

UNIVERSITY OF EDUCATION, WINNEBA

THE EFFECT OF TEACHING UNSPECIALIZED SUBJECT AREA ON STUDENTS'
ACADEMIC PERFORMANCE IN KWABRE MUNICIPAL

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**A Project Report in the Department of Educational Leadership, Faculty of
Education and Communication Sciences, submitted to the School of Graduate
Studies, University of Education, Winneba, in partial fulfilment of the requirements
for award of the Master of Arts (Educational Leadership) degree**

DECEMBER, 2018

DECLARATION

STUDENTS DECLARATION

I, DIANA ADJEI, declare that this project report, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE:.....

DATE:

SUPERVISOR'S DECLARATION

I, hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines on supervision of project report as laid down by the University of Education Winneba.

NAME OF SUPERVISOR: PROFESSOR FREDERICK KWAKU SARFO

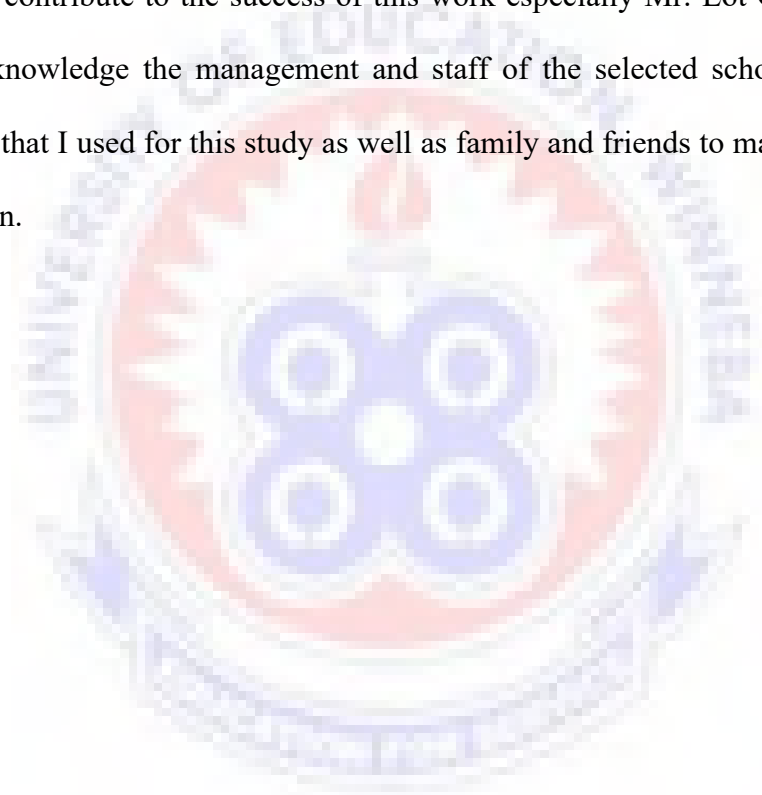
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I am grateful to Almighty God for giving me strength and wisdom to undertake this research work. Secondary, I think Prof. Frederick Kwasku Sarfo, my supervisor who did more than I imagine in making this work successful. I must mention that without him, this work could not have been completed on time.

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DEDICATION

To my parent and my siblings. I appreciate your Love, Support and Encouragement at all times.



TABLE OF CONTENTS

CONTENT	PAGE
TITLE PAGE	
DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
ABSTRACT	ix
CHAPTER ONE:INTRODUCTION	1
1.0 Introduction	1
1.1 Background to the Study	1
1.2 Statement of the Problem	8
1.3 Objectives of the Study	8
1.4 Research Questions	9
1.5 Research Hypothesis	9
1.6 Significant of the Study	9
1.7 Scope of the Study	10
1.8 Limitations of the Study	10
1.9 Organization of the Study	11
CHAPTER TWO:LITERATURE REVIEW	12
2.0 Introduction	12
2.1 Conceptual Framework	12
2.1.1 Subject-Specialized Teaching	12

2.1.2 Courses of Unspecialized Teaching	14
2.1.3 Teachers' Level of Education	16
2.1.4 Experience Level of the Teachers	17
2.1.5 Students' Academic Achievement	18
2.1.6 Teachers' Comfort Level	20
2.1.7 Challenges in Implementing Specialized Teaching	23
2.1.8 What is the nature of out-of-field' teaching?	25
2.1.9 Reasons why there exist Unspecialized Subject Teaching in School	26
2.2 Theoretical Framework	28
2.2.1 Skinner's operant condition	28
2.2.2 Glasser's Choice Theory	30
2.2.3 Kohn's Student Directed Learning Theory	31
2.2.4 Activity Theory	32
2.3 Empirical Framework	32
2.4 Conclusion	35
CHAPTER THREE:RESEARCH METHODOLOGY	37
3.0 Introduction	37
3.1 Research Design	37
3.2 Population	38
3.3.2 Research Instruments	39
3.3 Data Collection	40
3.3.1 Data Collection Procedure	40
3.5 Data Analysis Procedure	41

CHAPTER FOUR:PRESENTATION AND DISCUSSIONS OF RESULTS	42
4.0 Introduction	42
4.1 Demographics Characteristics of the Teachers	42
4.2 Presentation and Discussion for Research Question One: What the Factors	44
4.3 Discussion of findings	47
4.3 Presentation and Discussion for Research Question Two: What are the challenges teachers faces in teaching unspecialized subjects in school.	47
4.4 School Performance	50
4.5 Presentation and Discussion for Research Question Three: what is the impact of	53
CHAPTER FIVE:SUMMARY, CONCLUSION AND RECOMMENDATIONS	56
5.0 Introduction	56
5.1 Summary	56
5.2 Conclusion	58
5.3 Recommendations	59
5.4 Suggestion for Feather Research	59
REFERENCES	60
APPENDIX	70

LIST OF TABLES

TABLE	PAGE
4.1: Demographics characteristics of the Teachers	42
4.2.1: The Factors Accounting for Teaching Unspecialized Subjects in School	45
4.3: Challenges Teachers Faces in Teaching Unspecialized Subjects in School	48
4.4: School Academic Performance	51
4.4 .1: Model Coefficients of the Regression Model of Teaching Unspecialized Subject Area on Students' Academic Performance	53
4.4.2: Model Coefficients Model Coefficients of the Regression Model of challenges of teaching Unspecialized Subject Area on Students' Academic Performance	54

ABSTRACT

Teachers are the core influential aspect in students' learning and achievement. This study was conducted in the Kwabre Municipal in the Ashanti region. The purpose of the study was to find the effect of teaching unspecialized subject on students' academic performance. The study employed descriptive and inferential statistics. The study was conducted with a sample of 60 teachers. Primary data was collected from the Municipal through Self-administering method for the study. The Reliability test using Cronbach's alpha had ($\alpha = 0.768$) for questionnaire. Findings from the study revealed that the factors accounting for teaching unspecialized subjects are; *Laissez- Faire Attitude, A natural loss of Teachers and Non-existence of accurate collected workforce data*. The principal challenge of teaching unspecialized subjects in School is "*Teacher limits interaction by rushing through topics*". There is weak negative correlation ($R = - 0.167$ and $R^2 = 0.027$, $p > 0.05$) between teaching unspecialized subject and student academic performance. The study concludes that there is negative impact of teaching unspecialized subject on students' academic performance. The study Recommend that educational directors in the Municipal should ensure that the required number of teachers are employed and also restrained from assigning teachers to teach in the Municipal with Laissez- Faire Attitude.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Chapter one of this study covers the back ground of the study, the statement of the problem, purpose of the study, specific objectives of the study, research questions, significance of the study, scope of the study, limitations of the study an organization of the entire study.

1.1 Background to the Study

Teachers are the core influential aspect in students' learning and achievement. Other essential contributors may include but are not limited to the school attended, the social and economic level of the students' families, as well as the students' abilities and characteristics. However, the most powerful and influential contributor to the students' academic performance will always be the teachers. Accordingly, highlighting the importance of teachers' qualities and credentials as they shape and define the students' futures is a non-debatable topic. Effective teachers have many characteristics that exemplify their quality. These characteristic include content knowledge, teaching experience, training and credentials, and overall academic ability (Policy Studies Associates, 2005). In this study, the researcher focused on content knowledge, which refers to the body of information which are the facts, concepts, theories, and principles that teachers teach and that students are expected to learn in a given subject or content area, such as English language arts, mathematics, science, and social studies (The Glossary of Education, 2013). One cannot deny that what teachers know and can do is the most

important influence on what students learn (National Commission on Teaching and America's Future, 1996). Specifically in elementary schools, teachers' professional development and their level of content knowledge go hand-in-hand student achievement (Gerretson, Bosnick & Schofield, 2008). According to Regulations of the Ontario College of Teachers Act (1996), entitled "Teacher Qualifications", teachers in Ontario are certified to teach two consecutive divisions in the school system: Primary/Junior which embrace kindergarten to Grade 6, Junior/Intermediate which includes Grade 4 to Grade 10, or Intermediate/Senior which comprises Grade 7 to Grade 12. Teachers in the primary/junior divisions are considered to be generalists rather than specialists. They are expected to teach all the mandated curriculum for these grades which are language, math, science, social studies and art. Research has found that teachers' undergraduate degrees commonly represent their content knowledge and their areas of strength, as these tend to align with their personal interests. Allowing teachers to focus on their strengths is a key in increasing their capacity of incorporating best practices and strategies to guide their lesson planning and delivery (Gerretson, Bosnick & Schofield, 2008). Besides, it is undeniably true, that not all teachers can have the same level of content knowledge in all subjects. Wilson, Macdonald, Byrne, Ewing, and Sheridan (2008) affirmed that subject specialists use their specialized content knowledge to empower students to produce a higher quality of work.

Improving the quality of the teacher workforce is seen as an economic imperative (Hanushek, 2009), long-standing traditions that reward education and training or offer financial incentives based on student achievement have been met with limited success (Fryer, 2013; Harris & Sass, 2011; Springer et al., 2010). One reason for this posed by Murnane and Cohen (1986) almost three decades ago is the "nature of teachers' work" (p.

3). They argued that the “imprecise nature of the activity” makes it difficult to describe why some teachers are good and what other teachers can do to improve (p. 7).

Recent investigations have sought to test this theory by comparing subjective and objective (i.e., “value-added”) measures of teacher performance. In one such study, Jacob and Lefgren (2008) found that principals were able to distinguish between teachers in the tails of the achievement distribution but not in the middle. Correlations between principal ratings of teacher effectiveness and value added were weak to moderate: 0.25 and 0.18 in math and reading, respectively (0.32 and 0.29 when adjusted for measurement error).

Further, while subjective ratings were a statistically significant predictor of future student achievement, they performed worse than objective measures. Including both in the same regression model, estimates for principal ratings were 0.08 standard deviations (sd) in math and 0.05 sd in reading; comparatively, estimates for value-added scores were 0.18 sd in math and 0.10 sd in reading. This evidence led the authors to conclude that “good teaching is, at least to some extent, observable by those close to the education process even though it may not be easily captured in those variables commonly available to the econometrician” (p. 103). Two other studies found similar results. Using data from New York City, Rockoff, Staiger, Kane, and Taylor (2012) estimated correlations of roughly 0.21 between principal evaluations of teacher effectiveness and value-added scores averaged across math and reading. These relationships corresponded to effect sizes of 0.07 sd in math and 0.08 sd in reading when predicting future student achievement. Extending this work to mentor evaluations of teacher effectiveness, Rockoff and Speroni (2010) found smaller relationships to future student achievement in math between 0.02 sd and 0.05 sd. Together, these studies suggest that principals and other outside observers understand some

but not all of the production function that converts classroom teaching and professional expertise into student outcomes.

