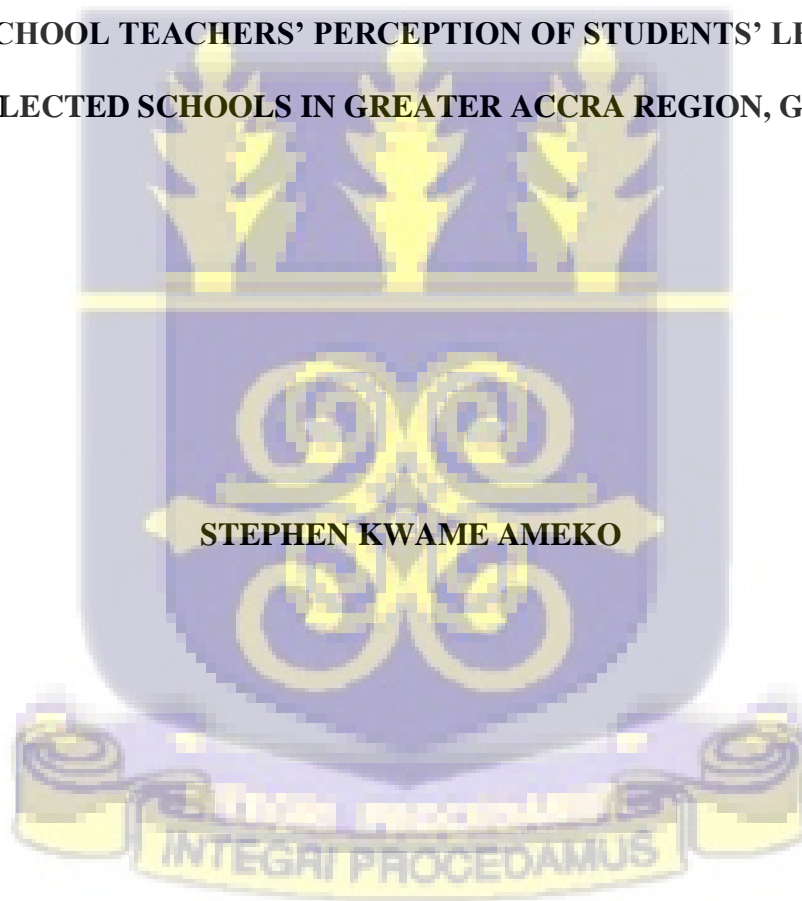


**UNIVERSITY OF GHANA
COLLEGE OF EDUCATION**

**SENIOR HIGH SCHOOL TEACHERS' PERCEPTION OF STUDENTS' LEARNING STYLES
IN SELECTED SCHOOLS IN GREATER ACCRA REGION, GHANA.**



DEPARTMENT OF TEACHER EDUCATION

DECEMBER 2021

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BY

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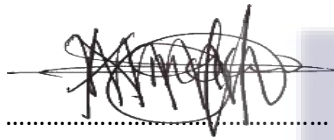
**THIS THESIS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL
FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF
PHILOSOPHY IN EDUCATION DEGREE**

DEPARTMENT OF TEACHER EDUCATION

DECEMBER 2021

DECLARATION

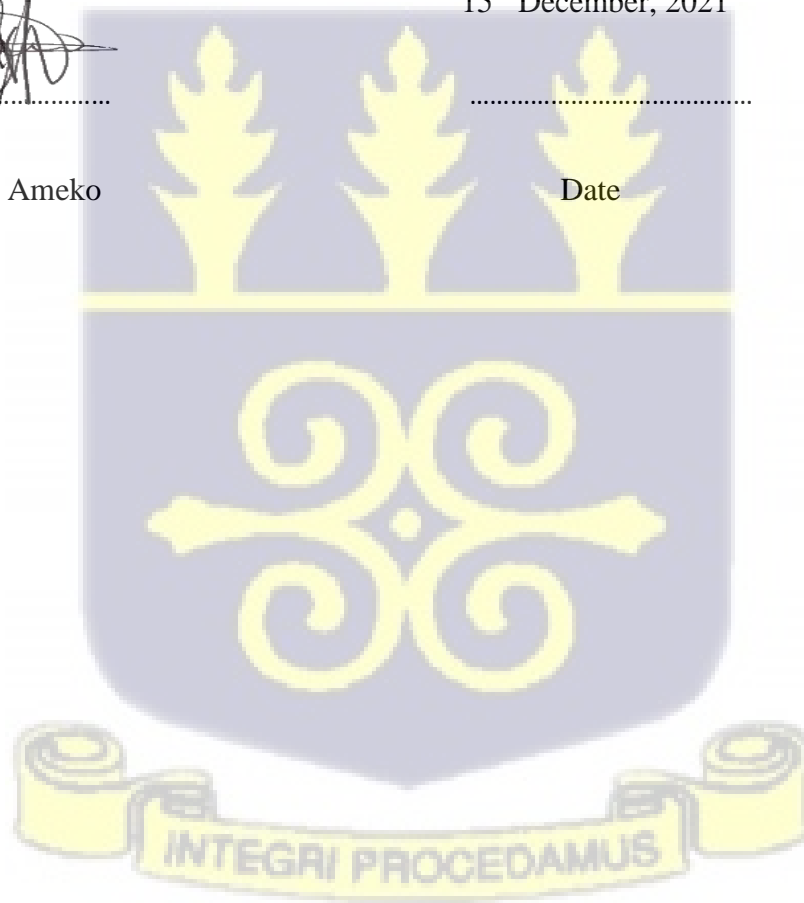
I declare that this thesis is an original report of my research and has not been submitted for any degree in this university or elsewhere. References to other people's works have been duly acknowledged.



