components of PCK and further to articulate connections between these components.

Rahmi (2018) sought to determine and analyze the pedagogical content knowledge of prospective economic teachers. The population used for the conduct of the research was students who attended micro teaching course. The sample was drawn by using purposive sampling approach. Data were collected in observation sheets, consisting of materials mastery, the ability in giving apperception and motivation, selection of methods or learning strategies, selection of media and sources, the ability to performance assessment and the ability to involve learner in learning process. The result showed that in general, the pedagogical content knowledge of teacher candidates is still in the 'sufficient' and 'good' category; thus, it needs a lot of improvement.

Walker (2016) examined the PCK of Outdoor Education teachers as another element of quality teaching and learning. This research project included the interview of seven participants. The results showed that majority of participants showed their capacity to draw knowledge from differing PCK categories (e.g. Curriculum Knowledge and Student Thinking) as a part of the teaching process. Again, it was found that the following categories should be added to the PCK Framework for future research; 1) Knowledge of Place, 2) Facilitation Techniques, and 3) Group Management Techniques.

Academic Performance

In literature, academic performance is generally measured by the performance score card. This involves the standardized test, end of term examination, external examination, class participation, practical test and oral

test. Standardized test, end of term examination, external examination, and class participation are expressed as the function of both internal and external determinants. Standardized test (ST) reflects a situation where a special test is specifically organised by a professional assessment technician to check a particular construct. End of term examination (ETE) measures the total performance of a student after an examination has been conducted while external examination (EE) specifies the performance of students in relation to external examination. Class participation (CP) measures the performance of students during instructional hours. Several researches have been undertaken by many researchers in different academic environments with these academic performance measures and thus achieving different results.

Students' academic performance and graduation rates have been the area of interest for higher education institutions. Investigation of factors related to the academic performance of university students have become a topic of growing interest in higher educational circle. Many recent studies were carried out to explore factors affecting university student's academic performance. Hanson (2000) reported that student performance is affected by different factors such as learning abilities, gender and race. Simmons, Musoba and Choong (2005) concluded that family income level, attending full time school, receiving grant aid and completing advanced level classes in high school have statistically significant effects on college persistence among first generation college students. Garton, Dyer and King (2000) carried out a study with freshmen college students to evaluate the efficiency of student learning styles and other university admission variable in predicting students' academic performance and retention. Act composite score, high school class rank, high

school core GPA, and learning style were used as predictors. Results showed that core GPA and Act score were best predictors for predicting academic performance of first year of college. Mckenzie and Schweitzer (2001) conducted a prospective study to explore the psychosocial, cognitive, and demographic predictors of academic performance of first year Australian university students. Results demonstrate that previous academic performance was identified most significant predictors of university performance. Integration into university, self-efficacy, and employment responsibilities were also predictors of university performance.

Hijazi and Naqvi (2006) conducted a study to find out the factors which affect college students' performance. In the study, the researcher mainly focused on the factors associated with performance of students in intermediate examination. The study concluded that attitude towards attendance in classes, time allocation for studies, parents level of income, mother's age and mother's education were main factors that affect performance of students of private college.

Influence of Teachers' PCK on Students' Academic Performance

Odundo and Gung (2013) studied the effects of application of instructional methods on learner achievement in Business Studies in Secondary Schools in Kenya. Primary data was obtained from 288 form four business studies students across the country. A mixture of probability and non-probability sampling procedures were used to select students and teachers for inclusion in the study. Bivariate analysis obtained cross-tabulations with Chi square ($\chi 2$) and one-way Analysis of Variance (ANOVA) for significance tests; while multivariate analysis obtained β coefficients, Exp(β), -2LL statistic

and significance tests. The study found that takeaway assignments accounted for the largest proportion of variance in improved student performance (9.1%), brainstorming (8.8%), group discussions (8.3%), dictation (7.9%), lectures (6.3%) and chalkboard notes (5.9%), thus giving prominence to constructivist approach

Ganyaupfu (2013) investigated the differential effectiveness of teaching methods on students' academic performance. A sample of 109 undergraduate students from the College's Department of Economic and Business Sciences was used for the study. Using the inferential statistics course, students' assessment test scores were derived from the internal class test prepared by the lecturer. The differential effectiveness of the three teaching methods on student academic performance was analysed using the General Linear Model based univariate ANOVA technique. The $F(2, 106) = 10.125$; $p < 0.05$) and the Tukey HSD post-hoc results indicate significant differences on the effectiveness of the three teaching methods. The mean scores results demonstrate that teacher-student interactive method was the most effective teaching method, followed by student-centered method while the teacher-centered approach was the least effective teaching method.

Abrantes, Seabra, and Lages, (2007) used a sample of more than 100 students to examine factors influencing the learning attitudes of students. The study revealed that students learning depended directly on their interest, pedagogical affect, and their learning performance and indirectly on the students-instructor interaction, the instructors' responsiveness, course organization, the instructors likeability/concern, and the students learning performance. Like ability/concern indirectly affects student interest by

influencing learning performance. The results yield recommendations for schools, department heads, and university administrators.

Raheem and Amali (2013) examined teachers' pedagogical skills and use of instructional materials as a correlate of students' performance in social studies in Yenagoa Metropolis, Bayelsa State. Descriptive survey research of the correlational type was adopted for the study. Seven hundred and one Junior Secondary School III students within Yenagoa Metropolis were randomly selected for the study. A researchers' designed Questionnaire on Teachers' Characteristics (QTC) and an adopted Social Studies Performance Test (SSPT) from the Bayelsa State Basic Junior School Certificate Examination 2008, 2009 and 2010 past questions were the instruments used in collecting data for the study. The Questionnaire on Teachers' Characteristics (QTC) and an adopted Social Studies Performance Test (SSPT) was pilot-tested using test-retest and split half methods respectively. A reliability coefficient of 0.72 was obtained for the QTC while 0.74 reliability coefficient was obtained for SSPT. Pearson's Product Moment Correlation was used to analyze the data at a significance level of 0.05 through SPSS for Windows version 17.

Raheem and Amali (2013) found a positive correlation between teachers' pedagogical skills and students' performance in Social Studies while there was no correlation between teachers' use of instructional materials and students' performance in Social Studies. The study therefore recommended that government at all levels with a meaningful and purposive collaboration with the organized private sector should periodically provide windows of

opportunities like learned workshops, seminars and in-service trainings for social studies teachers to equip and improve their knowledge of teaching.

Chapter Summary

In conclusion, from the extensive reviews on theory, concepts, and empirical studies, it cannot be over emphasised that pedagogical knowledge plays a major role or otherwise in the academic performance of students. The evidence of complexity of the nature of pedagogical content knowledge is thus revealed by the varying approaches adopted by researchers. It is clear however that though pedagogical content knowledge and academic performance vary across countries and regions, the influence of pedagogical knowledge hypothesised to affect academic performance in conjunction with other factors also varied across countries and regions nevertheless the effect of some of the variables on academic performance remains uniform across board. Overall, the literature reviewed are relevant to the current study. The literature covered all the variables in the study.

CHAPTER THREE

RESEARCH METHODS

Introduction

This section describes the research methods deployed to conduct the entire study from conceptualization to gathering of data, analysing and obtaining cogent conclusions. Specifically, it covers the research design, population, sample and sampling procedure, the instruments that were used in the data collection, validity and reliability of the instrument, pilot testing of instruments, administration of instruments, ethical considerations, and data analysis.

Research Design

This study used the descriptive correlational research design to find out the influence of BM teachers' PCK on the academic performance of students in BM. The study considered the responses of all BM teachers and BM students in all Senior High Schools in the district. According to Cooper and Schindler (2006), in a descriptive correlational design, either the entire population or a subset thereof is selected, and from these, data are collected to help answer research questions and describe the current situation of the variables at the time of data collection with the use of a questionnaire. The study used data from the questionnaire administered to both BM teachers and BM students in the schools and secondary data of students' performance in BM test in order to establish the influence of BM teachers' pedagogical content knowledge on BM students' academic performance. This was therefore considered to be the appropriate research design for this study.

The descriptive correlational design is advantageous for the current study because it helped to describe the situation of teachers' pedagogical content knowledge and the relationship between that and the academic performance of students. In spite of this, the use of the descriptive correlational design is disadvantageous because the respondents (particularly teachers) felt like the questions were invading their private lives. This was a limitation of the design in the study.