In more recent years, there has been a growing interest amongst educators and economists alike in exploring teaching practice more directly. This now is possible through the use of observation instruments that quantitatively capture the nature and quality of teachers' instruction. In one of the first econometric analyses of this kind, Kane, Taylor, Tyler, and Wooten (2011) examined teaching quality scores captured on the Framework for Teaching instrument as a predictor of math and reading test scores. Data came from Cincinnati and widespread use of this instrument in a peer evaluation system.

Relationships to student achievement of 0.11 sd in math and 0.14 sd in reading provided suggestive evidence of the importance of general classroom practices captured on this instrument (e.g., classroom climate, organization, routines) in explaining teacher productivity. At the same time, this work highlighted a central challenge associated with looking at relationships between scores from observation instruments and student test scores. Non-random sorting of students to teachers and non-random variation in classroom practices across teachers means that there likely are unobserved characteristics related both to instructional quality and student achievement. As one way to address this concern, the authors' preferred model included school fixed effects to account for factors

10at the school level, apart from instructional quality, that could lead to differences in achievement gains. In addition, they relied on out-of-year observation scores that, by design, could not be correlated with the error term predicting current student achievement. This approach is similar to those taken by Jacob and Lefgren (2008), Rockoff, Staiger, Kane, and Taylor (2012), and Rockoff and Speroni (2010), who use principal/mentor

ratings of teacher effectiveness to predict future student achievement. Finally, as a robustness test, the authors fit models with teacher fixed effects to account for time invariant teacher characteristics that might be related to observation scores and student outcomes; however, they noted that these estimates were much noisier because of small samples of teachers.

The largest and most ambitious study to date to conduct these sorts of analyses is the Measures of Effective Teaching (MET) project, which collected data from teachers across six urban school municipalities on multiple observation instruments. By randomly assigning teachers to class rosters within schools and using out-of-year observation scores, Kane, McCaffrey, Miller, and Staiger (2013) were able to limit some of the sources of bias described above. In math, relationships between scores from the Framework for Teaching and prior student achievement fell between 0.09 sd and 0.11 sd. In the non-random assignment portion of the study, Kane and Staiger (2012) found correlations between scores from other observation instruments and prior-year achievement gains in math from 0.09 (for the Mathematical Quality of Instruction) to 0.27 (for the UTeach Teacher Observation Protocol). The authors did not report these as effect size estimates. As a point of comparison, the correlation for the Framework for Teaching and prior-year gains was 0.13.

Notably, these relationships between observation scores and student achievement from both the Cincinnati and MET studies are equal to or larger in magnitude than those that focus on principal or mentor ratings of teacher quality. This is somewhat surprising given that principal ratings of teacher effectiveness – often worded specifically as teachers' ability to raise student achievement – and actual student achievement are meant to measure

the same underlying construct. Comparatively, dimensions of teaching quality included on these instruments are thought to be important contributors to student outcomes but are not meant to capture every aspect of the classroom environment that influence learning (Pianta & Hamre, 2009). Therefore, using findings from Jacob and Lefgren (2008), Rockoff, Staiger, Kane, and Taylor (2012), and Rockoff and Speroni (2010) as a benchmark, estimates describing the relationship between observed classroom practices and student achievement are, at a minimum, substantively meaningful; at a maximum, they may be viewed as large. Following Murnane and Cohen's intuition, then, continued exploration into the "nature of teachers' work" (1986, p. 3), the practices that comprise high-quality teaching, and their role in the education production function will be a central component of efforts aimed at raising teacher quality and student achievement. At the same time that work by Kane and his co-authors (2011, 2012, 2013) has greatly expanded conversation in the economics of education literature to include teaching quality when considering teacher quality, this work has yet to coalesce around specific instructional dimensions that increase student outcomes.

Random assignment of teachers to students – and other econometric methods such as use of school fixed effects, teacher fixed effects, and out-of-year observation ratings – likely provide internally valid estimates of the effect of having a teacher who provides high-quality instruction on student outcomes. This approach is useful when validating different measures of teacher quality, as was the stated goal of many of the studies described above including MET. However, these approaches are insufficient to produce internally valid estimates of the effect of high-quality instruction itself on student outcomes. This is because teachers whose measured instructional practices are high quality

might have a true, positive effect on student achievement even though other practices and skills – e.g., spending more time with students, knowledge of students – are responsible for the higher achievement. Kane et al. (2011) fit models with teacher fixed effects in order to “control for all time invariant teacher characteristics that might be correlated with both student achievement growth and observed classroom practices” (p. 549). However, it is likely that there are other time-variant skills related both to instructional quality and student achievement.

I address this challenge to identification in two ways. First, my analyses explore an additional approach to account for the non-random sorting of students to teachers. Second, I attempt to isolate the unique contribution of specific teaching dimensions to student outcomes by conditioning on a broad set of teacher characteristics, practices, and skills. Specifically, I include observation scores captured on two instruments (both content-specific and general dimensions of instruction), background characteristics (education, certification, and teaching experience), knowledge (mathematical content knowledge and knowledge of student performance), and non-instructional classroom behaviors (preparation for class and formative assessment) that are thought to relate both to instructional quality and student achievement. Comparatively, in their preferred model, Kane et al. (2011) included scores from one observation instrument, controlling for teaching experience. While I am not able to capture every possible characteristic, I argue that these analyses are an important advance beyond what currently exists in the field.

1.2 Statement of the Problem

When teachers are less secure about the content of a lesson, they are unable to provide students with opportunities for deep learning (OFSTED, 2009). Their subject-matter knowledge also impacts their teaching and learning process to impart their knowledge to the students in an efficient way (Jadama, 2014). Teachers who do not have the knowledge required to teach a subject, feel unprepared and have low sense of efficacy (Mansfield & Woods-McConney, 2012). And since student achievement is the aim of every teacher, Metzler and Woessmann (2012) concluded that teachers' subject-matter knowledge is directly related to the students' academic achievements. When teachers have deep subject knowledge in one subject area, they feel comfortable with that subject, which promotes effective and innovative teaching and learning (Ojo, Akintomide & Ethindero, 2012). Studies of teaching unspecialized subject area have only been linked to students' academic achievement but the factors and challenges of teaching unspecialized subject areas have not been addressed. On this note, this study is structured to determine the factors that account for teaching unspecialized subject area, the challenges and the impact of teaching unspecialized subjects on students' academic performance.

1.3 Objectives of the Study

This study was set up to achieve the following objectives;

1. To determine the factors accounting for teaching unspecialized subjects in school.
2. To determine the challenges teachers, face in teaching unspecialized subjects in school.

3. To determine the effect of teaching unspecialized subject on students' academic performance.

1.4 Research Questions

1. What are the factors accounting for teaching unspecialized subjects in school?
2. What are the challenges teachers' faces in teaching unspecialized subjects in school?
3. What is the impact of teaching unspecialized subject on students' academic performance?

1.5 Research Hypothesis

H₀: there is no positive impact of teaching unspecialized subject on students' academic performance?

1.6 Significant of the Study

This study will be of high benefit to the following agencies in these ways: Ministry of Education, the municipal educational service, Ghana Education Service (G.E.S), and the Basic Education will be sensitized to know the state of teaching and learning in the basic schools to help influence students' academic performance, so that effective policies could be raised to reduce the impact on teaching unspecialized subject . Proprietors of private junior high schools and the Ghana National Association of Private Schools (GNAPS) will get to know how to help their teachers teach more effectively by ensuring that the required teachers are recruited into the class room based on the specialization of

the teachers. UNESCO, USAID, UNICEF, UNDP, World Vision International, and other bodies concerned with quality assurance in education, will have the necessary first-hand information to make effective programs and set up policies on teaching and learning environment. The NCDD can also use the findings from this study as reference source for the need to develop syllabi, teachers' handbooks, and supply appropriate instructional media to enhance Junior High School Education.

1.7 Scope of the Study

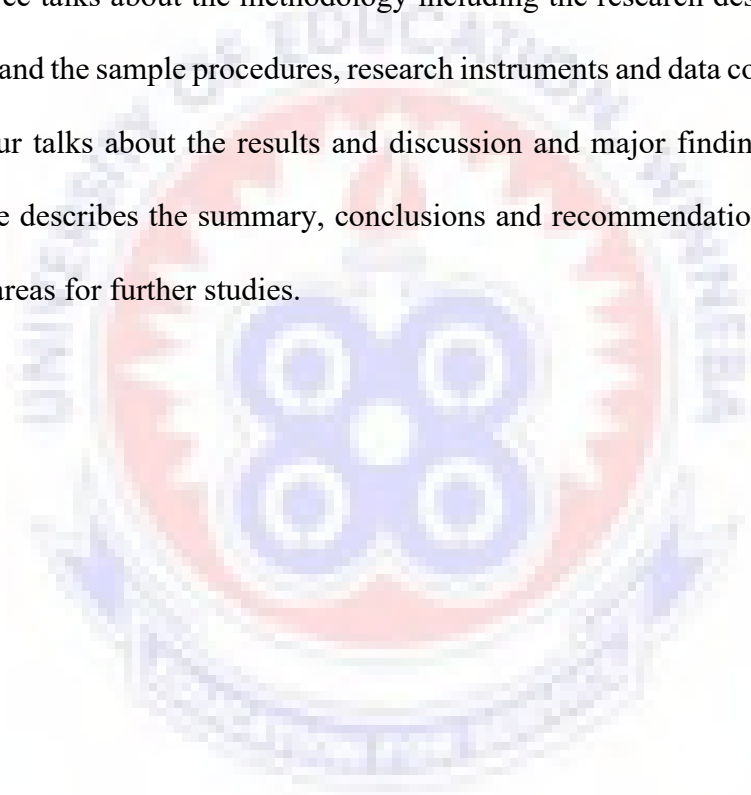
This study focus on teaching unspecialized subject area and it impact on students' academic performance in basic schools in the Kwabre Municipal in Kumasi. The study identifies the challenges teachers face in teaching unspecialized subject area in in basic schools. The study also talks about the various factors accounted for the teaching of unspecialized subject area in the municipal .

1.8 Limitations of the Study

This study is limited to only the Kwabre Municipal in the Ashanti region due to time and resource factor of the researcher. Therefore, the findings from the study cannot be generalized to the entire Kumasi-Metro, but can be effectively used for policy and decision making at the municipal level. The proposed number of questionnaire to have been administered by the researcher was 200 samples, but due to the problem of reaching teacher on time and the geographical distribution of the schools in the municipal , only 70 teachers were contacted.

1.9 Organization of the Study

This dissertation is organized into five chapters, chapter one talks about introduction, background to the study, statement of the problem, research questions, objective of the study, scope and limitations, definition of terms and organization of the study. Chapter two is a review of literatures that are relevant to the study. It provides conceptual framework, theoretical framework and the empirical framework of the study. Chapter three talks about the methodology including the research design, the population, the sample and the sample procedures, research instruments and data collection procedures. Chapter four talks about the results and discussion and major findings of the study and chapter five describes the summary, conclusions and recommendations of this study and suggested areas for further studies.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter covers some of the research studies and reviews that have been carried out on teaching unspecialized subject' and students' academic development depending on the environment which they are subjected to. The literature review was structure under three main sections; the conceptual review, the theoretical review and the empirical review.