Stephen Kwame Ameko

15th December, 2021

Date



CERTIFICATION

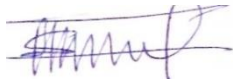
We hereby certify that the thesis was supervised in accordance with procedures laid down by the University of Ghana.



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15th December, 2021

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(Supervisor)

15th December, 2021

.....
Date



DEDICATION

I dedicate this work to Papa God for his unmerited grace and favour. It is also dedicated to my mother Mrs. Esther Amedzah and my late father Mr. John Suka, Siblings; John Gadasu, Emmanuel Gadasu, Light Isaac Ameko, Bless Ameko, Orpah Ameko, Joyce Asare and Cynthia Tetteh



ACKNOWLEDGEMENT

I am eternally grateful to the Almighty God for the grace granted me. I wish to extend my profound gratitude to my supervisors, Dr Eliot Kumassah and Dr John Sedofia, for their immeasurable contributions, guidance, and support. I deeply value your patience, commitment, and invaluable contribution to this study; both of you have motivated and encouraged me to work hard every day to develop my educational skills. I am also thankful to the following faculty members in the Department of Teacher Education, School of Education and Leadership, University of Ghana, Legon, Dr Kwaku Darko Amponsah, Dr Paul Kwame Butakor, Dr Rita Yeboah, and Mrs Alberta Doe.

I am grateful to the foundation that funded this course for a whole year Konrad Adenauer Stiftung (KAS), you made my stay in school fruitful, and I am grateful. Mr John Gadasu, I appreciate your constant support and your trust in me. Mr Eric Agbemafa Norgbey, God bless you for your immeasurable support, your kind is rare.

I am eternally grateful to all the family and friends who stood in and encouraged me, Joana Addae, Emmanuel Osei-Bonsu, Alberta Anati, and Mawuli Kofi Tay

In one way or the other, all who supported me financially, I am grateful. The teachers from West Africa Senior High School, Presbyterian Boy's Secondary School and Dome Kwabenya Community Senior High School in La Nkwantanang Madina and Ga-East Municipalities who took part in the study, may God bless you richly.