Population

The population for the study consisted of all BM teachers (N=17) and students (N=974) of Business Management in all Senior High Schools in the Asuogyaman District in the Eastern Region in the 2018/2019 academic year (Ghana Education Service, 2019). The district has five Senior High Schools. All the 17 BM teachers in the schools were included in the study using census due to the small size of the population.

Sample and Sampling Procedure

The sample for the study consisted of 177 students. Students' population of 974 gave a sample of 177 according to the sample size determination table provided by Bartlett, Kotrlik and Higgins (2001). This is justified because a sample of 177 is deemed enough to make generalizations to the population (Fraenkel & Wallen, 2002). Proportional random sampling was used to apportion the sample to the various schools. Then, simple random sample technique (table of random numbers) was used to select the student-respondents from the respective schools in the district. The use of the proportional stratified method was advantageous because it helped ensure that every sub-group within the population was represented in the sample. Again,

the use of simple random sampling helped to ensure that there were no biases in the sample selection process. This is because every member of the population had the chance of being selected.

The teachers were however selected using the census approach. Thus, all the 17 BM teachers were involved in the study. Census approach is used when the population is usually small and there is the need to involve all the members of the population in the study.

Data Collection Instruments

Two sets of questionnaires were used for the study (See Appendices A & B). Questionnaire was used for the study because the questionnaire was cheaper, quicker and provided an efficient way of obtaining large amounts of information from the respondents. Each of these questionnaires consisted of only closed ended items in a 5-point Likert scale. The 5-point Likert scale required respondents to choose between strongly agree, agree, strongly disagree, disagree and undecided as options which best represent their opinion. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as 2 while Strongly Disagree was scored as 1. There were 29 items on the questionnaire designed for teachers. Items 1-5 in section A of the questionnaire sought for information on the background of the respondents which included their age, gender and academic qualification. Section B (6-12) of the questionnaire was devoted to the researcher's research question one which allows respondents to answer questions that measure the level of the BM teachers' CK in teaching BM. The subsequent section which is C (13-21) of the questionnaire focused on the second research question which allows respondents to answer questions that measure the level of the BM

teachers' PK in teaching BM. The next section D (22-29) of the teachers' questionnaire solicited answers to the third research question which focuses on the level of the BM teachers' PCK in teaching BM.

The students' questionnaire similarly comprised close ended items with a 5 point Likert scale. The 5 point Likert scale required respondents to choose between strongly agree, agree, strongly disagree, disagree and undecided as options which best represent their opinion. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as 2 while Strongly Disagree was scored as 1. There were 27 items on the questionnaire designed for students. Items 1-2 in section A of the questionnaire sought for information on the background of the respondents which includes their gender and class. Section B (3-9) of the questionnaire was devoted to the research question one which allows respondents to answer questions that measure the level of their BM teachers' CK in teaching BM. The subsequent section which is C (10-19) of the questionnaire focused on the second research question which allows respondents to answer questions that measure the level of their BM teachers' PK in teaching BM. The last section D (20-27) of the students' questionnaire solicited answers to the third research question which focuses on the level SHS BM teachers' PCK in teaching BM.

On ascertaining the academic performance of students, data was gathered from the academic records. Their end of term examination scores were used as the representative for their academic performance. The scores of each student was matched to their responses elicited on the questionnaire determining BM teachers' PCK influences on the academic performance of students in BM. Codes were written on the questionnaires and the students

were made to indicate the same code on their test sheets. The codes were then matched to test scores of respondents.

Reliability of the Instrument

The instrument was piloted in Lower Manya Krobo district, an adjoining district to Asuogyamang District. This district was chosen because students and teachers in the schools in that district possess similar characteristics with the students and teachers used in the main study. Teachers shared similar characteristics on the educational qualification, gender, teaching Business Management, average number of years in the teaching profession, among others. For the students, they are all going through the same BM syllabus, are all students in the same category of schools, among others. Fifteen BM teachers and 30 BM students considered for pilot testing the instrument this was done to ensure achieving the reliability of the test instrument. Johanson and Brooks (2009) suggested 30 representative participants as the minimum number in a pilot study. The Cronbach's coefficient alpha value was calculated to examine the reliability of the instrument. The reliability co-efficient obtained was 0.79 for the students' questionnaire and 0.74 for the teachers' questionnaire. The pilot study also helped to cross-check the views expressed on the questionnaires for further correction of errors and elimination of irrelevant items in the questionnaire.

Validity of the instrument

In terms of content validity, Taherdost (2016) advised that the procedure of judgmental approach to content validity requires researchers to present to experts of a particular research topic for them to make inputs in measuring the construct to be measured. In relation to this the instrument were

given to expert researchers and the supervisors of the study to help ensure content validity. The suggestions that were given by the experts and colleague researchers were used to effect the necessary changes to improve upon the instrument.

Data Collection Procedure

Data collection commenced after the researcher presented a letter of introduction from the Department of Business and Social Sciences Education to the Heads of the various selected schools for the study, to seek permission to conduct the research (See Appendix C). A short introduction to the research was given to students and the teachers to explain the purpose of the study and the questionnaire to them. The reason for this approach was to make sure that fitting responses are elicited from the respondents. The respondents were then assured of confidentiality which encouraged them to respond to the items without any suspicion or fear. The questionnaires were then administered to the Business Management teachers and students by the researcher in March 2019. The respondents were allowed ample time to complete the questionnaires, after which they were collected the same day. A 100% return rate was achieved.

Data Processing and Analysis

After collection of data, the data were entered and managed with the aid of Statistical Product for Service Solutions (SPSS) version 22. Then, the study used descriptive statistics and one inferential statistics which is regression analysis to establish the relationship between the independent variables (CK, PK, and PCK) and academic performance of Senior High School Business Management students. The descriptive statistics used were

percentages, mean and standard deviations. The specific tools for data analyses are presented in Table 1.

Table 1: Tools for Data Collection and Data Analysis

Research questions	Tools for data collection	Tools for data analysis
What is the content knowledge level of SHS Business Management teachers' in teaching business Management?	Questionnaire	Means and standard deviation
What is SHS Business Management teachers' level of pedagogical knowledge in teaching business Management?	Questionnaire	Means and standard deviations
What is SHS Business Management teachers' level of pedagogical content knowledge in teaching business Management?	Questionnaire	Means and standard deviation
What is the influence of SHS Business Management teachers' content knowledge, pedagogical knowledge and pedagogical content knowledge in teaching Business Management on the academic performance of students in Business Management?	End of first semester examination scores	Linear multiple regression

Source: Author's Construct, 2019

Ethical Considerations

The research took into account some ethical considerations. First and foremost, there was permission from the authorities of all Senior High schools in the district to access academic performance report on a standardized test of students in BM. For the purpose of confidentiality, students' academic performance in Business Management on the standardised test and questionnaire responses were assessed anonymously. The respondents and

management were assured that only the researcher will keep hold of the responses as well as academic performance report. In terms of anonymity of management members, there was no information disclosure associated to a particular management member.

CHAPTER FOUR

RESULTS AND DISCUSSION

The purpose of this study was to examine Business Management teachers' Pedagogical Content Knowledge influence on students' academic performance in Business Management. This chapter presents the results of the data analyses as well as its discussion. The demographic characteristics of the respondents are presented in Tables 2 and 3.

Demographic Characteristics of Respondents

To have a full appreciation of the results generated on the various research questions, it was imperative to have necessary disclosure of some background information of the respondents use for the study. Therefore, demographic characteristics were collected on both students and teachers, who were the two group of respondents used for the study. The demographic characteristics of the students cover the sex and class level of the respondents. The data was analysed using frequency counts and percentages. The results are presented in Table 2.

Table 2: Demographic Characteristics of Students

N=177

Demography	No.	%
Sex		
Male	99	55.9
Female	78	44.1
Class		
SHS 1	45	25.4
SHS 2	78	44.1
SHS 3	54	30.5

Source: Field survey (2019)

Table 2 shows the demographic characteristics of the students. It can be seen that 99 (55.9%) of the respondents were males while 78 (44.1%) were females. In terms of class level, it is shown that majority of the respondents (78, 44.1%) were in SHS 2, 54(30.5%) were in SHS 3 and 45 (25.4%) were in SHS 1. The implications of the demographics are that both opinions of male and female students have been captured in a representative manner, so has each class of BM been represented. This means that results obtained are nt skewed towards a particular section of respondents but all BM students.

The demographic characteristics of the teachers are presented in Table 3. The characteristics cover the sex, teaching experience, highest academic qualification and highest professional qualification.