2.1 Conceptual Framework

2.1.1 Subject-Specialized Teaching

In Ontario elementary schools' classrooms, the general classroom teacher teaches all the core subjects of the curriculum, whereas subject specialized teachers are available for the subjects of art, music and physical education. The three latter subjects are assumed to involve a talent that classroom teachers are not expected to have (Makhila, 2008). Research has found that teachers strongly appreciate the assistance they receive from these subject specialist teachers (Planel, Osborn, Broadfoot & Ward, 1998). Generalist teachers are considered specialized in age-range rather than subject, according to the Office for Standards in Education (as cited in Ardzejewska, McMaugh, & Coutts, 2010), while specialist teachers teach a subject full-time. Secondary teachers have to complete a major in their specialty subject before teaching it (Shulman, 1986), because the prior area of study is considered to be the teacher's area of expertise.

In elementary years, teachers are not required to specialize in a subject, and it is doubtful that teachers can show the same level of competence in all subjects (Ojo, Akintomide & Ethindero, 2012). For example, Buchmann suggested that it would be unreasonable to expect a teacher who is ignorant about science to plan a lesson about writing reports in science, and evaluate students' assignments as this teacher will not be knowledgeable of what student progress mean in that specific lesson (as cited in Ball & McDiarmid, 1990).

Subject specialized teachers show greater enthusiasm in teaching their subject of specialization (Fromyhr, 1995), as they value their subject more highly (DeCorby, Halas, Dixon, Wintrup & Janzen, 2005). They spent years learning and deepening their knowledge in a field of study, and will use their specialized content knowledge to empower students to produce a higher quality of work (Wilson, Macdonald, Byrne, Ewing & Sheridan, 2008). In a study conducted by Wenglinsky, the teachers' educational backgrounds did have a positive influence on the student performance in the mathematics and science parts of the 1996 National Assessment of Educational Progress (as cited in Fong-Yee & Normore, 2013). After examining the scores of 15,000 eighth grade students, they found that students who had teachers with majors or minors in either math or science scored 39% higher than students who were instructed by teachers who did not have such preparation (as cited in Fong-Yee & Normore, 2013).

Subject specialization helps teachers focus on what they are most capable of instead of spending so much time learning many subjects and not being able to master one or be an expert in a particular one. It also gives the teachers a sense of professionalism by increasing their efficiency and effectiveness (Ojo, Akintomide & Ethindero, 2012). When

teachers teach content in areas which they are not familiar with, the skills and abilities that they show when teaching their specialist subject are instantly challenged regardless of their capabilities (Loughran, Berry, & Mulhall, 2012). There are various implications on students' learning when teachers feel that they lack content knowledge about a specific lesson. This includes inability to clarify students' misconceptions, and a failure in responding to their probing questions (OFSTED, 2009). It can also result in a disappointment for higher attaining students who seek more challenge (OFSTED, 2009) as well as failure to intervene with struggling learners (Erskine, 2010).

Elliott (1985) believed that moving towards specialized teaching is the only way to ensure the high proficiency of primary teachers in all subjects. In research, science and mathematics are the two most discussed and studied subjects to require specialist teachers or teachers with deep content knowledge, as both of them require teachers to have deeper understanding than the average individual (Peace, 2012). According to Ball "flawed conceptions about the practice of mathematics and science can lead to 'cookie-cutter' education in these subjects." (as cited in Peace, 2012, p.11) In these two specific subjects, deeper understanding of the content is required from teachers who are able to answer content questions and not just have knowledge in pedagogical practices (Peace, 2012).

2.1.2 Courses of Unspecialized Teaching

Many people immediately assume that out-of-field teaching is a problem of poorly educated teachers and can be remedied by more rigorous standards for teacher education and training. I have found that News columnists seem especially prone to hold this view. In responding to the reports of research findings on out-of-field teaching, columnists have,

almost invariably, assumed that the source of the problem lies in a lack of academic course work on the part of teachers, and they have then concluded that the problem can be remedied by requiring prospective teachers to complete a "real" undergraduate major in an academic specialty. Several years later; I returned to school to take part in an intensive yearlong teacher certification program in social studies. None of this background, however, precluded me from later being assigned to teach out of my field of social studies on a regular basis. The truth is that almost all teachers in The U.S. have completed a college education and half of them have graduate degrees. Moreover, 94% of public school teachers and, surprisingly, more than half of private school teachers hold regular state-approved teaching certificates.

The source of out-of-field teaching lies not in the amount of Education teachers have, but in the lack of fit between teachers' fields of training and their teaching assignments. Many teachers are assigned by their principals to teach classes that do not match their training or education. The implications of this distinction for reform are important. There is no question that the teaching force could benefit from upgraded education and training and those education degrees could include substantial course work in an academic discipline. This is the value of the ongoing efforts by many states to toughen entry criteria, enact more stringent certification standards, and increase the use of testing for teachers. However, though very worthwhile, none of these kinds of reforms will eliminate out-of-field teaching assignments. Hence, they alone will not solve the problem of underqualified teachers in our nation's classrooms.

2.1.3 Teachers' Level of Education

Findings related to teachers' academic degrees (e.g., bachelors or masters, etc.) are inconclusive. Some studies showed positive effects of advanced degrees (Betts, Zau, & Rice, 2003; Ferguson & Ladd, 1996; Wayne & Young's, 2003), while others showed negative effects (Ehrenberg & Brewer, 1994; Kiesling, 1984). Some argue that the requirement of a second degree raises the cost in terms of teacher education and the time it involves and may prevent quality candidates from choosing this profession (Murnane, 1996). Teacher Education in the Subject Matter of Teaching (in-field preparation) This characteristic is related to the subject-matter knowledge teachers acquire during their formal studies and preserve teacher education courses. The evidence gained from different studies is contradictory. Several studies show a positive relationship between Teachers' Qualifications and Their Impact on Student Achievement teachers' preparation in the subject matter they later teach and student achievement (Darling Hammond, 1999, 2000; Goldhaber & Brewer, 2000; Guyton & Farokhi, 1987), while others have less unequivocal results. Monk and King (1994) find both positive and negative effects of teachers' in-field preparation on student achievement. Goldhaber and Brewer (2000) find a positive relationship in mathematics, but none in science. Also, Rowan, Chiang, and Miller (1997) report a positive relationship between student achievement and teachers' majoring in mathematics. Monk (1994), however, finds that having a major in mathematics has no effect, and a significant negative effect of teachers with more coursework in physical science. Recent studies in the USA on the widespread phenomenon of out-of-field teaching, Ingersoll (2003) portrays a severe situation where almost 42% - 49% of public Grade 7-12 teachers teaching science and mathematics actually lack a major or full

certification in the field (1999-2000 data). In Israel, according to a recent survey (Maagan, 2007), these percentages are even higher for elementary teachers – 42% in mathematics and 63% in science (2005-2006 data).

2.1.4 Experience Level of the Teachers

Studies on the effect of teacher experience on student learning have found a positive relationship between teacher effectiveness and their years of experience, but not always a significant or an entirely linear one (Kitgaard & Hall, 1974; Murnane & Phillips, 1981). The Teachers' Qualifications and Their Impact on Student Achievement evidence currently available suggests that while inexperienced teachers are less effective than more senior teachers, the benefits of experience appear to level off after a few years (Rivkin, Hanushek, & Kain, 2000).

The relationship between teacher experience and student achievement is difficult to interpret since this variable is highly affected by market conditions or motivation to work during child rearing period. Harris and Sass (2007) point to a selection bias that can affect the validity of drawing conclusions about the effect of teacher's years of experience. If less effective teachers are more likely to leave the professions, this may give the mistaken appearance that experience raises teacher effectiveness. Selection bias could, however, also work in the opposite way as abler teachers with better opportunities to earn may be more likely to leave the profession.

2.1.5 Students' Academic Achievement

Student achievement is and should always be the most critical concern of teachers because it is the outcome of hard and persistent efforts that they exerted. I call it the fruit of teaching, as it is the real ultimate goal that reflects the teachers' achievement as well. Teachers work heartily to expand the students' knowledge with the academic content to prepare them for a life-long journey of learning. Before exploring the factors contributing in students' achievement, let us take a quick look at Canada's youth performance in mathematics, science and reading.

There are definitely differences across Canada's provinces that we should acknowledge; however, we will only look at the general performance of students in Canada. The Programme for International Student Assessment (PISA) is a worldwide study by the Organization for Economic Co-operation and Development (OECD) that evaluates education systems worldwide across 65 countries and economies. According to their ranking, Canada has fallen in the math ranking from the seventh place in 2003 to the thirteenth in 2012. However, analyzing this ranking over time, we have to take into consideration that the number of participating countries increased over the time of this study. They also have a six-level scale for mathematical literacy, where level 1 is the lower end of the scale, which is easier and less complex than the higher end which is level 6. Looking at a nine-year span, the percentage of Canadian students performing at levels 5 and 6 slipped from 20.3 to 16.4 percent between 2003 and 2012, while the percentage of students performing below the level 2 rose from 10.1 to 13.8 percent. According to their results, these differences are considered statistically significant. Other than mathematics, Canada's rank in reading according to PISA's study has similarly dropped from the second

place in 2000, to the ninth in 2012. In science, the average Canadian scores dropped from 534 on a 1000-point scale in 2006 to 529 in 2009, and eventually to 525 in 2012, which is also considered a statistically significant difference. In general, there is a considerable decline in the students' achievement in Canada in major subjects that requires immediate attention and consideration. And although this study reflects the scores of Canadian youth and not primary students, however the change is always required at the earlier age where students build and form their solid base and interest, upon which following knowledge is based. For this reason, and for the sake of our focus on the importance of teachers' content knowledge, it is significant to study the relationship between the students' achievement and the teachers' subject knowledge.

Numerous factors can contribute to student achievement, however many researchers claimed that the most significant and directly related factor is the teachers' academic skills. A very interesting study and right to the point of our discussion, is one in Peru that used dataset of primary schools that contained test scores in two academic subjects for each student and each teacher as well. Metzler and Woessmann (2012) wanted to relate the students' academic performance in a subject, to the teachers' academic performance in that specific subject. In their study, they wanted to explore if a teacher taught two different academic subjects to a student, will that student achieve better results in one of the subjects if the teacher's knowledge is relatively better in that subject? Their findings confirmed that teacher subject knowledge has a statistically significant impact on student achievement. More technically and specifically "a one standard deviation increase in teacher test scores, raises student test scores by about 10 percent of a standard deviation" (Metzler & Woessmann, 2012, p. 1). This is a study that showed a direct relation and

revealed the great importance of the teacher's subject knowledge and academic performance as factors in students' achievement. Research suggests that teachers with particular knowledge, interest, and expertise in mathematics content and pedagogy, create the best environment for learning mathematics (Reys & Fennell, 2003). Moreover, teachers' undergraduate major in their subject area is the most reliable predictor of students' achievement scores in math and science. Goldhaber and Brewer stated that, an advanced degree that was specific to the subject area that a teacher taught was also associated with students' higher achievement (as cited in Policy Studies Associates, 2005). Giving the teachers the opportunity to teach subjects related to their interests and expertise is definitely reflected on their enthusiasm and confidence in teaching, and in consequence, the students' learning and understanding.

2.1.6 Teachers' Comfort Level

Teaching is a passionate and an enjoyable career for many. And similar to any other job, teachers need to feel comfortable during teaching in order to succeed. Feeling comfortable may depend on various factors which may including the school and classroom environment, the language of instruction and the level of confidence teaching the subject content. This section focuses on the teachers' comfort level teaching different subjects in primary classrooms. A research study in the United States studied the perception of 5728 elementary classroom teachers of their preparedness and qualification to teach different subjects (Weiss, Banilower, McMahon, & Smith, 2001).