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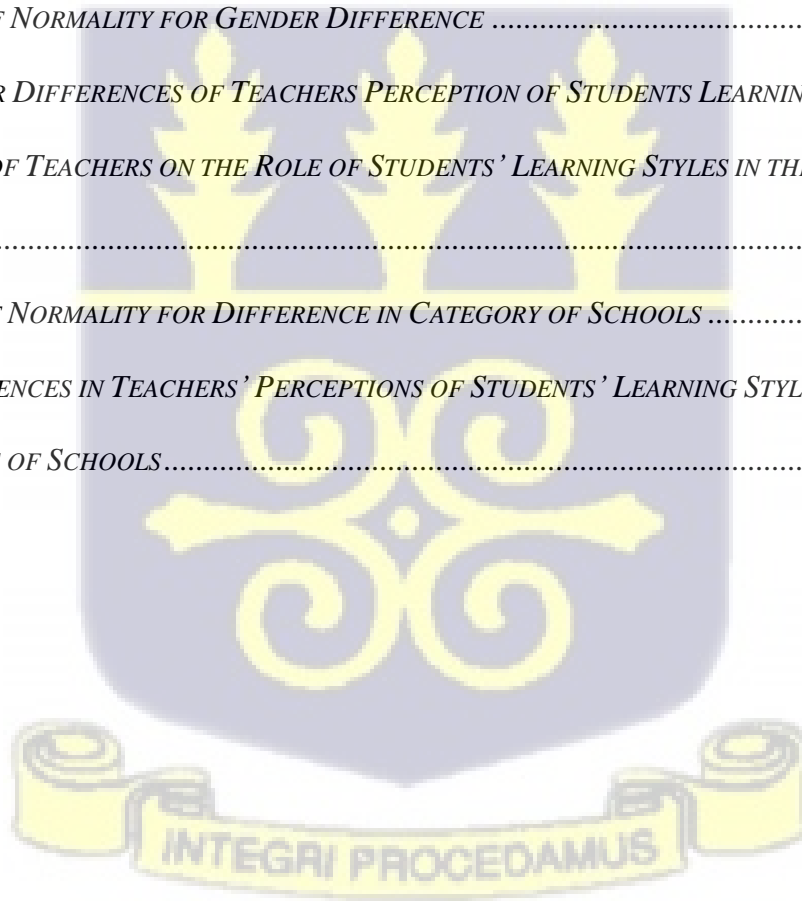
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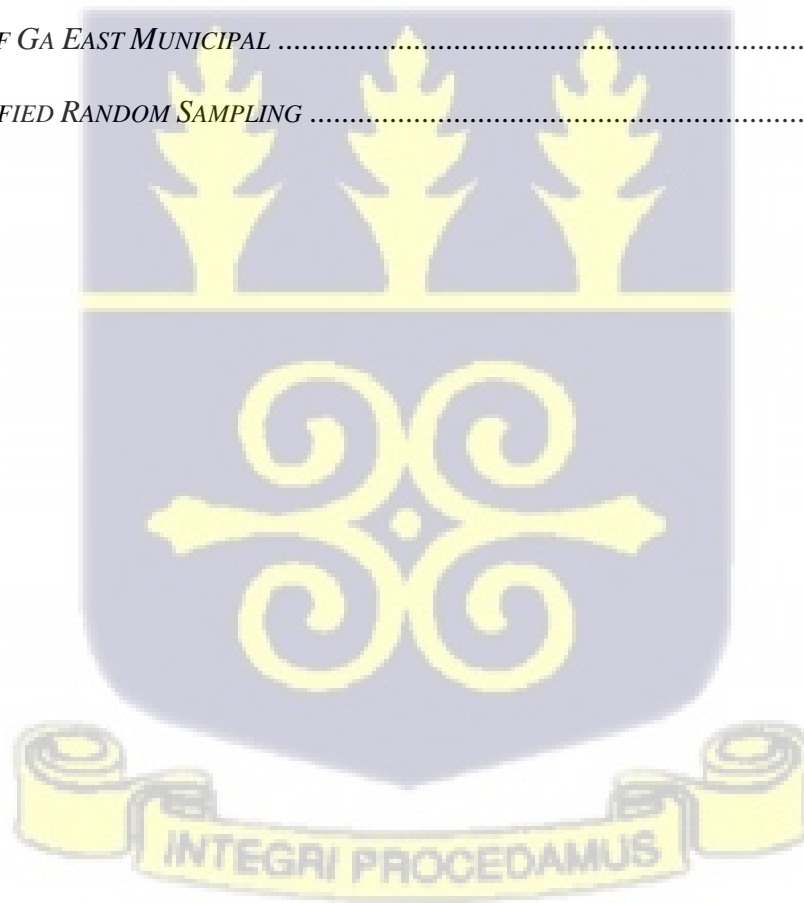
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ABSTRACT

Teaching and learning are two casually bound practices in the classroom. Teachers comprehending students' learning process guide them to appreciate their preferences while teaching and learning. It will promote collaborative teaching, productive learning, and learning to become friendly for learners as their learning needs are cared for. While their comprehension will add to the effectiveness of the teaching process, lack of it will also cause unfacilitated teaching as lessons might not be tailored to meet learners' specific learning needs. The study investigated teachers' views about students' learning styles in public Senior High Schools in Ghana. The study used the post-positivist paradigm with a cross-sectional survey design using an online questionnaire for data collection. Three public Senior High School teachers in La Nkwantanang Madina and Ga-East Municipalities with a sample of 206 teachers with a minimum of five (5) years of teaching experience were used. The researcher employed multiple sampling technique in selecting the sample in West Africa Senior High School, Presbyterian Boy's Secondary School, and Dome Kwabenya Community Senior High School. Using means and percentages, the findings revealed that most teachers 89% are aware of students learning styles, 69% first encountered the concept during their study time in school and about 88% of them consider it when planning their lesson using. Kruskal-Willis and Mann Whitney U test also showed that there was no statistically significant difference in teachers' perceptions of students learning styles based on their gender and the category of school they teach (i.e., A, B and C), with ($p=0.0937$, $p>0.05$) and ($p=0.533$, >0.05) respectively. It was therefore recommended that future studies be conducted to find out how teachers are making good use of their knowledge of the concept in the classroom, more importantly, qualitative research with observation. Additionally, future studies should use different municipalities or even regions with large sample size.