Table 3: Demographic Characteristics of Teachers

N=17

Demography	**No.**	**%**
Sex		
Male	10	58.8
Female	7	41.2
Teaching Experience		
5 years and below	4	23.6
6-10 years	7	41.2
11-15 years	3	17.6
16-20 years	3	17.6
Highest Academic Qualification		
B.Ed. Management	10	58.8
B.Ed. Social Science	5	29.4
Masters in Management	2	11.8
Highest Professional Qualification		
B.Ed.	15	88.2
PGDE	2	11.8

Source: Field survey (2019)

Table 3 shows the demographic characteristics of the teachers. It can be seen that majority of the respondents (10, 58.8%) are males while seven respondents corresponding to 41.2% were females. Again, it can be seen in table 3 that 41.2% of the respondents had six to 10 years of teaching experience, 23.6% had less than six years of teaching experience while 17.6% each had 11 to 15 years and 16 to 20 years of teaching experience.

In terms of the educational qualification, it can be seen that more than half of the respondents (58.8%) had B.Ed. Management qualification while 29.4% of the respondents had B.Ed. Social Science qualification. Cumulatively, it is seen in table 3 that 88.2% of the respondents had a B.Ed. professional qualification. The demographic characteristics of the teachers show that the respondents had several years of teaching experience and also had the requisite teacher qualification. This implies that the respondents can provide the information that can meet the objectives of the study. The results show that the answers obtained for each research question reflects the opinions of teachers who have the required educational certificates and also have been in the field of teaching for not less than 5 years.

Main Results and Discussion

The results of the analysis of the data for the research questions are presented in this section. The results are presented according to the research questions of the study. The data collected from respondents on the various research questions were analysed using mean and standard deviations. Since responses were gathered on a five-point liker-type scale, a cut-off point was set for the interpretation of the results attained. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as

2 while Strongly Disagree was scored as 1. Based on this scoring guide, mean scores of 3.0 and above were categorized in the study as high while mean scores below 3.0 were considered as low.

Research Question 1: What is the content knowledge level of SHS business management teachers in teaching Business Management?

This research question sought to identify the content knowledge level of SHS business management teachers. The data was on a five-point liker-type scale. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as 2 while Strongly Disagree was scored as 1. The results obtained from the students are presented in Table 4.

Table 4: Content Knowledge Level of SHS Business Management Teachers (Views of Students)

Statement	Mean	Std. Dev.
My management teacher(s) know the various examples of how subject matter applies in the real world.	4.46	0.88
My management teacher(s) have unique professional knowledge base in management studies.	4.18	1.05
I often times challenge teacher's concepts explanation.	2.83	1.29
My management teacher(s) demonstrate subject matter knowledge when teaching.	3.90	1.28
My management teacher(s) have the ability to analyse subject content structure and its significance.	4.30	0.82
My management teacher(s) have knowledge in explaining management concepts.	4.47	0.69
My management teacher(s) have the requisite knowledge in treating specific content topics.	3.63	1.07
Average of means and standard deviations	**3.97**	**1.01**

Source: Field survey (2019)

Table 4 shows the content knowledge level of the teachers as indicated by the students in the study. It is seen that the statement 'my management teacher(s) have knowledge in explaining management concepts' recorded the highest mean (N=177, M=4.47, SD=0.69). This means that most of the respondents were in agreement with the statement. Again, the statement 'my management teacher(s) know the various examples of how subject matter applies in the real world' was agreed to most of the respondents (N=177, M=4.46, SD=0.88). This implies that the students viewed their teachers as knowing the examples of how subject matter applies in the real world.

Further, it is revealed by most of the respondents that their management teacher(s) have the ability to analyse subject content structure and its significance (N=177, M=4.30, SD= 0.82). Finally, it was indicated by the students that their management teacher(s) have unique professional knowledge base in management studies (N=177, M=4.18, SD=1.05). The average of the mean scores, 3.97, is higher than the cut-off score of 3.0. This means that overall, most of the respondents agreed to statements.

It can be inferred that the students perceived their management teachers as having high content knowledge in teaching Business Management. Specifically, it can be inferred from the results that students were of the view that their management teachers had knowledge in explaining management concepts and knew how subject matter applies to the real world. Again, the students were of the view that their management teachers had the ability to analyse subject content structure and its significance and had unique professional knowledge base in management studies.

The teachers were also asked of their views on their content knowledge level. Statements were posed and the respondents had to indicate their level of agreement and disagreement to the statements. The views of the management teachers on their content knowledge level are presented in Table 5.

Table 5: Content Knowledge Level of SHS Business Management Teachers (Views of Teachers)

Statement	Mean	Std. Dev.
I know examples of how subject matter applies in the real world.	4.06	1.19
I have unique professional knowledge base in management studies.	4.00	1.19
My students often times challenge my concept explanation.	3.06	1.52
I demonstrate subject matter knowledge when teaching.	4.65	0.66
I have the ability to analyse subject content structure and its significance.	4.41	0.71
I have knowledge in explaining management concepts.	4.59	0.51
I have the requisite knowledge in treating specific topics.	4.06	0.75
Average of means and standard deviations	**4.12**	**0.93**

Source: Field survey (2019)

Results from Table 5 indicate that teachers demonstrate subject matter knowledge when teaching (N=17, M=4.65, SD=0.66) and also had knowledge in explaining management concepts (N=17, M=4.59, SD=0.51). Again, it is shown that the teachers had the ability to analyse subject content structure and its significance (N=17, M=4.41, SD=0.71).

The teachers also knew examples of how subject matter applies in the real world (N=17, M=4.06, SD=1.19) and had the requisite knowledge in treating specific topics (N=17 M=4.06, SD=0.75). The average of the mean

scores was 4.12. This is higher than the cut-off of 3.0 set for the study. This means that the teachers agreed to the statements. Thus, the teachers viewed themselves as having high content knowledge level. Specifically, the teachers demonstrated subject matter knowledge, had knowledge in explaining management concepts, had the ability to analyse subject content structure and its significance, knew examples of how subject matter applies in the real world and had the requisite knowledge in treating specific topics. These results are similar to the views of students as indicated in Table 4.

Overall, in answer to research question 1, it can be inferred from the results of the students and teachers that BM teachers had high level of content knowledge. The BM teachers have knowledge in explaining management concepts and knew how subject matter applies to the real world. They also have the ability to analyse subject content structure and its significance and have unique professional knowledge base in management studies.

Considering the fact that all the teachers in the study had Bachelor's and Master's degree qualifications in Business Management, these findings were not surprising. This is because if a person is well trained or qualified, he or she is likely to have knowledge in the content he or she has been trained for. In this regard, the findings of the current study is a good reflection of the demographic characteristics of the respondents. The findings of the current study are in line with the findings of Pinamang and Cofie (2017) who investigated pre-service teachers' content and pedagogical knowledge in teaching geometric transformation in two Colleges of Education in the Ashanti region of Ghana. They found that the respondents had a high level of content knowledge. In a similar vein, Kleickmann, Richter, Kunter, Elsner, Besser,

Krauss, and Baumert (2012) carried out a study in Germany and found that content knowledge was satisfactory among teachers. The similarity among the findings implies that most teachers usually have high knowledge in terms of the content.

Turner-Bisset (1999) has revealed that high content knowledge is reflected in teachers' ability to demonstrate subject matter knowledge, able to explain concepts, analyse subject content structure and its significance and give examples of how subject matter applies in the real world. These were all confirmed in the current study. The teachers in the current study can therefore be deemed to be highly knowledgeable in terms of the content of Business Management.

Research Question 2: What is SHS Business Management teachers' level of pedagogical knowledge in teaching Business Management?

This research question aimed at finding out the level of business management teachers' pedagogical knowledge. The data was analysed using mean and standard deviation. The data was on a five-point liker-type scale, a cut-off point was set for the data. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as 2 while Strongly Disagree was scored as 1. The results of the views of the students are presented in Table 6.

It can be seen in Table 6 that the students were of the view that their management teacher(s) use the right teaching methods (N=177, M=4.32, SD=0.89). The students indicated again that their management teacher(s) have knowledge to improve emotional dispositions of individual students (N=177, M=4.16, SD=1.06). In addition, the students revealed that their management

teacher(s) have knowledge in organising and maintaining classroom management (N=177, M=4.04, SD=1.24). The students were also of the view that their management teacher(s) have knowledge in interpreting, evaluating and using research and data to inform teaching and learning process (N=177, M=4.02, SD=1.11).