According to the research, 76 percent of the participants indicated feeling very well qualified to teach reading and language arts. Additionally, 60 percent of the teachers reported feeling very well qualified to teach mathematics. On a declining curve, 52 percent felt qualified to teach social studies compared to 29 percent in teaching life science, 25 percent in earth science and 18 percent in physical science (Weiss, Banilower, McMahon, & Smith, 2001). These percentages will surely have implications and will be reflected when teaching these subjects in the classrooms, as teachers do not feel equally qualified to teach every subject. A very recent questionnaire was conducted in Nigeria, to study how strong primary school teachers feel comfortable with generalized teaching (Ojo, Akintomide & Ethindero, 2012). The results of the questionnaire used in this study revealed that out of 251 primary teachers, only 4 claimed feeling extremely comfortable with a single teacher teaching all the school subjects. 71 of the participants felt comfortable, compared to 44 who felt slightly comfortable. Finally, 132 of the respondents affirmed that they are not comfortable with the generalized teaching, which represent 52 percent of the questionnaire participants. This study shows that the majority of in-service primary school teachers are not comfortable with the idea of teaching all the core subjects. Another aspect of this questionnaire was to study to what extent is the teachers' level of agreement with applying specialized teaching in their primary schools. The results of this survey revealed that 81.9 percent of the participants agree with specialized teaching along with 1.5 percent who extremely agree. This is compared to 13 percent of the respondents disagreeing with the specialized teaching along with 1.2 percent who slightly disagree. 2.4 percent of the questionnaire participants were undecided about their level of agreement (Ojo, Akintomide & Ethindero, 2012). This study indicates that teachers who believe in specialized teaching

outweigh the teachers who acknowledge the generalized teaching. These teachers believe that focusing on their areas of specialization would promote effective teaching and make teachers more competent. This study encourages all governments and policy makers to increase their efforts and make more primary schools acquire and practice specialized teaching rather than generalized one. Teachers' comfort level in teaching is a very strong parameter in their teaching effectiveness. When teachers are hesitant about aspects of a lesson, they are unable to provide students with deep learning opportunities. They feel that these lessons require subject-specific knowledge that they do not acquire (OFSTED, 2009).

According to Ojo, Akintomide & Ethindero (2012), most teachers would want to be specialized in subjects that they majored, as they feel comfortable teaching what they know. Another important aspect and a component of teachers' comfort level is their self-efficacy. A person's self-efficacy is a person's own belief in his/her personal capabilities to perform a specific task. It is what motivates a person to accomplish a goal. Many researches outlined the importance of the teacher's self-efficacy, and how it is reflected in the teacher's classroom. It is, according to Lockman, how a teacher believes in his/her own effectiveness and ability to practically overcome any challenges related to student learning (as cited in Wimsatt, 2012). Woolfolk and Hoy claimed that it influences teachers' behaviors and practices in classroom, as well as leads to positive student results (as cited in Mansfield & Woods McConney, 2012). Furthermore, those with high self-efficacy and high expectations for themselves and their students, benefit from advanced gains in their students' achievement (as cited in Wimsatt, 2012). A teacher's high self-efficacy is obviously an essential factor in effective teaching and students' achievement, as it brings positive and enthusiastic attitudes in the classroom. It is important to acknowledge that the

subject matter or the curriculum that the teachers are required to teach influence the teachers' own perception of their self-efficacy, as some teachers may have higher efficacy levels in one subject compared to other subjects (Mansfield & WoodsMcConney, 2012).

2.1.7 Challenges in Implementing Specialized Teaching

There were various proposals throughout the history to move from generalized teaching to specialized one, however all requests were widely challenged. One of the critiques of the subject-specialized teaching is from Bailey who did not agree that students in primary and middle schools should be moving continuously from one specialist to another (as cited in Elliott, 1985). Although he did not disagree with the concept of having subject-expert teachers in primary grades, however, he did not accept its setup in the schools. Another argument that faced specialized teaching was that students in primary grades are exploring the various aspects of the world and teachers need to have a breadth of perspective along with the depth of specialized knowledge to guide and mentor the students at that age (Elliott, 1985). This should also be taken into consideration as being too focused into a specific knowledge of subject may negatively affect the students' learning. Interestingly, Elliott (1985) did make a proposition of arrangement for specialized teaching as he claimed that there is an explosion of knowledge that makes it unreasonable for primary teachers to be competent generalists. He proposed that all teachers should have at least one field of expertise, and that the requirement for that is to have a first degree standard in that subject. This is along the requirements for teachers' education.

I was extremely impressed to find similar models already implemented by few universities across the world. Since 2014, the Master of Teaching for primary grades in the

University of Melbourne in Australia, qualifies prospective teachers to become generalists with specialist knowledge in literacy and numeracy education. In addition to that, teacher candidates choose either mathematics or science as a subject specialization. This program allows teachers to choose an elective subject that reflects their interests while still fitting into the generalist model of teaching.

Fear of change is often a challenge. Principals and vice-principals may be resistant to try and change something that schools have been using for centuries. Mostly all decisions taken in schools are driven by the principals' educational philosophies and their personal beliefs. Some of their responses to specialized teaching was "I really believe that teachers need to teach their own class those particular skills [Maths and Literacy] because they are skills that are transferred across all other key learning areas throughout the week" (Ardzejewski, McMaugh, & Coutts, 2010, p.209). Another response from a principal about specialists was "If you say to me that you are a primary teacher and you don't have an interest in maths then I think there is a major problem (Ardzejewski, McMaugh, & Coutts, 2010, p.210). On the other hand, a principal in that same study acknowledged that language needs to be taught by specialists, while another admitted that computers is a common area in schools that really needs experts. I believe that this will continue to be a debate as it may contradict principals' beliefs.

Not only the principals may be resistant to change, but teachers may too. Thornton conducted a study in England and found that most of the teachers acknowledge the importance of specialists, however they did not want them to replace generalists, they just wanted to use them as consultants under special circumstances (as cited in Ardzejewski, McMaugh, & Coutts, 2010). Accordingly, implementing specialized teaching requires

schools to ensure that new teachers are only assigned to teach their subjects, and that teachers are constantly updating their own subject knowledge (Elliott, 1985).

2.1.8 What is the nature of out-of-field' teaching?

Ingersoll and Gruber (1996) describe teaching out-of-field as being a situation where teachers are required to teach a subject(s) for which they have no specialization, i.e. the subject(s) they are teaching is not what they studied as part of their teacher training at either minor or major level. Du Plessis, Gillies and Carroll (2014, p. 90) take a similar position to define out-of-field teaching: “teachers who are assigned to teach subjects and year levels when they are not suitably qualified to do so.” These North American and Australian based researchers, respectively, suggest the teachers are qualified to teach but only in particular subjects.

Research (ACER) adds another layer to this definition by suggesting that out-of-field teaching occurs if a teacher is teaching a subject they have not studied for at least one semester at university and neither have they completed a teaching methodology unit for the subject concerned as part of their initial teacher training. Comparatively, the British and South African media take a much starker position in their reporting about the quality of education in their national context, referring to out-of-field teachers as “untrained” (Loveys, 2011) or “unqualified” (Silva, 2010) respectively. Unfortunately, this lends itself easily to an attention grabbing and inflammatory misinterpretation that teachers have not undertaken any initial teacher education program or received any qualification at all.

For the purpose of this response, the term unspecialized subject teaching will be used in the context of a less ambiguous definition coined by Hobbs (2013, p.271),

“Teaching unspecialized occurs when teachers teach a subject for which they are not qualified.” In secondary school contexts this situation is often referred to as a non-specialist teacher; a simple example would be Geography being taught by a Personal Development, Health and Physical Education (PDHPE) teacher, or Mathematics being taught by an Information and Communication Technology teacher. This definition and example is also supported by McConney and Price (2009). Data available from ACER (cited in Masters, 2015) suggests an alarming forty percent of Geography classes are taught by an out-of-field teacher, although to clarify from the aforementioned example, it is absolutely not implied that forty percent of Geography classes are taught by PDHPE teachers

2.1.9 Reasons why there exist Unspecialized Subject Teaching in School

Research conducted by Ingersoll and Gruber (1996) to determine the distribution of teacher quality in public secondary schools across the United States of America (USA) focused on the proportion of students being taught by out-of-field teachers (rather than the amount of teachers teaching outside their subject of specialization). Concerning data emerged from this study as it revealed that between 1990–1991, approximately one-fifth of students were taught English by an ‘out-of-field’ teacher; almost twenty-five percent of students were taught Mathematics by an out-of-field teacher; and between thirteen and seventeen percent of students were taught Social Studies and Science (respectively) by an out-of-field teacher. Additionally, it was evident from the research data that the highest proportion of students being taught by out-of-field teachers were in areas identified as “high poverty” and having “high minority” group enrolment (Ingersoll and Gruber, 1996, pp 15–18). Therefore, it can be deduced from these findings that the cycle of socio-

economic disadvantage would continue to be perpetuated as a result of these students being assumingly exposed to a reduced quality of education compared to those students who are taught core subjects by a subject specialist teacher. By 2002, Ingersoll, still in the USA, had built on this research about out-of-field teaching and was able to determine two of its most likely causes:

- teachers being directed by the school leaders to teach subjects that do not match their qualifications to fill timetable gaps and meet other school organisational requirements; and
- in subject areas and geographical locations where there are an abundant supply of teachers, they are

frequently teaching ‘out-of-field’ in order to obtain employment (Ingersoll, 2002, p. 2, 30 – 33) Overall Ingersoll’s research indicated that out-of-field teaching was not an issue of practice caused by poor teacher training, rather, it was an outcome of policy that was incorrectly based on the assumption that out-offield teaching occurs because of a teacher shortage and of poor teacher quality.

The policy was designed to improve the rigor of teacher training and professional learning, as well as increase the appeal of initial teacher education courses. Whilst this is a commendable policy in itself for education, it is a contributing factor as to why much out-of-field teaching was occurring – too many well qualified teachers were graduating for the number of jobs available.

Moving forward in time to 2011 and across the Atlantic Ocean to the United Kingdom, media sources and education researchers were making clear statements about the connection between the significant proportion of teachers being required to teach subjects for which they are not suitably qualified and the declining educational

performance of students. Statistics obtained from the British Department of Education indicated that approximately thirty percent of teachers who were teaching either Geography, Mathematics or Physics did not have a formal qualification in that subject, however, the reasons put forward in defence of the data were related to the need for policy change, firstly around teacher education courses to make them more rigorous, and secondly around the availability and emphasis on professional learning for in-service teachers (Loveys, 2011). The point around professional learning was also captured in the research by Fisher and Webb (2006) about the importance of subject specialist pedagogy being the difference between delivering a lesson generically or inspirationally to foster deep understanding of content and authentic connections between teacher and students, therefore, for teachers regularly teaching a particular subject out-of-field, it is crucial they have the opportunity to engage with and access quality professional learning sessions for that subject (Fisher and Webb, 2006, p. 337 – 345).