Keywords: Learning styles, Visual, Auditory, Kinesthetic and Read/Write Learner.



CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter provides the basis for the study. It also states the issue, the purpose, objectives of the study, and research questions. The importance, delimitation, and organization of the study are also presented in the chapter.

1.2 Background to the Study

Education is a potent tool that significantly impacts both individual learners and country development. It is indeed a way for parents to make a difference in their children's lives (Chodkiewicz & Boyle, 2017). Individuals can communicate, learn skills, manage their surroundings, and reach their potential in their cultures through education (Idogho & Agholor, 2013). Therefore education has the potential to better the life of learners, which will, in turn, contribute to the societies in which they live, thereby leading to national development (Idogho & Agholor, 2013; Smith et al., 2017). Education has also been a critical component in improving inter-national understanding by broadening personal and bilateral relationships (Akçayır & Akçayır, 2017; Idogho & Agholor, 2013; Smith et al., 2017). For education to be achieved, the process of teaching and learning must be constantly revised depending on the prevailing challenges and the global trend in the world of education (Kansanen, 2003; Kosnik, 2008). In the 21st-century, the world of education seeks to achieve inclusivity in the classroom, thereby inculcating specific skills such as; communication, collaboration, critical thinking, and creative skills in the learners (Gadagbui, 2008). In line with current 21st-century skills, each learner matters and must be taken

into consideration in the process of teaching and learning, where the classroom becomes a friend to all learners irrespective of their background, orientation, and life experiences (Kirschner, 2015; Rahman et al., 2010).

Learning in itself can be seen as a step-by-step process in which an individual faces significant, meaningful changes in awareness, behaviour, or ways of viewing the world (Moneva et al., 2020).

It has also been described functionally as behavioural changes resulting in existing involvement or mechanical variations in the creature resulting from observation (An & Carr, 2017; De Houwer et al., 2013). It is therefore important to mention that learning is said to be achieved if its aim is met or one is said to have learned when there are behavioural changes. Learners in the classroom are said to have learned when there are behavioural changes in their attitudes, therefore teaching and learning is said to be completed after some changes in learners' behaviour.

Learning style according to Costa et al. (2020) promotes the idea that individuals vary whether it is the medium of teaching or the method of delivery, analysis of information that is most appropriate for them, which is the same as the assertion made by (Buckley & Doyle, 2017). Again Cardellichio et al. (2002, p.36) point out that "learning style is a collection of biologically and developmentally imprinted personal qualities that cause the same teaching to be delivered in different ways or methods effective for some and ineffective for others." Therefore, teachers and educators will coordinate classrooms to suit their teaching and learning process needs, knowing students' learning styles. The point is made clear that, some learning styles are conversant with some teaching methods or strategies while others are not, what communicates knowledge to learner Ama in the same class might not communicate knowledge to Kofi in the same class and vice versa. The imbalance in the school has its origin not only from the learner's exposure but also their

respective biological make-up, which is predominantly personal to each learner. Learning styles, to some extent, are developmentally imprinted among learners, as opined by (Cardellichio et al., 2002).

Learning styles and interests take various forms, and not all learners fall neatly into one group. Some learners might fall within one or two groups depending on the type of grouping and other related factors that account for such grouping. But in general, there are some commonly acclaimed styles such as the visual, auditory, kinaesthetic, and reading/writing learning styles (Cassidy, 2010). Visual learners are those who can better internalize and synthesize information when it is presented in a graphic representation of meaningful symbols (Şener & Çokçalışkan, 2018). They can react to directions, maps, graphs, and other knowledge hierarchy displays. They also appear to have better educational outcomes when given summary charts and diagrams instead of sequential information slides during the teaching and learning process. As auditory learners are allowed to hear knowledge delivered through speech, they are most effective (Şener & Çokçalışkan, 2018). They are best at listening in the classroom; most of them prefer to read out their notes when learning while others will keep babbling their lips as the teacher talks. Seating at the front is prevalent with them as they choose a no noise arena in the classroom; they are most altered with the list noise around them as they get easily distracted. Students that excel in the reading/writing style demonstrate a clear understanding of the printed text. Reading/writing-oriented learners are attracted to understanding by script, reading papers or books, writing in diaries, looking for dictionary words, and browsing the internet for more or less anything to read and write. They prefer to make their notes while listening, searching for information is not a problem for them, these group of learners is seen writing on papers and in their notes all the time (Şener & Çokçalışkan, 2018). Kinesthetic learners are active, hands-on learners who need to be

physically involved in the learning process in order to attain their greatest academic performance (Şener & Çokçalışkan, 2018). Kinesthetic learners often prefer to involve all their intelligence similarly in the learning process. Kinesthetic learners succeed in scientifically oriented topics with lab components due to their dynamic character since the skills-based, instructional training that takes place in these environments engage them in productive ways (Akram, 2014; Khalid et al., 2017; Şener & Çokçalışkan, 2018).