Table 6: Level of Pedagogical Knowledge of SHS Business Management Teachers (Views of Students)

Statement	Mean	Std. Dev.
My management teacher(s) productively utilise instructional time through various teaching methods.	3.50	1.31
My management teacher(s) have knowledge to maximize instructional time through awareness of all classroom activities.	4.00	1.03
My management teacher(s) have knowledge in interpreting, evaluating and using research and data to inform teaching and learning process.	4.02	1.11
My management teacher(s) have knowledge to improve emotional dispositions of individual students.	4.16	1.06
My management teacher(s) have knowledge to assess students in the area of diagnosis.	3.88	0.97
My management teacher(s) use the right teaching methods.	4.32	0.89
My management teacher(s) have knowledge to improve emotional dispositions through diagnosis principle.	3.53	1.43
My management teacher(s) have knowledge in organising and maintaining classroom management.	4.04	1.24
My management teacher(s) have the knowledge to adopt teaching style of different learners.	3.47	1.49
Average of Means and Standard Deviations	**3.85**	**1.17**

Source: Field survey (2019)

Further, it is seen that the average of the means recorded was 3.85. This average of the means is higher than the cut-off point of 3.00. By implication, most of the respondents agreed to the statements in Table 6. From the results in Table 6, therefore, it can be inferred that the students were of the view that their teachers used the right teaching methods, had knowledge to improve emotional dispositions of individual students, had knowledge in organising and maintaining classroom management and had knowledge in interpreting, evaluating and using research and data to inform teaching and learning process. The views of the teachers on their level of pedagogical knowledge are presented in Table 7.

Table 7: Level of Pedagogical Knowledge of SHS Business Management Teachers (Views of Teachers)

Statement	Mean	Std. Dev.
I productively utilize instructional time through various teaching methods.	3.12	1.49
I have knowledge to maximize instructional time through awareness of all classroom activities.	3.88	1.11
I have knowledge in interpreting, evaluating and using research and data to inform teaching and learning process.	4.12	1.32
I have knowledge to improve emotional dispositions of individual students.	4.24	1.20
I have knowledge to assess students in the area of diagnosis.	3.76	1.25
I use the right teaching methods when teaching.	4.41	1.06
I have knowledge to improve emotional dispositions through diagnosis principle.	3.65	1.46
I have knowledge in organising and maintaining classroom management.	3.53	1.55
I have the knowledge to adopt teaching style of different learners.	3.59	1.66
Average of Means and Standard Deviations	**3.81**	**1.34**

Source: Field survey (2019)

The views of the teachers regarding their level of pedagogical knowledge are presented in Table 7. It is revealed in Table 7 by the respondents that they use the right teaching methods when teaching (N=17, M=4.41, SD=1.06). The teachers also indicated that they have knowledge to improve emotional dispositions of individual students (N=17, M=4.24, SD=1.20). Again, it is shown in Table 7 that teachers have knowledge in interpreting, evaluating and using research and data to inform teaching and learning process (N=17, M=4.12, SD=1.32). The teachers indicated again that they have knowledge to maximize instructional time through awareness of all classroom activities (N=17, M=3.88, SD=1.11).

The results obtained in Table 7 imply that teachers use the right teaching methods, have knowledge to improve emotional dispositions of individual students in interpreting, evaluating and using research and data to inform teaching and learning process, and in maximizing instructional time through awareness of all classroom activities. The overall pedagogical knowledge level of the teachers obtained as shown in the average of the means is 3.81. This is high as it is greater than 3.0 cut-off score.

The results obtained from the students and teachers bear close resemblance. This implies that the views demonstrate a clear reflection of the pedagogical knowledge of the teachers. Thus, the BM teachers used the right teaching methods and had knowledge to improve emotional dispositions of individual students. The teachers also had knowledge in organising and maintaining classroom management and in interpreting, evaluating and using research and data to inform teaching and learning process. Korau (2010) revealed that pedagogical knowledge is demonstrated in the strategy and style

which allow the teacher to present his lesson in a stimulating way. Tsafe (2013) also found that if a teacher is able to present his lesson in such a way that learners appreciate and appeal strongly, it means the pedagogical knowledge of the teacher is sound and implies that the teacher is pedagogically knowledgeable. These previous studies have been confirmed by the findings of the current study.

Pedagogical knowledge is the knowledge of how to teach. Rodgers and Raider-Roth (2006) argued that a teacher may be knowledgeable of his or her subject matter without necessarily being able to decompress it in a way that makes it accessible to their students. Having pedagogical knowledge is therefore the way to "decompress" the subject matter knowledge. The findings of the current study are in line with the findings of Lenard and Lenard (2019) that teachers compile their teaching materials consulting various available resources. They revealed further that the teachers prepared thoroughly and presented content in an appealing and interesting way and also carried out course evaluations implementing students' suggestions into their courses, constantly aiming to improve both their own performance and students' performance.

Shulman (1986) has pointed out that pedagogical knowledge involves belief about teaching and the process of learning that a teacher possesses that influences that teacher's teaching. This process includes the ability to plan and prepare materials; time and classroom management skills; implementation, problem solving, and teaching strategies; questioning techniques; and assessment (Hudson, 2007). All of these activities were confirmed in the current study.

Research Question 3: What is SHS Business Management teachers' level of pedagogical content knowledge in teaching Business Management?

This research was aimed at finding out the level of teachers' pedagogical content knowledge as perceived by the students in the study. The data was analysed using means and standard deviations. The data was on a five-point liker-type scale, a cut-off point was set for the data. Strongly Agree was scored as 5, Agree was scored as 4, Undecided was scored as 3, Disagree was scored as 2 while Strongly Disagree was scored as 1. The results of the views of the students are presented in Table 8.

Table 8: Level of Pedagogical Content Knowledge of SHS Business Management Teachers (Views of Students)

Statement	Mean	Std. Dev.
My management teacher(s) select effective teaching approaches to guide student thinking and learning.	4.22	0.79
My management teacher(s) are able to deliver subject matter through classroom interaction.	4.06	0.96
My management teacher(s) make good presentation of subject content based on their knowledge of students.	4.09	1.04
My management teacher(s) distinguish between correct and incorrect problem-solving attempt by students.	4.05	1.05
My management teacher(s) produce lesson plan with a good understanding of the topics in the subject matter.	4.10	1.15
My management teacher(s) anticipate likely students' misconception between various concepts when teaching.	3.69	1.11
My management teacher(s) have the knowledge base to combine wide range of teaching approaches.	3.66	1.36
Average of Means and Standard Deviations	**3.98**	**1.06**

Source: Field survey (2019)

It is shown in Table 8 that the statement 'my management teacher(s) effectively select teaching approaches to guide students thinking and learning' recorded the highest mean of 4.22 and a standard deviation of 0.79. The students also indicated that their management teacher(s) produce lesson plan with a good understanding of the topics in the subject matter (N=177, M=4.10, SD=1.15). The students also made it known that their management teacher(s) made good presentation of subject content based on their knowledge of students (N=177, M=4.09, SD=1.04).

The average of the means recorded was 3.98. This score indicates that overall, most of the respondents agreed to the statements in Table 8. Thus, the students perceived their teachers as having high level of pedagogical content knowledge. This high level of knowledge is seen in teachers effectively selecting teaching approaches, producing lesson plan with a good understanding of topics and making good presentation of subject content based on knowledge of students. The views of the teachers on their PCK are shown in Table 9.

It is shown in Table 9 that the teachers were able to deliver subject matter through classroom interaction (N=17, M=4.59, SD=0.62). The teachers also indicated they can select effective teaching approaches to guide student thinking and learning (N=17, M=4.35, SD=0.79). Again, it is revealed by the teachers that they can distinguish between correct and incorrect problem solving attempt by students (N=17, M=4.18, SD=0.81). Finally, the teachers were of the view that they have the knowledge base to combine wide range of teaching approaches (M=4.12, SD=1.11).