2.2 Theoretical Framework

2.2.1 Skinner's operant condition

The manner and style in which a teacher manages their classroom is significant part of achieving a teaching and learning environment. All students learn differently and opting for the right instructional style can mitigate behavioural issues and make good instructions possible. This brings us to the work of B.F skinner on his theory, Operant Conditioning. B.F Skinners contribution to learning theory can't be marginalized. His work is based upon the idea that learning is a function of change in overt behaviour: According to B.F skinner, changes in behaviour are a result of individual responses to events, or stimuli that occur in

their environment. When a stimulus response (S-R) pattern is rewarded, the individual is conditioned to respond similarly in future. The emphasis or key to skinner's theory is reinforcement or anything that strengthens the desired response. This could include praise, good grades, a reward or a feeling of accomplishment. According to skinner, negative reinforcement occurs when a stimulus results in increased response when it is redrawn. The central tenet of skinner's work is that positively reinforced behaviour will reoccur and that information should be presented in small amounts. Response can be reinforced and reinforcement will be applied to similar stimuli. This operant condition by B.F skinner has been integrated into both classroom management and instructional development.

According to B.F skinner, when applied to programmed instruction, the following should occur

- Practice should occur in a question - answer format that exposes students to information gradually through a series of steps
- The learner should respond each time and receive immediate feedback
- Good performance should be paired with secondary reinforcement like praise, prizes and good grades.
- Instructors should try to arrange question by difficulty so the responses is always correct, creating positive enforcement.

This theory of operant conditioning by B.F skinner is in sink or in tandem with the study being investigated. ``Teachers awareness of factors causing misuse of instructional time. In classroom instruction, lesson could be derived from B.F skinner theory by sequencing the activities in order of difficulty for better presentation to learners. This could be achieved by linking relevant previous knowledge to the introduction and the lesson

objectives to the evaluation. All these could be realized by structuring the activities for students to be receptive towards learning.

In classroom management, the theory is also relevant since it captures the ways through which instructors could deal with inappropriate behaviours in class for the behaviour to be unpleasant to learners in order not to repeat such inappropriate behaviour.

2.2.2 Glasser's Choice Theory

William Glasser coined the term "choice theory" in 1998. His theory states that all we do behave. Glasser suggests that almost all behaviour is chosen and we are driven by genetics to satisfy five basic needs survival, love and belonging, power, freedom and fun. In choice theory, the most important need is love and belonging because connectedness with others is required as a basis in satisfying all other needs. The classroom should therefore be a needs-satisfying place for students.

Glasser identifies teachers as managers who need to work effectively if they want to successfully teach their students. The role of teachers as managers require them to guide children in maintaining that working hard and being obedient is worth it and will have a positive influence on their lives. Teachers can achieve this through developing positive relationship with students and creating active, relevant learning experiences that enable students to demonstrate mastery and success.

In developing lesson based on choice theory, teachers should make sure that students classroom activities are designed to satisfy the student's needs. This allows learning to increase while diminishing disruption. Students are able to have some freedom and enjoy themselves in a safe, secured environment.

2.2.3 Kohn's Student Directed Learning Theory

Alfie Kohn worked on the use of competition or external factors as motivation. Kohn emphasized that societies based on extrinsic motivation always become ineffective over time. He questions the hierarchical structures at work in main stream education. Positions of authority are unnaturally scarce and such systems assume that all people have a competitive nature. Kohn argues that positive enforcement only encourages students to seek out more positive enforcement, rather than truly learn. Kohn believes that, the ideal classroom explosives curiosity and cooperation and that students curiosity should determine what is taught. Kohn is of the belief that standards should be kept very minimal and is critical standardized testing. Kohn argues that a strict curriculum and home work are counterintuitive to student needs. In classroom management, Kohn stresses teachers should not rely on extrinsic motivation but rather intrinsic motivation should be encouraged.

He suggests, teachers keep cooperation in mind because when curiosity is nurtured, rewards and punishment are not necessary. To implement Kohn's approaches in classroom, teachers should allow students to explore the topics that interest them most. Students should be able to think and write and explore without worrying about how good they are. Teachers should not merely rely on achievement but rather, the learning processes since not all students learn at the same pace and standards do not take this into consideration. Teaching should be learner centered.

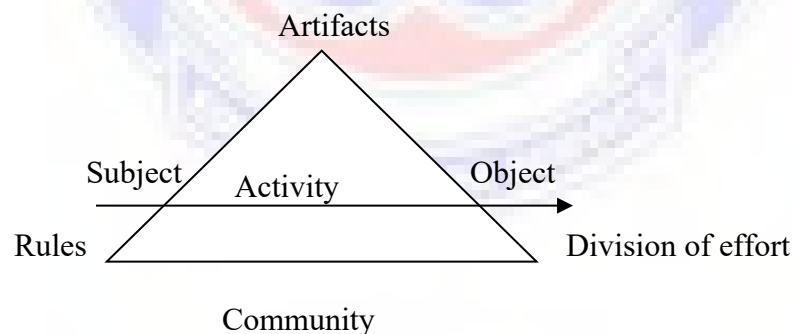
Kohn suggests the following in a learner centered classroom.

- Multiple activity centres
- Displays of students project

- Exchange of ideas by students
- A respectful teacher mangling with students
- Multiple activities occurring at the same time
- Students participation by asking questions

2.2.4 Activity Theory

It is a framework or descriptive tool for a system. People are socio-culturally embedded actors (not processors or system components). The activity theory considers entire work / activity system (including teams, organizations etc.) beyond just one actor or user. Account for environment, history of the person, culture, role of the artifact, motivations, complexity of real life action. The unit of analysis is motivated activity directed at an object (goal), includes cultural and technical mediation of human activity artifact in use (and not in isolation). Activities consist of goal directed actions that are conscious. Constituents of activity are not fixed, they dynamically change.



2.3 Empirical Framework

Nada Attia (2017) the aim of this research study was to develop a deeper understanding of the relationship between subject-matter expertise and students' learning experiences and academic achievement. In this qualitative research paper, data was

collected through semi-structured interviews with two elementary school teachers, who have experience working in a subject-specialized teaching model. Findings of this research study suggest that limited content knowledge, low comfort level, and limited preparation time are barriers for teachers who teach subjects that they struggle with. Interviewed teachers suggested that teachers' expertise in subject matter is defined by their personal, academic, and professional backgrounds. They indicated that their subject-matter knowledge elevates their comfort level, enriches their teaching experience, and improves their students' learning and academic achievement. The implications of these findings suggest that teachers need to be teaching subjects in which they have strong content knowledge. This allows them to provide their students with authentic learning experiences, as well as answer their deep and rich content questions.

Susan Caldis (2017) Found That Teaching out-of-field is a situation many teachers experience throughout their career; particularly those entering the profession. Not only does teaching out-of-field disrupt the integrity of a subject, it inevitably results in heightened levels of student disengagement, lower than anticipated achievement of student learning outcomes, and an increasing lack of confidence amongst teachers about their ability to teach effectively. It is this cycle that fuels public perception of declining teacher quality. Research reveals that teaching out-of field is not an Australia-specific educational issue and neither is it connected to one particular subject. Whilst the span of teaching out-of-field is initially explored with an evaluation about its cause and effect according to policy, practice and research, focus will turn to the extent of and responses to Geography being taught out-of-field in Australian secondary schools

Nada Attia, April (2017) research study was to develop a deeper understanding of the relationship between subject-matter expertise and students' learning experiences and academic achievement. In this qualitative research paper, data was collected through semi-structured interviews with two elementary school teachers, who have experience working in a subject-specialized teaching model. Findings of this research study suggest that limited content knowledge, low comfort level, and limited preparation time are barriers for teachers who teach subjects that they struggle with. Interviewed teachers suggested that teachers' expertise in subject matter is defined by their personal, academic, and professional backgrounds. They indicated that their subject-matter knowledge elevates their comfort level, enriches their teaching experience, and improves their students' learning and academic achievement. The implications of these findings suggest that teachers need to be teaching subjects in which they have strong content knowledge. This allows them to provide their students with authentic learning experiences, as well as answer their deep and rich content questions.

Blazar, (2016) find that upper-elementary teachers have large effects on a range of students' attitudes and behaviors in addition to their academic performance. These teacher effect estimates have moderate to strong predictive validity. Further, student outcomes are predicted by teaching practices most proximal to these measures (e.g., between teachers' math errors and students' math achievement, and between teachers' classroom organization and students' behavior in class). However, teachers who are effective at improving some outcomes often are not equally effective at improving others. Together, these findings lend important empirical evidence to well-established theory on the multidimensional nature of

teaching and student learning and, thus, the need for policies that account for and incentivize this complexity,

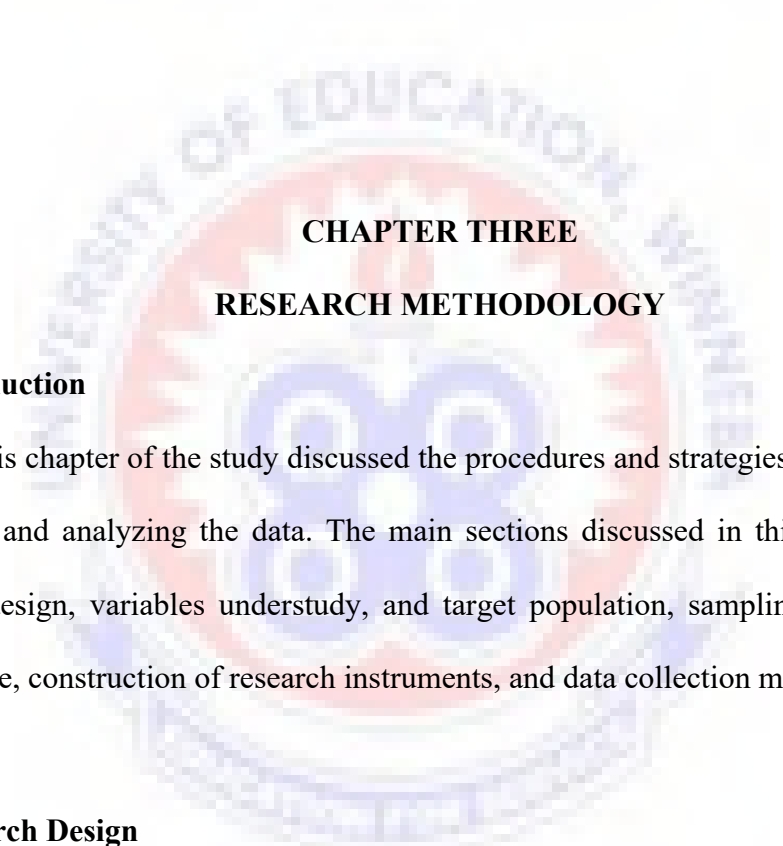
Ingersoll (1998) asserts that issues in our elementary and secondary schools are subject to more debate and discussion than the quality of teachers. Over the past decade, dozens of studies, commissions, and national reports have bemoaned our failure to ensure that all our nation's classrooms are staffed with qualified teachers. In turn, reformers in many states have pushed tougher licensing standards for teachers and more rigorous academic requirements for teaching candidates. Moreover, a whole host of initiatives and programs have sprung up for the purpose of recruiting new candidates into teaching. Among these are programs designed to entice midcareer professionals from other fields to become teachers; alternative certification programs, whereby college graduates can postpone formal education training, obtain an emergency teaching certificate, and begin teaching immediately; and Peace Corps-like programs, such as Teach For America, that are designed to lure the "best and brightest" into understaffed schools

2.4 Conclusion

Misuse of instructional time is an important factor in dealing with low academic achievement and high academic success of learners. Much work has been learned about effective use of instructional time that learners experience. It is the duty of educational stakeholders to;

- The literature reviewed identifies the following theories of teaching: Skinner's operant condition, Glasser's Choice Theory, Kohn's Student Directed Learning Theory and Activity Theory,

- limited content knowledge, low comfort level, and limited preparation time are barriers for teachers who teach subjects that they struggle with
- Student outcomes are predicted by teaching practices most proximal to these measures (e.g., between teachers' math errors and students' math achievement, and between teachers' classroom organization and students' behavior in class). However, teachers who are effective at improving some outcomes often are not equally effective at improving others.
- Subject-matter knowledge elevates teachers' comfort level, enriches their teaching experience, and improves their students' learning and academic achievement. The implication is that teachers need to be teaching subjects in which they have strong content knowledge. This allows them to provide their students with authentic learning experiences, as well as answer their deep and rich content questions,
- Unspecialized subject teaching disrupts the integrity of a subject, it inevitably results in heightened levels of student disengagement, lower than anticipated achievement of student learning outcomes, and an increasing lack of confidence amongst teachers about their ability to teach effectively.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter of the study discussed the procedures and strategies that were used in collecting and analyzing the data. The main sections discussed in this chapter include research design, variables under study, and target population, sampling techniques and sample size, construction of research instruments, and data collection methods.