It is more crucial for educators to understand the learner's learning style, strengths, and weaknesses and adopt a strategy to guide the learner in the classroom, as recommended by (Moneva et al., 2020). These will give the teacher the command over the guiding role during the students' learning process. The learners' immediate needs can be addressed during the same function; teachers understand how their learners conceptualise knowledge and adopt various strategies to support them. According to Gilakjani and Ahmadi (2011), identifying and understanding learners' learning styles improves the learning experience of both learners and teachers. The learning experience of learners is as essential as the teachers' teaching experiences; therefore, it is vital that teachers understand the learning needs of students. Teachers may change their teaching style to keep with the learner's learning style as they identify it (Gilakjani & Ahmadi, 2011). The learning patterns have more impact than a learner may have known (Almeida & Cunha, 2020). As much as the learning patterns have more impact, the knowledge of learners' learning styles is much more critical to those who lead, guide, and support them in the classroom (Almeida & Cunha, 2020). Your favourite learning styles will guide how you learn (Sternberg & Zhang, 2014). An auditory learner cannot learn mainly with images and diagrams or perhaps trying to take part in hands-on learning alone practically. Still, it is possible to combine some features as some learners might not perfectly fit into one only (Sternberg & Zhang, 2014). They also change the way a learner

internally represent their thoughts, the way they remember knowledge, and even the expressions they use in the learning process (Sternberg & Zhang, 2014). There exist a disparity most often between the developmental diversity of learners and teachers; this gap in experience may be problematic unless teachers are informed about the commonalities and differences within their learners (Rahman et al., 2010).

It is more crucial for educators to understand the learner's learning style, strengths, and weaknesses and adopt a strategy to guide the learner in the classroom (Moneva et al., 2020). According to Al-Azawei et al. (2017), the ability to identify and understand learners learning styles improves the learning experience of both learners and teachers. Teachers may change their teaching style so that it is more in keeping with the learner's learning style (Gilakjani & Ahmadi, 2011). Therefore, it is essential for researchers first to find out the perception of teachers on students' learning styles. To investigate if teachers have knowledge of students' learning styles or not since their knowledge determines what exactly they will inculcate in their lesson preparation, delivery, and evaluation.

1.3 Statement of the Problem

According to Akram (2014, p.242), “it is assumed that learners learn better if instructions match their learning styles in the classroom.” It is crucial to note that learners might not learn better if instructions are not tailored to their learning styles. Again, this can be achieved if only teachers have knowledge about students learning styles. About sixty-nine percent of teachers strongly believe that students have unique learning styles in Indonesia. They indicated they need to pay attention to it, and 50% of them first came in contact with the concept of learning styles through personal reading and surfing the internet, 18% heard about it from their colleague teachers, 29%

knew the concept through training/workshops. In comparison, 4% came to know the concept from their students (Agustrianita et al., 2019).

In Afghanistan, Khan (2015) reported that 89% and 78% of teachers from his sample schools believed that students have unique learning styles and consider them essential to their learning process. Though from the study, most of the teachers come in contact with learning styles during workshops and seminars, it seems the majority of the educators have knowledge about students learning styles in Afghanistan. In Zimbabwe, Secondary school teachers have knowledge about students' learning styles, but they have prevailing barriers that make it difficult for them to utilize such knowledge, for instance; their learning styles as teachers, lack of subject content knowledge, lack of exposure and experience, and failure to identify students learning styles among others (Mangwende & Maharaj, 2019).