Table 9: Level of Pedagogical Content Knowledge of SHS Business Management Teachers (Views of Teachers)

Statement	Mean	Std. Dev.
I can select effective teaching approaches to guide student thinking and learning.	4.35	0.79
I am able to deliver subject matter through interaction.	4.59	0.62
I can make good presentation of subject content based on their knowledge of students.	4.00	1.17
I can distinguish between correct and incorrect problem solving attempt by students.	4.18	0.81
I can produce lesson plan with a good understanding of the topics in the subject matter.	4.00	1.32
I can anticipate likely students' misconception between various concepts when teaching.	3.41	1.12
I have the knowledge base to combine wide range of teaching approaches.	4.12	1.11
Average of Means and Standard Deviations	**4.09**	**0.99**

Source: Field survey (2019)

The average of the means obtained was 4.09 implying that the teachers had high level of pedagogical content knowledge. It can be inferred from the results that teachers are able to deliver subject matter through classroom interaction, select effective teaching approaches, distinguish between correct and incorrect problem solving and combine a wide range of teaching approaches. All of these imply that the teachers in the study had high level of pedagogical content knowledge.

Demonstration of pedagogical content knowledge (PCK) involves the most useful forms of representation of those ideas, examples, explanations and demonstrations (Shulman, 1986). PCK therefore enables a teacher to make a subject comprehensive to others with emphasis on an understanding of what

makes content easy or difficult to understand, an understanding of students' misconceptions related to a certain content and the ability to choose content adequately (Shulman, 1987). These are reflected in the findings of the current study.

Regarding the knowledge about misconceptions, one would expect highly knowledgeable teachers to be able to identify misconceptions of their students during instruction (Shulman, 1986). Once a student's misconception is recognised, the teacher would react to it, for example, by giving feedback to the student in one way or another. Pedagogical content knowledge also covers knowledge about difficulties. This relates to the ability of the teacher to cognitively activate his students. Cognitive activation is, in essence, learning opportunities designed by teachers (Baumert & Köller, 2000). The implication of this is that a high level of pedagogical content knowledge can enhance learning opportunities. Overall, it can be inferred from the result that Business Management teachers in the study area are able to present the subject matter in ways that are easily understandable to students. They are able to use classroom interactions and combine wide range of teaching approaches in the classroom.

The findings are in line with the findings of Nilsson and Karlsson (2019) who found that the different tools enabled the student teachers to connect captured examples of teaching instances with theoretical issues, and in this way offered the ability to see as well as to analyse their teaching practice. Nilsson and Karlsson indicated further that pedagogical content knowledge of teachers is shown when teachers are successful in scaffolding and structuring student teachers' reflection-on-action, allowing them to connect their reflections to components of the content and further to articulate connections

between these components. Rahmi (2018) also sought to determine the PCK of prospective economic teacher and found that in general, the pedagogical content knowledge of teacher candidates is still in the 'sufficient' and 'good' category. The results of Rahmi imply that the level of pedagogical content of knowledge of teachers was good enough.

Research Question 4: What is the influence of SHS Business Management teachers' content knowledge, pedagogical knowledge and pedagogical content knowledge in teaching Business Management on the academic performance of Business Management students?

This research question was meant to find out the impact of teachers' content knowledge, pedagogical knowledge and pedagogical content knowledge in teaching Business Management on the academic performance of the students in the study. In answering this question, the hierarchical multiple regression was used. This was resulted to because there was the need to establish the detailed contribution of each of the variables to the entire change of the composite of the three variables to the dependent variable. In using hierarchical multiple regression, the main assumptions for doing linear multiple regression were tested.

Testing Nonlinearity

When we do linear regression, we assume that the relationship between the response variable and the predictors is linear. Linearity implies that the relationships between the predictors and the outcome variable should be linear. In doing this, a scatterplot was obtained. However, it is difficult to tell the relationship simply from the plot and so the researcher fitted a non-linear best fit line known as the Loess Curve through the scatterplot to see if she can

detect any nonlinearity. From the Loess curve, it appears that the relationship of standardized predicted to residuals is roughly linear around zero. Based on this, it can be concluded that the relationship between the response variable and predictors is zero since the residuals seem to be randomly scattered around zero implying that a linear relationship exists.

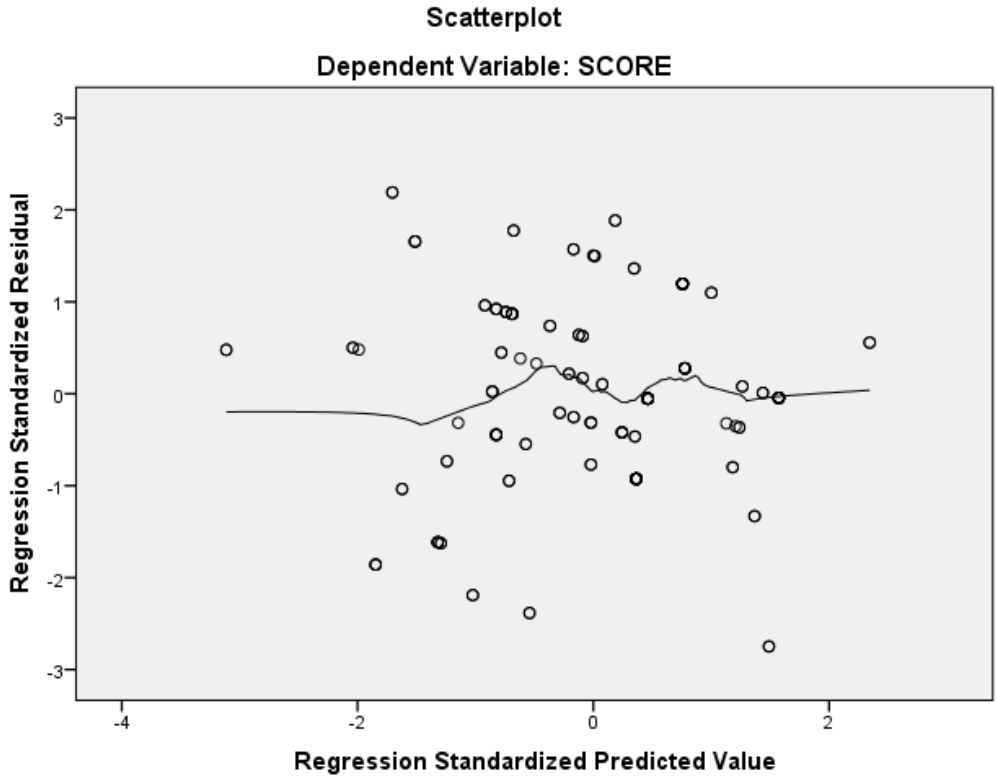

Figure 2: Scatterplot with Loess curve showing linear relationship

Normality Testing

This assumption is based on the view that the values should be normally distributed. To do this, the output from the Q-Q Plot is inspected. It can be seen from the Q-Q Plot that normality assumption is met. This is because the points cluster around the horizontal line.

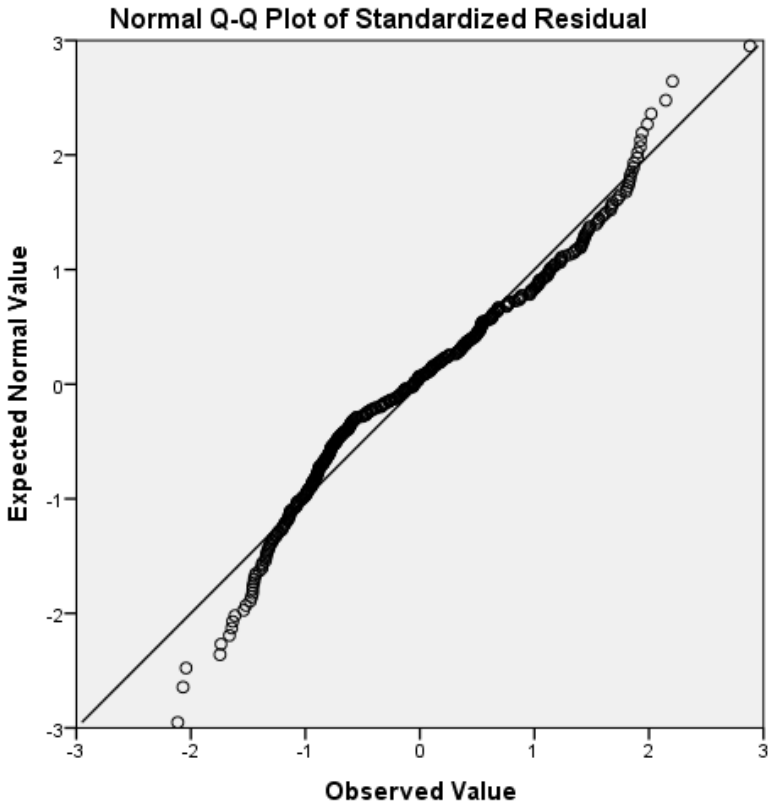

Figure 3: Normal Q-Q Plot showing Normality of Data

Independence of Observations

In this assumption, it is expected that the errors associated with one observation are not correlated with the errors of any other observation. In checking this assumption, the Durbin-Watson Statistic was used. This statistic can vary from 0 to 4. A rule of thumb is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern and may render the analysis invalid. It can be seen in the model in Table 10 that this assumption is met since the Durbin-Watson statistic is 1.835. Thus, there is independence of the observations. This implies that there is autocorrelation in the data.