3.1 Research Design

The study employed both descriptive and correlational study designs to help the researcher achieve the various objectives. These designs were used in this study because they will enable the researcher explicitly describe and examine the type of relationship that exist between the variables (teaching of unspecialized subject area and school academic performance).

The descriptive research design helps to describe a particular phenomenon, even, problem etc. very well. The study adopted this design to help the researcher describe the possible factors accounted for the teaching of unspecialized subject area and students' academic performance in the municipal .

The Correlational research deals with exploring relations that exist between teaching unspecialized subject area (independent variable) and students' academic performance (dependent variable). A researcher hypothesizes that teaching unspecialized subject area is positively correlated with students' academic performance. The researcher could statistically correlate teaching unspecialized subject area and student academic performance scores to determine the direction of the relation (positive, negative) and its strength (high, medium, and low). The only limitation of correlational research is that it cannot identify cause and effect.

3.2 Population

The target population for this study was all teachers in Kwabre Municipal in the Ashanti region with a total population of (1010) teachers distributed among (72) government basic schools.

Sample and Sampling Technique

Sample size estimation

The study adopted the Cochran's formula for estimating the sample size required samples for the study. The require sample size estimated for this study was (278), but due to stipulated time for this study, resource factor and the distribution of the school in the study area, only 60 teachers were used.

Sampling technique

The study employed the convenient sampling technique in selecting the teachers for the study. The study selected 60 samples (teachers) from six schools from the 72 basic schools distributed in the Kwabre Municipal conveniently. This was based on the researcher personal description of the sample size, as results of time factor and resources available. In the processes of selecting the respondents (teachers) to fill the questionnaire, the researcher randomly selected the teachers from the six public schools in the municipal through simple balloting. This was done to reduce biasness in selecting the teachers from the four schools. This was based on the researcher personal description of the sample size he wants to use for the study because of time factor and the available resources. The 60 teaches were obtained from the six school selected.

3.3.2 Research Instruments

The researcher relied solely on primary data in conducting the study and the instruments used for the data collection was structured questionnaire. The questionnaire was structured in search a way that it can be easily answered by the respondent with less effort. The questionnaire was structured in three sections; Section “A” captured the personal details (gender, educational qualification, and years of teachers teaching experience) of the teachers, Section “B” the questions are directly on teaching unspecialized subject area (*There is inadequate recruitment of staff within the assembly for specific subjects, Teachers had received insufficient formal training in the subject and thus allowed to teach, Teachers are deemed qualified if they studied a subject for at least one*

semester or just undertook “methodology training” for that subject as part of their teaching degree. etc), Section “C” school performance in the municipal (perform well in terminal exams /B.E.C.E, are academically oriented, have outstanding performance, Are admitted into the best SHS in the region or country and Will be among the top three in the municipal).

3.3 Data Collection

This section of the study described the data source, the data collection instruments, and the procedure of data collection employed.

3.3.1 Data Collection Procedure

Before the data collection time, the researcher applied for and got a research permit from University Education. Then the researcher contacted all the target respondents to seek for their participation in the research. After this, the researcher prepared a schedule through which she distributed the questionnaires and collected the responses.

The procedure for collecting the primary data was through self-administering method. The researcher field when to the respective schools and delivered the questionnaires to the teachers to answer the respective questions bordering on their resource development and their school performance in the municipal . The researcher collected a comprehensive list of teaching staffs of the schools in the municipal. The researcher went out to the four schools one after the other to all the teachers in each school and interacts with them. The reasons for applying this procedure was that, it will yields high return rate of the questionnaire and produces more accurate data as compared to the other methods that could have also been used.

3.4 Validity and Reliability

To determine whether the research instrument actually measures that which it is intended to measure as discussed by (Joppe, 2000), the instrument were pre-tested by piloting in three different schools in the area of the study. Respondents were to comment on the clarity and suitability of the language used and the content of each question in the questionnaire.

To ensure that the results of the questionnaire used are reliable, the researcher used the split halves method as discussed by Joppe (2000). The test was split into two sections then it was administered for piloting in one school in the area of study. The total score of each subject was computed and correlated for all subjects.

The reliability test of the scale items on the questionnaire was run using SPSS version 20. The test results below show that the questionnaire was reliable for the study, since the overall Cronbach's alpha value (0.752) was above (0.7). The reliability test of each sub-scales on the question were within the acceptable range of (0.7- 0.9), which can be described as superb. The six items on teachers' resource development had a Cronbach's alpha of (0.71) indicate superb, and students' performance had Cronbach's alpha of (0.844) indicating superb.

3.5 Data Analysis Procedure

In this study, both descriptive and inferential statistics were used. For the descriptive statistics, table and graphs were used to simplify the results and interpretation

of the findings. The results from the analysis were presented using graphical and table. For the inferential statistics, the researcher employed the use of correlation and regression analyses were used. In other for the researcher to explore the effect teaching unspecialized subject area on students' academic performance, correlation and regression analyses were used as an effective inferential statistical tool. Tables and graphs were also used to present the descriptive aspects of the study to enable the researcher achieved the various objectives of the study.

CHAPTER FOUR

PRESENTATION AND DISCUSSIONS OF RESULTS

4.0 Introduction

This chapter of the study presents the analysis of the data gathered from the head teachers and the teachers, results and discussion of the findings.

4.1 Demographics Characteristics of the Teachers

The study identified the following; (gender, age, educational qualification and experience) important demographic characteristics of both the head teachers and teachers in studied schools in the municipal. The results are presented in Table 4.1.1 below.

Table 4.1: Demographics characteristics of the Teachers

Demographics	Frequency	Percentage
Gender		
Male	21	47.7

	Female	23	52.3
Age	Less Than 20	1	2.3
	20-29	9	20.5
	30-39	14	31.8
	40-49	19	43.2
	50 Above	1	2.3
Qualifications	Pupil Teacher/MSCL	1	2.3
	HND/DIPLOMA	3	6.8
	1 st Degree	24	54.5
	2nd Degree	16	36.4
Years of experience	Less than 1 year	3	6.8
	1-3 years	5	11.4
	4-6	7	15.9
	7-9	19	43.2
	10-12	10	22.7

Source: field work, 2018

The results show that majority 52% (n = 23) of the teachers were females and minority 47.7% (n = 21) of the teachers were males. This shows that there gender balance among teachers. Their age distribution shows that 2.3% (n = 1) was within the age group

of less than 20 years, 20.5% (n = 9) of them were aged between 20-29 years and 31.8% (n = 14) were age between 30-39 years and 45.5% were within the age group of 40 and above. This indicates that majority of the teachers were aged 40 and above and minority of them were in the age bracket of less than 20 years.

Majority of the teachers were 1st Degree holders 54.5% (n = 24), followed by 2nd Degree Post Certificate 36.4% (n = 16), 6.8% were holding HND/Diploma and only 2.3% (n = 1) was Pupil Teacher/MSCL, in respect of their educational qualification distribution. This show that teacher in the municipal have high educational qualifications. The distribution of the experience level shows that 43.2% (n = 19) of them have had 7-9 years of experience representing the majority, follow by 22.7% (n = 10) have had 4-6 years of experience, follow by 15.9% (n = 7) have had 1-3years of experience and only 6.8% (n = 3) of them have less than one-year experience in the work. Their experience level show that they have enough experience in the job fields which will them to give out their fair information of the study matter.

4.2 Presentation and Discussion for Research Question One: What the Factors

Accounting for Teaching Unspecialized Subjects in School.

The try to identify the factor accounted for teaching of unspecialized subject in the municipal . Six questions on possible factors were raised by the researcher for the teachers to rate their level of agreement and disagreement on all the six factors in a Likert scale, where; SD&D: strongly disagree and disagree, N: Neutral Level, and A&SA: Strongly Agree and Agree. The results were presented in table 4.2.1 below.

Table 4.2.1: The Factors Accounting for Teaching Unspecialized Subjects in School

Factors	SD&D		N		A&SA		Means
	Freq	%	Fre	%	Fre	%	
F1: Inadequate Recruitment of Staff	7	15.9	6	13.6	31	70.5	2.57
F2: Insufficient formal training	22	50	7	15.9	15	34.1	2.77
F3: Studied a subject for at least one Semester	26	59.1	0	0	18	40.9	3.18
F4: Laissez- Faire Attitude	13	29.5	10	22.7	21	47.7	3.57
F5: A natural loss of Teachers	5	11.4	11	25.0	28	63.6	3.40
F6: Non-existent of accurate collected workforce data	6	13.6	14	31.8	24	54.5	3.70
Average	13.16	29.92	8	18.2	22.8		3.19

Source: field work, 2018.

The results show that on F1: Inadequate Recruitment of Staff majority of the teachers 59.1% (n = 26) were strongly disagree/disagree and minority of the teachers 40.9% (n = 18). On F2: Insufficient formal training, 50% (n = 22) were strongly disagree/disagree represent the majority group, 34.1% (n=15) were strongly agree/agree and only 15.9% (n = 7) were at the neutral. On F3: Studied a subject for at least one Semester, majority of the teachers 59.1% (n = 26) were strongly disagree/disagree and minority of the teachers 40.9% (n = 18). On F4: Laissez- Faire Attitude, 47.7% (n = 21) were strongly agree/agree representing the majority, 29.5% (n = 13) were strongly disagree/disagree level representing the minority group of the teachers, mean while only 22.7% (n = 10) were at the neutral level. On F5: A natural loss of Teachers, 63.6% (n = 28) were strongly agree/agree representing the majority, 11.4% (n = 5) were strongly disagree/disagree level representing the minority group of the teachers, mean while only 25% (n = 11) were at the neutral level. On F6: Non-existent of accurate collected workforce data, 54.5% (n = 24) were strongly agree/agree representing the majority, 13.5% (n = 6) were strongly disagree/disagree level representing the minority group of the teachers, mean while only 31.8% (n = 14) were at the neutral level.

Overall, we saw that majority of the teachers were agreement with items and minority of them were in disagreement with the questions on factors causing teaching unspecialized subject in the municipal. Again, the mean scores suggest that the most leading factors were F4: Laissez- Faire Attitude, F5: A natural loss of Teachers and F6:

Non-existent of accurate collected workforce data (means = 3.57, 3.40 and 3.70) with standard deviation of (std = .846, 1.041 and .929) respectively.