Though some studies have been conducted in other countries on teachers' perceptions about students' learning styles and teachers' knowledge about students' learning styles, the literature reveals that the problem has not received the needed research attention within the Ghanaian context. Though there are some related studies in the context of Ghana, still, it mainly addressed the concept of learning styles. Appiah (2018) focused on *“learning styles preferences and study habits as determinants of academic achievement among public junior high school pupils in the Effutu municipality”*, Esia-Donkoh (2020) studied *“students' characteristics and differences in their learning style preferences in public Colleges of Education in the Central-Western Zone of Ghana”*, Abubakar and Abdalla (2018), also investigated *“biology students at the secondary school level in the Cape Coast metropolis, teachers' teaching methods and students' learning styles were examined”*, Baiden (2018), studied *“the correlations between learning styles and the*

academic performances of SHS students in integrated science in Gomoa East District”, Amponsah (2020) also explores the “*dominant learning styles of adult learners in higher education in higher education Ghana*”, among others. It is important to mention that all the above studies in the context of Ghana mentioned little on whether Ghanaian teachers have knowledge of students learning styles or not. As a backdrop, this study finds out the perception of Ghanaian Senior High School teachers on students’ learning styles.

1.4 Purpose of the Study

This study aims to find out teachers' views about students learning styles in public Senior High Schools in Ghana.

1.5 Objectives of the Study

1. To examine the perception of teachers on students’ learning styles.
2. To appraise the extent to which gender differences of teachers influence their perception of students’ learning styles.
3. To explore what teachers, think about the role of students’ learning styles in their teaching.
4. To examine the differences in teacher’s perception of students’ learning styles in the three categories of schools.

1.6 Research Questions

1. What are teachers’ perceptions on students’ learning styles?
2. What are the gender differences in teachers’ perceptions of students learning styles?
3. What are teachers’ views on the role of students’ learning styles in their teaching?

4. What are the differences in teachers' perceptions of students' learning styles in the three categories of schools?

1.7 Significance of the Study

Predominantly the study offers policymakers and researchers the views of teachers on students learning styles in Ghana. It also offers policymakers and institutions that train teachers, teacher training colleges and universities to develop programs and curriculum in that angle to support teachers in their training and professional development.

The finding added to knowledge on the gender differences in Ghanaian teachers' perception of students learning styles. As the literature established divergent views when it comes to gender and perception, the finding added to the exiting knowledge gender and perception in the subject matter of students learning styles.

The study offers stakeholders and researchers understanding to appraise the role students learning styles play in teaching according to the views of Ghanaian teachers. The role students learning styles play in teaching have an influence on how the teaching process is conducted, teachers view on it is paramount to classroom practice. Some teachers who believe students learning styles are critical to their learning needs consider such needs when preparing and delivery lessons.

Finally, the study also brought to bear the differences in Ghanaian teachers' perceptions of students learning styles across the categorization of schools, namely A, B and C. This is significant because, the various categorization of school seems to society as though teachers in a particular school have knowledge then others or teachers in a higher category of school are more knowledgeable than lower category schoolteachers.

1.8 Delimitation of the study

The study is restricted to the knowledge of teachers about students learning styles. The study focused only on public Senior High School teachers in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana. Specifically, teachers teaching in West Africa Senior High School, Presbyterian Boy's Secondary School, and Dome Kwabenya Community Senior High School, consisting of 508 teachers. Though other teachers are teaching in the selected area, private and basic schoolteachers will not participate in the study. Teachers teaching in the other public school in the same municipalities will not participate in the study.

1.9 Organization of the study

This study is organized into five chapters. Chapter one contains an introduction, problem statement, purpose of the study, objectives of the study, research questions, significance of the study, delimitations of the study, and organization of the study. Chapter two presents the framework of the study and the related literature review of the study. Chapter three spells out the methodology of the study, how the data will be collected, the instruments, and the methods of analysis. Chapter four contains the data analysis and the results; the final chapter five presents the discussion, conclusion and recommendation of the findings.

1.10 Chapter Summary

Chapter one examined the background to the study, the statement of the problem, the purpose of the study, the research objectives, research questions, significance of the study, the delimitations, and how the entire research was organized.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter reviewed related literature in order to establish the study in perspective. However, the study is new in the context of Ghana, the researcher reviewed literature from the world perspective to Africa and Ghana. The chapter consists of the theoretical framework that unpinning the entire study, some vital definitions, types of learning styles, challenges of learning styles, educators and instructors' key role in the constructivist environment, and other empirical works in the related area.

2.2 Definition of Learning styles

Learning styles are an individual's preference for learning (Halili et al., 2015). That means all learners cannot be the same though some might have the same learning style preference for how to learn. Learners' preferences also go as far as determining what learning needs, they have in the classroom and how they can make meaning of whatever is presented to them in the classroom. According to Halili et al. (2015), learning styles are also the most crucial element affecting the learning process and knowledge.