Table 10: Test for Independence of Observations

Model	R	R Square	Durbin-Watson
1	.377[a]	.142	1.835

Source: Field survey (2019)

Multicollinearity

Multicollinearity implies that predictors are highly related to each other and both predictive of the outcome can cause problems in estimating the regression coefficients. When there is a perfect linear relationship among the predictors, the estimates for a regression model cannot be uniquely computed. The term collinearity implies that two variables are linear combinations of one another. When more than two variables are involved, it is often called multicollinearity, although the two terms are often used interchangeably.

VIF and Tolerance statistics to assess this assumption. For the assumption to be met, the VIF scores should be well below 10 and tolerance scores should be above 0.2. In this study, it can be seen in Table 11 that VIF scores are well below 10 and the Tolerance scores are all above 0.2. This implies that there is no multicollinearity in the data and as such Linear Multiple Regression can be done.

Table 11: Test for Multicollinearity

		Collinearity Statistics	
Model		**Tolerance**	**VIF**
1	(Constant) Scores		
	Content Knowledge	.721	1.386
	Pedagogical Knowledge	.743	1.345
	Pedagogical Content Knowledge	.697	1.434

Source: Field survey (2019)

Homoscedasticity

Homoscedasticity, which is where the variances along the line of best fit remain similar as you move along the line. It is expected that the residuals (errors) should not vary systematically across values of the explanatory variable. This can be checked by creating a scatterplot of the residuals against the explanatory variable. The distribution of residuals should not vary appreciably between different parts of the x-axis scale – meaning there should be a chaotic scatterplot with no discernible pattern. In this study, it can be seen from Figure 4 that the data points generally appear more random and as such this assumption can be deemed to have been met.

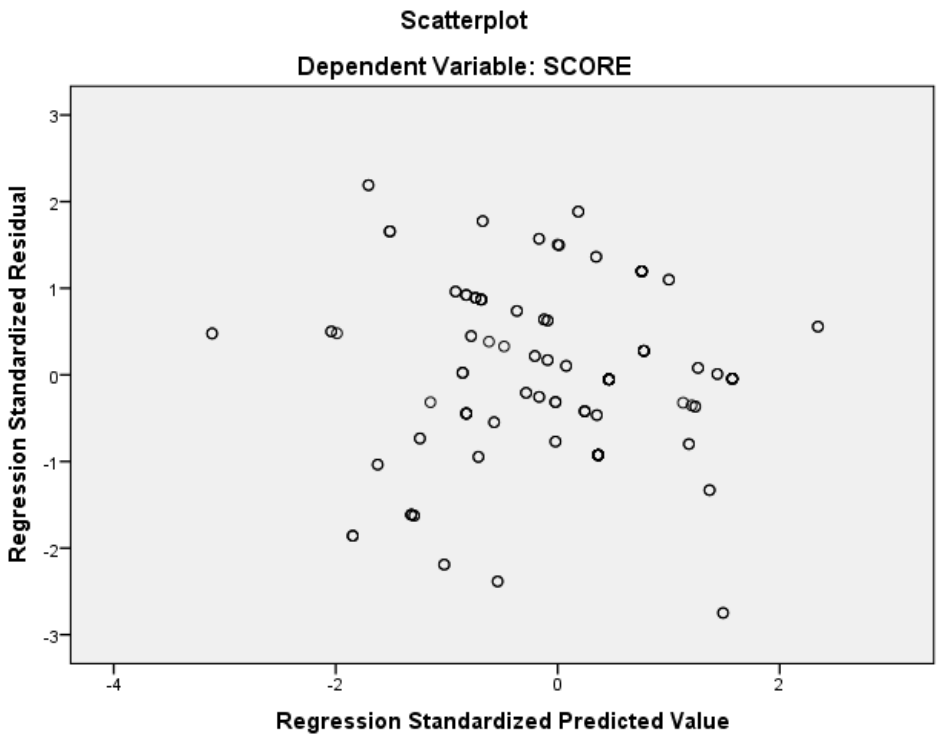

Figure 4: Test for Homoscedasticity

Since the assumptions were met, the linear multiple regression analysis was done. The correlations among the variables were tested as part of the linear multiple regression analysis.

Table 12: Correlations

		SCORE	CONTENT	PEDAKN	PCK
Pearson	Score	1.000	.200	.078	.176
Correlation	Content	.200	1.000	.418	.476
	PEDAKN	.078	.418	1.000	.450
	PCK	.176	.476	.450	1.000
Sig. (1-tailed)	Score	.	.004	.152	.010
	Content	.004	.	.000	.000
	PEDAKN	.152	.000	.	.000
	PCK	.010	.000	.000	.
N		177	177	177	177

Significant at .05 level

Table 12 shows the relationships that exist between the independent variables (content knowledge, pedagogical knowledge and pedagogical content knowledge) and the dependent variable (academic performance/score). It can be seen that the relationship between content knowledge and academic performance is statistically significant (r=0.200, p=.004). Similarly, the relationship between pedagogical content knowledge (PCK) and academic performance is found to be statistically significant (r=0.176, p=0.010).

The implication of these is that there is positive relationship between content knowledge and academic performance as well as pedagogical content knowledge and academic performance. The positive relationship implies that as content knowledge and pedagogical content knowledge increases, academic performance (scores) also increases. Based on the Pearson correlation values, it can be inferred that the relationship was weak for both content knowledge (0.200) and pedagogical content knowledge (0.176). The implication is that even though a relationship exists between these variables and academic performance, the relationship is not strong. On the other hand, the relationship

between pedagogical knowledge (PEDAKN) and academic performance was not found to be statistically significant (r=.078, p=0.152). Thus, the relationship between PEDAKN and academic performance was very weak and insignificant.

The coefficients of the independent variables in predicting the dependent variable are shown in Table 13. The regression co-efficients for the independent variables as well as their Beta values are presented in Table 15.

Table 13: Regression Coefficients

Variable	B	Beta	T	Sig
Constant	12.754		8.152	.000
Content Knowledge	.278	.393	4.735	.000
Pedagogical Knowledge	.045	.099	1.211	.227
Pedagogical Content Knowledge	.159	.318	3.770	.000

Source: Field survey (2019)

The results in Table 15 show that the impact of the variables content knowledge (T=4.735, p<.05) and pedagogical content knowledge (T=.159, p<.05) were statistically significant. The impact of the variable, pedagogical knowledge was however not statistically significant (T=.045, p>.05). In terms of the predictive ability, the Beta values indicate that content knowledge significantly predicts academic performance (.393) more than pedagogical content knowledge (.318). The implication of the results is that teachers' content knowledge can predict academic performance more than teachers' pedagogical content knowledge. Pedagogical knowledge alone was however found not to significantly predict academic performance.

To have an appreciation of the contribution of each independent variable to the overall variation occurring in the dependent variable, there was

there need to conduct a hierarchical multiple regression to produce the R^2 change statistic of each of the independent variable. The model summary is presented in Table 14.

Table 14: Model Summary

Variables	Model 1	Model 2	Model 3
Constant	15.644	14.117	12.754
Content Knowledge (Content)	.142*	.200*	.278*
Pedagogical Knowledge (PEDAKN)	-	.090*	.045
Pedagogical Content Knowledge (PCK)	-	-	.159*
R	.200	.268	.377
R^2	.040	.072	.142
R^2 Change	.040	.032	.070
F Change	7.286*	5.924*	14.212*
Sig. F Change	.008	.016	.000

Source: Field data, 2019

The hierarchical multiple regression revealed that at model 1, content knowledge contributed significantly to the regression model ($F = 7.286$, $p < .05$) and accounted for 4% of the variation in students' academic performance. In model 2, pedagogical knowledge (PEDAKN) variable was introduced and it explained an additional 3.2% of variation in students' academic performance and this change in R^2 was significant ($F = 5.92$, $p < .05$). finally in model 3, the addition of pedagogical content knowledge (PCK) to the regression model explained an additional 7.0% of the variation in academic performance of students and this change in R^2 was significant ($F = 14.212$, $p < .05$). Together all three independent variables (Pedagogical Content Knowledge (PCK), Pedagogical Knowledge (PEDAKN) and content knowledge) accounted for 14.2% of the variance in students' academic performance. This means that

PCK has the largest contribution to the predictive power of all three variables on the academic performance of students in BM.