4.3 Discussion of findings

Research Question One: What the Factors Accounting for Teaching Unspecialized Subjects in School

The study indicated that a natural loss of teachers, inadequate recruitment of teachers, laissez-faire attitude non-existence of accurate data on forcework are the factors contributing to teaching on specialize subject in schools. This present findings precisely support the observation made by Ingersoll (2002) that teachers are likely to teach out of field due to inadequate supply eg. Teachers in a particular subject and geographical location.

Overall, we realized that majority of the teachers were agreement with items and minority of them were in disagreement with the questions on factors causing teaching unspecialized subject in the municipal. Again, the mean scores in table 4.2.2 suggest that the most leading factors were F4: Laissez- Faire Attitude, F5: A natural loss of Teachers and F6: Non-existent of accurate collected workforce data (means = 3.57, 3.40 and 3.70) with standard deviation of (std = .846, 1.041 and .929) respectively.

4.3 Presentation and Discussion for Research Question Two: What are the challenges teachers faces in teaching unspecialized subjects in school.

The again identify the challenges of teaching of unspecialized subject in the municipal. Six questions on possible factors were raised by the researcher for the teachers

to rate their level of agreement and disagreement on all the six factors in a Likert scale, where; SD&D: strongly disagree and disagree, N: Neutral Level, and A & SA: Strongly Agree and Agree. The results were presented in table 4.3 below.

Table 4.3: Challenges Teachers Faces in Teaching Unspecialized Subjects in School.

CHALLENGES	SD&D		N		A&SA		Mean
	Freq	%	Freq	%	Freq	%	
CH1: Inadequate Control and Understanding of Subject	19	43.2	6	13.6	19	43.2	3.00
CH2: uncertainty of the time required to develop different concepts	14	31.8	10	22.7	20	45.5	3.23
CH3: teachers unable build explanations in response to students' questions	19	43.2	7	15.9	21	46.9	3.00
CH4: Teacher limit interaction by rushing through topics	10	22.7	10	22.7	20	44.4	3.34

CH5: Difficulties in planning							
for their lessons and their							
lesson notes	18	40.9	7	15.9	19	45.5	3.02
CH6: Difficulties in							
answering subject-related							
questions and answering							
question	16	36.4	2	4.5	26	43.2	3.14
Average	16	33.3	7	15.9	20.8	59.1	3.12

Data Source: Field Work 2018

The results show that on F1: Inadequate Recruitment of Staff, 43.2% (n = 19) of teachers were both strongly disagree/disagree and strongly agree/ agree with 22.7% (n = 6) were at the neutral. On F2: CH2: uncertainty of the time required to develop different concepts 31.8% (n = 14) were strongly disagree/disagree and minority of the teachers 45.5% (n = 20) and only 22.7% were at neutral level. Teachers unable to build explanations in response to students', 47.7% (n = 21) were strongly agree/agree representing the majority, 25% (n = 19) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 15.9% (n = 7) were at the neutral level. On CH4: Teacher limit interaction by rushing through topics, 45.5% (n = 20) were strongly agree/agree representing the majority, 22.7% (n = 10) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 22.7% (n = 10) were at the neutral level. On CH5: Difficulties in planning for their lessons and their lesson notes, 43.2% (n = 19) were strongly agree/agree representing the majority, 40.9 % (n = 18) were strongly disagree/disagree level representing the minority group of the teachers, mean

whiles only 15.9% (n = 7) were at the neutral level. On CH6: Difficulties in answering subject-related questions and answering question, 59.9% (n = 26) were strongly agree/agree representing the majority, 36.4% (n = 16) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 4.5% (n = 2) were at the neutral level.

Overall, we realized that majority of the teachers 47.4% (n = 21) were agreement with identified challenge and minority of them 33.3% (n = 16) were in disagreement with the identified challenge on teaching unspecialized subject in the municipal. Again, the mean scores in suggest that the most leading challenge of teaching unspecialized subject is *CH4*: Teacher limits interaction by rushing through topics with the highest mean score of (3.34) with standard deviation of (1.140).

4.4 School Performance

In addition, the study examines school performance as results of teaching of unspecialized subject in a school. Six questions on school performance were raised by the researcher for the teachers to rate their level of agreement and disagreement on all the six school performance questions in a Likert scale, where; SD&D: strongly disagree and disagree, N: Neutral Level, and A & SA: Strongly Agree and Agree. The results were presented in table 4.4 below.

Table 4.4: School Academic Performance

School Academic Performance	SD&D		N		A&SA		
	Freq	%	freq	%	freq	%	mean
AP1: The Students' perform excellently in B.E.C.E examinations	12	27.3	7	15.9	25	56.8	3.25
AP2: Students' excelled in all subjects in their B.E.C.E results	14	31.8	6	13.6	24	54.5	3.27
AP3: Oriented in academics in the Municipal	12	27.3	7	15.9	25	56.8	3.23
AP4: outstanding performance in academics	5	11.4	11	25.0	28	63.6	3.68
AP5: Students' get admission into the best SHS	2	4.5	14	31.8	28	63.6	3.86

AP6: The school is among the							
top three schools in the							
municipal	5	11.4	10	22.7	29	65.9	3.70
Average	8.3	18.9	9.2	20.8	26.5	60.3	3.50

Source: Field Work, 2018

The results show that on AP1: The Students' perform excellently in both terminal and B.E.C.E, 43.2% (n = 19) of teachers were strongly agree/agree and strongly agree/agree, 27.3% (n = 12) disagree/strongly disagree while only 15.9% (n = 7) were at the neutral level. On AP2: Students' excelled in all subjects in their B.E.C.E results, 31.8% (n = 14) were strongly agree/agree representing the majority group, 31.8% (n = 14) of the teachers disagree/strongly representing the minority and only 13.6% (n=6) were at neutral level. AP: Oriented in academics in the Municipal, 56.8% (n = 25) were strongly agree/agree representing the majority, 27.3% (n = 12) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles, only 15.9% (n = 7) were at the neutral level. On C AP4: outstanding performance in academics, 63.6% (n = 28) were strongly agree/agree representing the majority, 11.4% (n = 5) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 25% (n = 11) were at the neutral level. On AP5: Students' get admission into the best SHS, 63.6% (n = 19) were strongly agree/agree representing the majority, 4.5 % (n = 2) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 31.8% (n = 14) were at the neutral level. On AP6: The school is among the top three schools in the municipal, 65.9% (n = 29) were strongly agree/agree representing the

majority, 36.4% (n = 16) were strongly disagree/disagree level representing the minority group of the teachers, mean whiles only 22.7% (n = 10) were at the neutral level.

Overall, we found that majority of the teachers 60.3% (n = 21) were in agreement with identified school performance and minority of them 18.9% (n = 16) were in disagreement with the identified schools performance in the municipal. Again, the mean scores in suggest that the most leading school performance is **AP5**: Students' get admissions into the best SHS with the highest mean score of (3.86) with standard deviation of (0.878).

4.5 Presentation and Discussion for Research Question Three: what is the impact of teaching unspecialized subject on students' academic performance

From the results, it could be observing that teaching unspecialized subject do not significantly influence students' academic performance. There is weak negative correlation ($R = -0.167$) between teaching unspecialized subject and student academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2.7\%$).

Table 4.4 .1: Regression Model of Teaching Unspecialized Subject Area on Students' Academic Performance

Model	B	Std. E	Beta	t	Sig.
(Constant)	24.700	3.476			
Teaching Unspecialized subject	-.193	.177	-.165	-1.087	.283

$R = 0.165, R^2 = 0.027, \text{Adjst } R^2 = 0.004, \text{Std. Error} = 4.725$

Dependent Variable: Academic Performance

Again, we also try to find out whether the challenges of teaching unspecialized subject affect students' academic performance. From the results, we found that the challenges do not significantly influence students' academic performance. There is weak correlation ($R = 0.141$) between challenges and academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2\%$).

Table 4.4.2: Regression Model of challenges of teaching Unspecialized Subject Area on Students' Academic Performance

Model	B	Std. Error	Beta	t	Sig.
(Constant)	18.504	2.805			
Challenges	.133	.145	.141	.920	.363

$R = 0.141, R^2 = .020, \text{Adjst}R^2 = -.004, \text{Std. Error}$

The challenges teachers face in teaching unspecialized subjects in school

The study results indicated that inadequate control and understanding of subject, uncertainty of the time required, duration in planning of their lesson notes, to ensure subject related resulting on teacher limited interaction by rushing through topics are the challenges that teachers teaching on specialize subjects in schools face.

Overall, we found that majority of the teachers 47.4% ($n = 21$) were agreement with identified challenge and minority of them 33.3% ($n = 16$) were in disagreement with the

identified challenge on teaching unspecialized subject in the municipal. Again, the mean scores in table 4.2.2 suggest that the most leading challenge of teaching unspecialized subject is *CH4*: Teacher limits interaction by rushing through topics with the highest mean score of (3.34) with standard deviation of (1.140).

The impact of teaching unspecialized subject on students' academic performance

From the results, it could be observing that teaching unspecialized subject do not significantly influence students' academic performance. There is weak negative correlation ($R = - 0.167$) between teaching unspecialized subject and student academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2.7\%$).

Again, we also try to find out whether the challenges of teaching unspecialized subject affect students' academic performance. From the results, we found that the challenges do not significantly influence students' academic performance. There is weak correlation ($R = 0.141$) between challenges and academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2\%$). These findings were in line with Attia (2017) research study which develops a deeper understanding of the relationship between subject-matter expertise and students' learning experiences and academic achievement. Findings of this research study suggest that limited content knowledge, low comfort level, and limited preparation time are barriers for teachers who teach subjects that they struggle with. They indicated that their subject-matter knowledge elevates their comfort level, enriches their teaching experience, and improves their students' learning and academic achievement. The implications of these

findings suggest that teachers need to be teaching subjects in which they have strong content knowledge. This allows them to provide their students with authentic learning experiences, as well as answer their deep and rich content questions.

It also support Susan Caldis (2017) found that teaching out-of-field is a situation many teachers experience throughout their career; particularly those entering the profession. Not only does teaching out-of-field disrupt the integrity of a subject, it inevitably results in heightened levels of student disengagement, lower than anticipated achievement of student learning outcomes, and an increasing lack of confidence amongst teachers about their ability to teach effectively.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter of the study covered the summary of findings, conclusion and recommendation of the study.

5.1 Summary

This study was set up to achieved the following objectives; to determine the factors accounting for teaching unspecialized subjects in school, to determine the challenges teachers face in teaching unspecialized subjects in school and to determine the effect of teaching unspecialized subject on students' academic performance base on the study objectives, the researcher set up the following Research Questions (What are factors accounting for teaching unspecialized subjects in school?, What is challenges teachers face in teaching unspecialized subjects in school? And what is impact of teaching unspecialized

subject on students' academic performance?) The study hypothesized that (H_0 : there is positive impact of teaching unspecialized subject on students' academic performance?)

The study employed both descriptive and correlational study designs to help the researcher achieve the various objectives. The target population for this study was all teachers in Kwabre Municipal in the Ashanti region with a total population of (1010) teachers distributed among (72) government basic schools. The study selected six schools including; (list of schools) in the municipal. The study adopted the Cochran's formula for estimating the sample size required samples for the study. The require sample size estimated for this study was (278), but due to stipulated time for this study, resource factor and the distribution of the school in the study area, only 60 teachers were used.

The study employed the following sampling techniques in selecting the teachers for the study; convenient sampling technique. The researcher relied solely on primary data in conducting the study and the instruments used for the data collection was structured questionnaire. In this study, both descriptive and inferential statistics were used. For the descriptive statistics, table and graphs were used to simplify the results and interpretation of the findings.