Learning styles are personal characteristics that affect a learner's capacity to acquire information, engage with peers and teachers, and even participate in classroom learning activities (Corbin, 2017). The point here is that these abilities are mainly personal, which means they vary from person to person and are dependent on the person in question. The learning styles are again considered the strengths and preferences in how learners accommodate information and make meaning when processing information (Corbin, 2017). The distinct nature of how each learner

adapts information and process makes the concept of learning styles vital to promoting the essence of learning.

However, some scholars argue that learning styles have some factors that influence them, such as the identity of gender (Corbin, 2017; Halili et al., 2015; Meihua & Shi, 2015). They explain that the gender of a learner has a role to play in the specific learning styles the learner will subscribe to, which implies that males and females differ in terms of their preference of learning styles.

2.3 Theoretical Framework

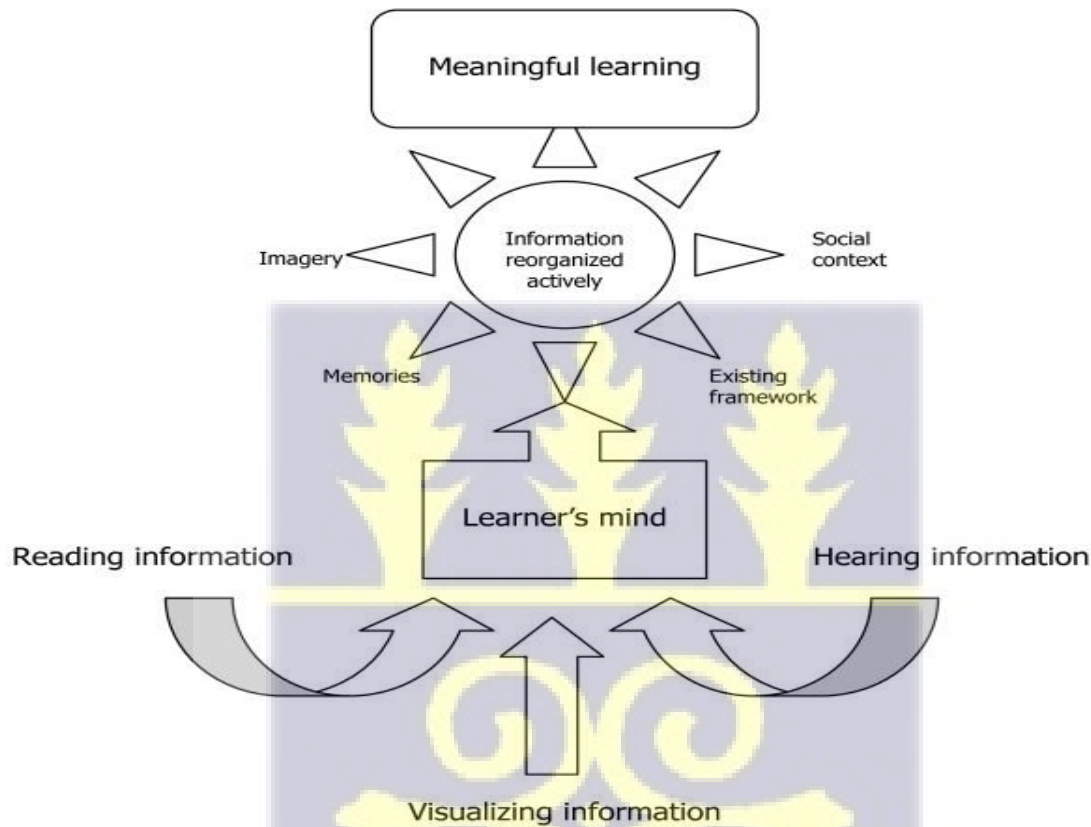
Constructivism is a learning theory found in psychology. Constructivism explains how people can learn and gain knowledge in all areas of life. It, therefore, applies directly to education, even though it originates from psychology. The theory suggests that human beings build knowledge and meaning from their unique experiences (Fosnot, 2013). These experiences are special because they differ from person to person and from diverse backgrounds. It is possible to come from the same family and old school with someone, but the experiences during the growth process in life will be completely different.

According to Dagar and Yadav (2016, p.66), “Constructivism is a theory based on observation and scientific study about how we learn or people learn.” Constructivism goes beyond reading about how people learn. It involves a systematic process to find out how people learn and what works for them regarding their various learning needs. Other researchers such as Sjøberg (2010) opined that “people construct their understanding and knowledge of the world around them or the entire world through experiencing things and reflecting on those experiences.” While “these experiences might come from their past life, things they heard about life and other information that was

available to them in their various stages of life as advocated by Sjøberg (2010)”. It is vital to mention that all learners are unique and have dissimilar ways of absorbing knowledge from their teachers in the classroom (Cottone, 2017; Van Bergen & Parsell, 2019). The fact that students learn differently calls for the teacher to take time and understand the learners. To appreciate their learners in their specific and unique way, so that the process of teaching and learning can be tailored from that angle. Teachers are therefore required to tailor their teaching in such a way that it is tailored to benefit the learner at the end of the day as the learner is at the centre of the process (Macblain, 2018).