The study revealed that there was a statistically significant relationship between two of the independent variables [Pedagogical Content Knowledge (PCK) and Pedagogical Knowledge (PEDAKN)] and the academic performance of students. However, the relationship between pedagogical knowledge and academic performance is not statistically significant. The Pearson correlation values (r values) for content knowledge and pedagogical content knowledge were positive and thus, it can be inferred that as content knowledge and pedagogical content knowledge increase, academic performance also increases. In terms of the predictive ability of the independent variables, the study revealed that content knowledge significantly predicts academic performance more than pedagogical content knowledge even though they both predict academic performance.

The findings of the current study are in line with the findings of Farooq and Shahzadi (2006) who found that students taught by teachers with high content knowledge showed better results in their academic performance. In a similar vein, Darling-Hammond (1999) investigated students' test results in reading and mathematics. He found that teacher certificate and subject matter knowledge were shown to correlate with students' test results and to have great explanatory power. Raheem and Amali (2013) also found a positive correlation between teachers' pedagogical skills and students' performance in Social Studies. Raheem and Amali therefore recommended that government at all levels with a meaningful and purposive collaboration with the organized private sector should periodically provide windows of opportunities like

learned workshops, seminars and in-service trainings for social studies teachers to equip and improve their content and pedagogical content knowledge. Enzi (2017) found that having high level of content and pedagogical content knowledge among teachers is linked with significantly higher teacher effectiveness. The similarity among all the findings implies that content knowledge and pedagogical content knowledge are both significant predictors of academic performance of students.

Several implications can be made from the findings of the current study. In the first place, it can be inferred that what teachers know about the subject they are teaching is what determines, to a large extent, the academic performance of students. The ways in which teachers relate their subject matter knowledge and their teaching skills in teaching also affect the academic performance of students. Thus, all other things being equal, Business Management students will perform better if teachers know the subject very well and are able to relate their knowledge of teaching with the subject matter knowledge.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter focuses on the summary, conclusions and recommendations of the study. Suggestions for future research are also given in this chapter.

Summary of Study

The purpose of this study was to examine Business Management teachers' PCK influence on students' academic performance in Business Management. Specifically, the study was meant to answer four research questions:

1. What is the content knowledge level of SHS Business Management teachers in teaching Business Management?
2. What is SHS Business Management teachers' level of pedagogical knowledge in teaching Business Management?
3. What is SHS Business Management teachers' level of pedagogical content knowledge in teaching Business Management?
4. What is the influence of SHS Business Management teachers' content knowledge, pedagogical knowledge and pedagogical content knowledge in teaching Business Management on the academic performance of Business Management students?

Theoretical and empirical literature related to the study were reviewed. The descriptive cross-sectional survey research design was adopted for the study. A sample of 177 students and 17 teachers was selected from all senior high schools in the Asuogyaman District in the Eastern Region of Ghana. The schools were Boso senior high technical, Anum Senior High, Apegusu Senior High, Agina Senior High and Akwamuman Senior High Schools. Two sets of

questionnaire were used for the study, one each for students and teachers. The instrument was piloted in the Krobo Girls' Senior High School in the Lower Manya Krobo district obtaining a Cronbach coefficient alpha of 0.78. The data collected was analysed using means and standard deviations and linear multiple regression.

Summary of Major Findings

The study revealed that Business Management teachers demonstrated subject matter knowledge, had knowledge in explaining management concepts, had the ability to analyse subject content structure and its significance, knew examples of how subject matter applies in the real world and had the requisite knowledge in treating specific topics. These were the dimensions that demonstrated content knowledge of the teachers. The teachers were therefore found to have high level of content knowledge.

In terms of the level of pedagogical knowledge of teachers, the study found that the Business Management teachers used the right teaching methods and had knowledge to improve emotional dispositions of individual students. The teachers also had knowledge in organising and maintaining classroom management and in interpreting, evaluating and using research and data to inform teaching and learning process. The teachers were thus found to have high level of pedagogical knowledge.

The study revealed again that teachers were effective in selecting teaching approaches, producing lesson plans with a good understanding of topics and making good presentation of subject content based on knowledge of students. Again, the teachers were able to deliver subject matter through classroom interaction, distinguish between correct and incorrect problem

solving and combine a wide range of teaching approaches. All of these implied that the teachers in the study had high level of pedagogical content knowledge.

Finally, the study revealed that there was a statistically significant relationship between two of the independent variables [Content Knowledge and Pedagogical Content Knowledge (PCK)] and the academic performance of students. However, the relationship between pedagogical knowledge and academic performance was not statistically significant. The Pearson correlation values (r values) for content knowledge and pedagogical content knowledge were positive implying that as content knowledge and pedagogical content knowledge increased, academic performance also increased. Content knowledge significantly predicted academic performance more than pedagogical content knowledge even though they both predict academic performance. Pedagogical knowledge did not however predict academic performance.

Conclusions

Some conclusions are drawn based on the findings of the study. Firstly, it can be concluded that the Business Management teachers have high level of content knowledge which is evident in varied ways. This means that Business Management teachers are well vexed in in explaining management concepts, analysing subject content structure and its significance and using real life situations in relating subject matters. In connection to the larger conversation, it can be said that the study did not bring out novel findings, rather the conclusions support most of the previous literature.

Secondly, it is concluded that the Business Management teachers use the right teaching methods, have the knowledge to improve emotional dispositions of individual students, organise and maintain classroom management and interpret, evaluate and use research and date to inform teaching and learning process. Therefore, it is clear that the conclusion of the current study is not out of place.

Thirdly, it is concluded that the Business Management teachers were effective in selecting teaching approaches, producing lesson plans with a good understanding of topics and making good presentation of subject content based on knowledge of students. Delivering subject matter through classroom interaction, distinguishing between correct and incorrect problem solving and combining a wide range of teaching approaches were also demonstrated by the teachers. In the context of the larger discussion on pedagogical content knowledge, the conclusions of the current study support most previous studies. Therefore, the study does not introduce any new finding but rather adds to the literature on the pedagogical content knowledge among teachers.

Fourthly, it is concluded that Content Knowledge and Pedagogical Content Knowledge (PCK) are significant predictors of academic performance of students. In terms of predictive ability, content knowledge significantly can predict academic performance more than pedagogical content knowledge. Out of the three independent variables, these two [Content Knowledge and Pedagogical Content Knowledge (PCK)] can determine the academic performance of students in Business Management. This conclusion implies that Business Management teachers' content knowledge and pedagogical

content knowledge needs to be given important recognition in the quest to improve students' academic performance.

Recommendations

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

1. It is recommended that the Business Management teachers continue to improve themselves in terms of their content knowledge in Business Management. This can be done by attending workshops and other continuous professional development programmes. By continually improving their content knowledge, teachers can be in a better position to provide better teaching and learning experience for students.
2. It is recommended that Business Management teachers continue to improve their pedagogical knowledge in the teaching of Business Management. By improving their pedagogical knowledge, Business Management teachers can use the right teaching methods, improve emotional dispositions of individual students, organise and maintain classroom management and interpret, evaluate and use research and data to inform teaching and learning process.
3. It is recommended that Business Management teachers continue improving their pedagogical content knowledge through regular attendance of professional workshops and personal study. This can help ensure that teachers become more effective in selecting teaching approaches, producing lesson plans with a good understanding of topics and making good presentation of subject content based on knowledge of students, delivering subject matter through classroom interaction, distinguishing between correct and incorrect problem

solving and combining a wide range of teaching approaches were demonstrated by the teachers.

4. It is recommended that school authorities in collaboration with the Ghana Education Service organise continuous professional development programmes for teachers on how they can improve and apply their content knowledge and pedagogical content knowledge in their teaching. This can help improve the academic performance of students since both content knowledge and pedagogical content knowledge significantly predicted academic performance of students.