The study found that majority of the teachers were in agreement with items and minority of them were in disagreement with the questions on factors causing teaching unspecialized subject in the municipal. Again, the mean scores in suggest that the most leading factors were: Laissez- Faire Attitude, A natural loss of Teachers and: Non-existent of accurate collected workforce data (means = 3.57, 3.40 and 3.70) with standard deviation of (std = .846, 1.041 and .929) respectively.

In addition, the study found that majority of the teachers 47.4% (n = 21) were agreement with identified challenge and minority of them 33.3% (n = 16) were in disagreement with the identified challenge on teaching unspecialized subject in the municipal. Again, the mean scores suggest that the most leading challenge of teaching unspecialized subject is: Teacher limits interaction by rushing through topics with the highest mean score of (3.34) with standard deviation of (1.140).

Lastly, the study found that that teaching unspecialized subject do not significantly influence students' academic performance. There is weak negative correlation ($R = -0.167$) between teaching unspecialized subject and student academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2.7\%$). Again, we also try to find out whether the challenges of teaching unspecialized subject affect students' academic performance. From the results, we found that the challenges do not significantly influence students' academic performance. There is weak correlation ($R = 0.141$) between challenges and academic performance. Total variability in students' academic performance accounted for by teaching unspecialized subject was only ($R^2 = 2\%$).

5.2 Conclusion

Based on the results from the study, the following conclusions were drawn; The Factors Accounting for Teaching Unspecialized Subjects in School .The principal factors Accounting for Teaching Unspecialized Subjects in School were F4: Laissez- Faire Attitude, F5: A natural loss of Teachers and F6: Non-existent of accurate collected workforce data.

The principal challenges teachers face in teaching unspecialized subjects in School is: Teacher limits interaction by rushing through topics.

There is negative impact of teaching unspecialized subject on students' academic performance. Teaching unspecialized subject does not significantly influence students' academic performance, since there is weak negative correlation ($R = - 0.167$) between teaching unspecialized subject and student academic performance and also contribute only 2% ($R^2 = 0.027$) students' academic performance. In addition, challenges of teaching unspecialized subject affect students' academic performance.

5.3 Recommendations

Based on the findings and conclusions made, the following recommendations are made;

- Educational directors in the municipal should ensure that require number of teachers employed. They should also restraints from assigning teachers to teach in the municipal with Laissez- Faire Attitude and also collect accurate data teachers' workforce.
- The municipal should ensure that they always assigned qualified teacher to any subject at the basic level.
- The municipal educational directorate should restraints from assigning teacher to teach in an area where the teacher does not have specialization.

5.4 Suggestion for Feather Research

This study suggests that further study should be structured to increase the population size and should be equally be conducted in the private school.

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APPENDIX

Reliability Statistics on factors accounted for teaching unspecialized subjects

Cronbach's Alpha	N of Items
.671	6

Cronbach's Alpha = 0.671 indicate fairly good

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
F1	16.6364	11.958	.302	.674
F2	16.4318	10.716	.491	.594
F3	16.0227	12.999	.302	.662
F4	15.6364	13.260	.416	.630
F5	15.7955	11.469	.565	.573
F6	15.5000	13.047	.391	.634

F1-f6 : ARE THE FACTORS

Reliability Statistics on challenges items

Cronbach's Alpha	N of Items
.786	6

Cronbach's Alpha = 0.786 indicate superb

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CH1	15.7273	18.668	.505	.761
CH2	15.5000	18.674	.506	.761
CH3	15.7273	16.622	.687	.715
CH4	15.3864	18.940	.474	.768
CH5	15.7045	17.515	.603	.737
CH6	15.5909	17.968	.456	.777

CH1 – CH6: are the challenges of teaching unspecialized subjects

Reliability Statistics On students' academic performance

Cronbach's Alpha	N of Items
.808	6

Cronbach's Alpha = 0.808 indicate superb

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
AP1	17.7500	14.657	.626	.765
AP2	17.7273	14.482	.645	.760
AP3	17.7727	15.342	.601	.771
AP4	17.3182	16.129	.777	.743
AP5	17.1364	18.307	.444	.803
AP6	17.2955	18.073	.378	.817

AP 1– AP6: Academic performance

Overall Reliability Statistics for the questionnaire

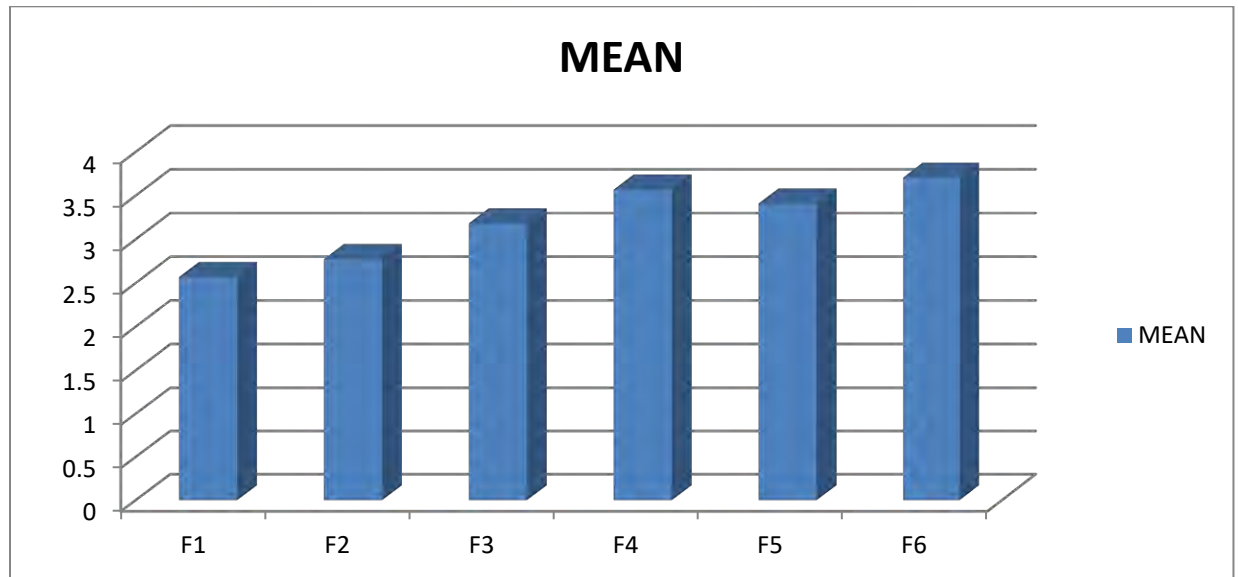
Cronbach's Alpha	N of Items
.768	18

Cronbach's Alpha = .768 indicate superb

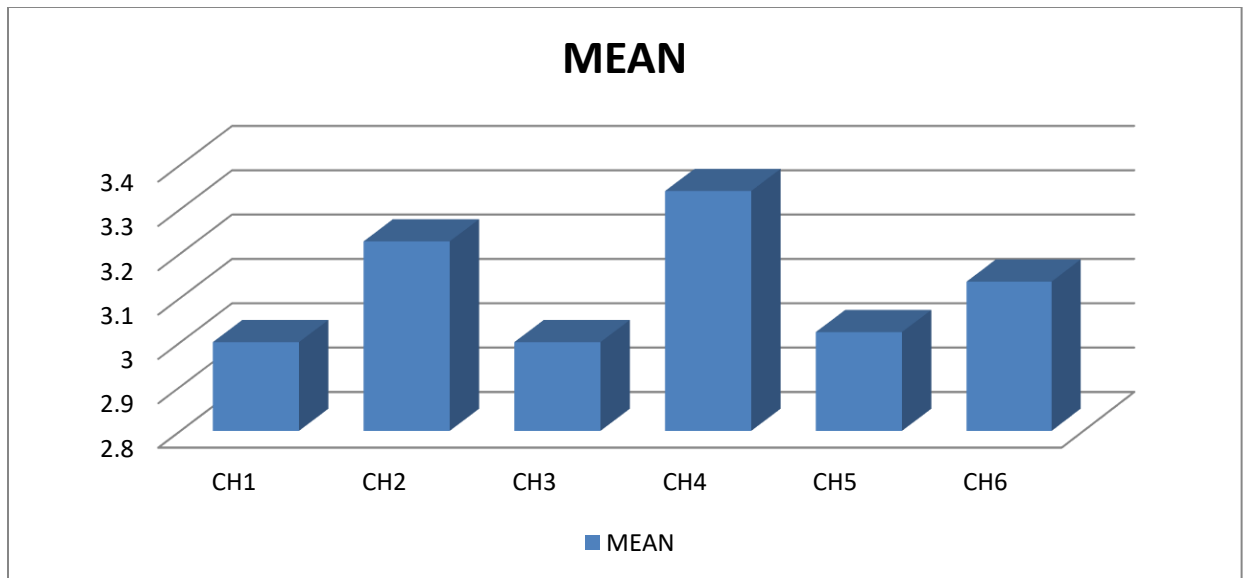
Overall Item-Total reliability Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
AP1	55.6818	79.199	.158	.773
AP2	55.6591	75.439	.330	.759
AP3	55.7045	74.446	.414	.752
AP4	55.2500	76.657	.453	.752
AP5	55.0682	83.321	.021	.776
AP6	55.2273	79.761	.198	.767
F1	56.3636	76.841	.248	.766
F2	56.1591	74.788	.357	.756
F3	55.7500	80.238	.156	.771
F4	55.3636	78.841	.325	.759
F5	55.5227	77.092	.342	.758
F6	55.2273	79.156	.267	.763
CH1	55.9318	74.995	.412	.752
CH2	55.7045	72.399	.554	.741

CH3	55.9318	72.158	.521	.743
CH4	55.5909	74.387	.445	.750
CH5	55.9091	74.038	.438	.750
CH6	55.7955	70.446	.542	.740



- **The leading challenge is f4: laissez fair attitude of municipal supervisors in assigning subjects to tutors.**
- **The overall mean score of 3.121 indicate that respondents were less agreed with the challenges on teaching unspecialized subjects**



- **The leading challenge is ch4: teacher limit their interaction with students and rushing through topics as they lack knowledge about the topic.**

Table 4.2.2: **Factors Accounting for Teaching Unspecialized Subjects in School**

Factors	MEAN	Std. D	Varian ce
F1: Inadequate Recruitment of Staff	2.57	1.336	1.786
F2: Insufficient formal training	2.77	1.291	1.668
F3: Studied a subject for at least one Semester	3.18	1.084	1.175
F4: Laissez- Faire Attitude	3.57	.846	.716
F5: A natural loss of Teachers	3.40	1.041	1.085
F6: Non-existent of accurate collected workforce data	3.70	.929	.864
Overall	3.20	1.088	1.216

Source: field work, 2018

Table 4.2.2.2: Challenges on Teaching Unspecialized Subjects in School

Challenges	MEAN	Std. D	Variance
CH1: Inadequate Control and Understanding of Subject	3.00	1.14119	1.302
CH2: uncertainty of the time required to develop different concepts	3.23	1.13841	1.296
CH3: teachers unable build explanations in response to students' questions	3.00	1.21999	1.488
<i>CH4: Teacher limit interaction by rushing through topics</i>	<i>3.34</i>	<i>1.140</i>	<i>1.300</i>
CH5: Difficulties in planning for their lessons and their lesson notes	3.02	1.19083	1.418

CH6: Difficulties in answering subject-related questions and answering question	3.14	1.33975	1.795
<i>Overall</i>	<i>3.12</i>	<i>1.120</i>	<i>1.433</i>

Source: field work, 2018