Suggestions for Future Research

The following suggestions are made for future research:

1. Future research should use a larger sample size to increase the extent to which the results can be generalised.
2. Future research could investigate how teachers can improve their content knowledge, pedagogical knowledge and pedagogical content knowledge.
3. Future studies can consider a mixed methods approach to be able to get in-depth information from respondents about how the teacher variables (content knowledge, pedagogical knowledge and pedagogical content knowledge) influence academic performance of students.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND SOCIAL SCIENCES EDUCATION

DEPARTMENT OF BUSINESS AND SOCIAL SCIENCES

EDUCATION

QUESTIONNAIRE FOR STUDENTS

This questionnaire aims at assessing how teachers' pedagogical content knowledge influences students' academic performance in senior high school. The study is purely for academic purpose hence the honest and sincere response you give will contribute a lot to the study. Your identity will be held in confidence to the information given.

Section A: Background Data of Respondents

Please tick [√] appropriately: and write where necessary

1. Gender: Male [ ] Female [ ]
2. Course:
3. Class: SHS 1[ ] SHS 2[ ] SHS 3[ ]

Instruction:

For the following items, please read carefully and select the response which best expresses your idea about each statement by ticking (√) the appropriate box. Indicate the extent to which you agree or disagree to the statements in Sections B to E, from question numbers 4 to 30, using the guide below:

Strongly Agree = SA

Agree = A

Disagree = D

Strongly Disagree = SD

Section B: Content Knowledge (CK)

No.	Statement	SA	A	D	SD
6.	Management teachers know about various examples of how subject matter applies in the real world.				
7.	Management teachers have unique professional knowledge base in management studies.				
8.	I often times challenge teacher's concepts explanation.				
9.	Management teachers demonstrate subject matter knowledge when teaching.				
10.	Management teachers have the ability to analyse subject content structure and its significance.				
11.	Management teachers have knowledge in explaining management concept.				
12.	Management teachers have the requisite knowledge in treating specific content topics and selecting relevant examples.				

Section C: Pedagogical Knowledge (PK)

No.	Statement	SA	A	D	SD
13.	Management teachers productively utilise instructional time through the use of various teaching methods.				
14.	Management teachers have knowledge to maximize instructional time through awareness of all classroom activity.				
15.	Management teachers have knowledge in interpreting, evaluating and using research and data to inform teaching and learning process.				
16.	Management teachers have knowledge to improve emotional dispositions of individual students.				
17.	Management teachers have knowledge to assess students in the area of diagnosis principles and evaluation procedures.				
18.	Management teachers use the right teaching methods when teaching.				
19.	Management teachers have knowledge to improve emotional dispositions of individual students through diagnosis principle.				
20.	Management teachers have knowledge in organising and maintaining classroom management.				
21	Management teachers have the knowledge to adopt to teaching style of different learners.				

Section D: Pedagogical Content Knowledge (PCK)

No.	Statement	SA	A	D	SD
21.	Management teachers select effective teaching approaches to guide student thinking and learning in their subject matter.				
22.	Management teachers are able to deliver subject matter through classroom interaction with multiple dynamics.				
23.	Management teachers make good presentation of subject content based on the knowledge they have about the students.				
24.	Management teachers distinguish between correct and incorrect problem solving attempt by students within their class.				
25.	Management teachers effectively select teaching approaches to guide students' thinking and learning in the subject matter.				
26.	Management teachers produce lesson plan with a good understanding of the topics in the subject matter.				
27.	Management teachers anticipate likely students' misconception between various concepts when teaching specific topic of the subject matter.				
28	Management teachers have the knowledge base to combine wide range of teaching approaches and correct concepts of the subject matter.				

Section E: Pedagogical Content Knowledge and Academic Performance (PCKAP)

No.	Statement	SA	A	D	SD
29.	I perform well in instructional assessment when management teachers have subject matter knowledge and uses good teaching approach.				
29.	I perform well in standard test when subject matter is delivered through classroom interaction and multiple dynamics.				
30.	I perform well in end of term exam when lesson plan is produced with a good understanding of the topic in the subject area.				
31.	I perform well in class participation when students' misconception is anticipated between various concepts through the teaching of specific topic.				
32.	I perform well in external exams when wide range of teaching approach is combined with correct concept of the subject matter.				
33.	I perform well in mid-term exam when good presentation of the subject content is made based on teacher's knowledge about the students.				
34.	I perform well in past examination when teachers effectively select teaching approaches to guide my thinking and learning in the subject matter.				

APPENDIX B

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND SOCIAL SCIENCES EDUCATION

DEPARTMENT OF BUSINESS AND SOCIAL SCIENCES

EDUCATION

QUESTIONNAIRE FOR TEACHERS

This questionnaire aims at assessing how teachers' pedagogical content knowledge influences students' academic performance in senior high school. The study is purely for academic purpose hence the honest and sincere response you give will contribute a lot to the study. Your identity will be held in confidence to the information given.

Section A: Background Data of Respondents

Please tick [√] appropriately: and write where necessary

1. Gender: Male [ ] Female [ ]
2. Teaching Subject……..
3. Teaching Experience: 5years and below [ ] 6- 10 [ ] 11-15 [ ] 16-20[ ] 21years and above [ ]
4. Highest Academic Qualification: First Degree [ ] Master's Degree[ ]

   Others specify…….
5. Highest Professional Qualification: Dip. Ed. [ ] PCGE/PDGE[ ] B. Ed. [ ] M. Ed./MPhil [ ]

Instruction:

For the following items, please read carefully and select the response which best expresses your idea about each statement by ticking (√) the appropriate box. Indicate the extent to which you agree or disagree to the statements in Sections B to E, from question numbers 4 to 30, using the guide below:

Strongly Agree = SA, Agree = A, Disagree = D, Strongly Disagree = SD

Section B: Content Knowledge (CK)

No.	Statement	SA	A	D	SD
6.	I know about various examples of how my subject matter applies in the real world				
7.	I have unique professional knowledge base in management studies				
8.	My students often times challenge my concepts explanation				
9.	I demonstrate subject matter knowledge when teaching				
10.	I have the ability to analyse subject content structure and its significance				
11.	I have knowledge in explaining management concept				
12.	I have the requisite knowledge in treating specific content topics and selecting relevant examples				

Section C: Pedagogical Knowledge (PK)

No.	Statement	SA	A	D	SD
13.	I productively utilise instructional time through the use of various teaching methods.				
14.	I have knowledge to maximize instructional time through awareness of all classroom activity.				
15.	I have knowledge of interpreting, evaluating and using research and data to inform teaching and learning process				
16.	I have knowledge to improve emotional dispositions of individual students				
17.	I have knowledge to assess students in the area of diagnosis principles and evaluation procedures				
18.	I use the right teaching methods when teaching				
19.	I have knowledge to improve emotional dispositions of individual students through diagnosis principle				
20.	I have knowledge in organising and maintaining classroom management				
21	I have the knowledge to adopt to teaching style to different learners				

Section D: Pedagogical Content Knowledge (PCK)

No.	Statement	SA	A	D	SD
21.	I can select effective teaching approaches to guide student thinking and learning in my subject matter				
22.	I am able to deliver subject matter through classroom interaction with multiple dynamics				
23.	I can make good presentation of subject content based on the knowledge I have about the students.				
24.	I can distinguish between correct and incorrect problem-solving attempt by students within my class				
25.	I can effectively select teaching approaches to guide students thinking and learning in the subject matter.				
26.	I can produce lesson plan with a good understanding of the topics in the subject matter.				
27.	I can anticipate likely students' misconception between various concepts when teaching specific topic of the subject matter.				
28	I have the knowledge base to combine wide range of teaching approaches and correct concepts of the subject matter.				

Section E: Pedagogical Content Knowledge and Academic Performance (PCKAP)

No.	Statement	SA	A	D	SD
29.	My students perform well in instructional assessment when I have subject matter knowledge and uses good teaching approach				
29.	My students perform well in standard test when subject matter is delivered through classroom interaction and multiple dynamics				
30.	My students perform well in end of term exam when lesson plan is produced with a good understanding of the topic in the subject area				
31.	My students perform well in class participation when students misconception is anticipated between various concepts through the teaching of specific topic.				
32.	My students perform well in external exams when wide range of teaching approach is combined with correct concept of the subject matter				
33.	My students perform well in mid-term exam when good presentation of the subject content is made based on my knowledge about the students				
34.	My students perform well in past examination when I effectively select teaching approaches to guide student thinking and learning in the subject matter.				