Figure 1: *Bottom-Up Approach Learning Theory*



Ausubel et al. (1978) as cited in Lembarek (2017)

Learning theory is based on constructivism, as captured in Figure 1.

A bottom-up approach to the theoretical assumptions that underpin constructivist philosophy. According to the theory, before meaningful learning can occur, the learner's mind is paramount and plays a significant role. The learner's mind (Learner's mind) is a composition of information that they hear, read, and visualize. These are mainly through their environments which end up constituting their life experiences. There is also a stage in the learning process where recognized information is reorganized actively in the learning process (Information reorganized actively). They are primarily from all angles, such as things they imagine, old memories, existing framework, social context of whatever they hear and see around them. All these go on in their minds to produce

meaningful learning; thus, the learner in the class is not only accommodating what is taught. They consider all that exist in the Figure 1 and more before they make meaning to knowledge. The student can usually get academic material by reading, picturing, or listening. Regardless of the technique, information enters the learner's mind, actively striving to make sense of it.

2.4 Three Broad Categories of Constructivism

Constructivism is divided into different categories depending on the field of study. The researcher considered some three categories for this study. According to Jean Piaget's work, the first category is cognitive constructivism and social constructivism as according to the writings of Lev Vygotsky is the second category. Finally, radical constructivism made up the three categories of constructivism considered by the researcher.

GSI (2015, p.5) made it clear that “Cognitive constructivism is the knowledge about something actively constructed by learners based on their existing cognitive structures.” As a result, learning is based on their cognitive growth stage, which is a precursor to their learning styles (Fosnot, 2013). Concerning the cognitive structure, learners can only operate based on the level of their cognitive development. According to cognitive constructivism, learning is the process of making sense of one's experiences through the construction of meaning. Learners' conceptions are still an issue for cognitive constructivists.

Nonetheless, education's overall purpose is to create new information by building on old knowledge gained from previous experiences. Because information is enthusiastically created, learning is depicted as an active discovery process. The teacher's role is to facilitate this discovery by offering relevant tools and mentoring students. They work hard to integrate new and old data and to adjust the old to fit the new. When selecting how to create the curriculum and present,

sequence, and arrange new content, teachers must consider the learner's current knowledge, stage of cognitive development, cultural background, and personal experience. As a result, cognitivist teaching approaches are designed to help students integrate new knowledge into their previous knowledge while also allowing them to make the necessary changes to their existing ideological framework to embrace the content (Bouw et al., 2019).

According to Lev Vygotsky, as cited in Macblain (2018), constructivism as a social construct opined that learning is a cooperative effort. People's interactions with their culture and community shape their knowledge. Social constructivism was founded by scholars who proposed two ways to very cultural development in a child. The first is on the social and individual levels, the second. It is vital to mention that the first occurs among individuals and the second within the child. Every conversation or meeting between two or more people, in essence, provides the opportunity to obtain new knowledge or extend existing knowledge. The interchange of ideas that takes place when people engage is in full swing here. Teachers and school officials must change and rearrange their perspectives to incorporate social constructivism learning in the classroom. Both must make the transition from "teachers" to "learning facilitators." A good constructivist instructor would examine pupils' replies, whether correct or incorrect, to verify that they comprehended the subject. Instructors should also require students to explain their answers and not use undefined terminology or formulas. They should also prompt the student to consider what they've said. According to social constructivism, all knowledge comes from social contact and language use, making knowledge a shared experience rather than an individual experience. It is vital to mention that knowledge results from multiple social progressions and linkages. Based on that, the constructivism form of acquiring knowledge stresses the role of the learning process in gaining new information.

Again according to Cottone (2017), “all knowledge is constructed rather than perceived through senses; therefore, learners construct new knowledge on the foundations of their existing knowledge”. Teachers, therefore, have the responsibility to decode and understand the various experiences that form the basis of knowledge construction of their learners, thereby guiding them in the process of teaching and learning (Dagar & Yadav, 2016).

The individual's interactions, interpretations, and equilibrations with all externalities are at the centre of radical constructivism's knowledge construction. This learning theory has ramifications for the nature of reality; because an objective reality cannot be known, positivist and post positivist viewpoints are untenable. Due to the practical nature of the work, debates regarding one's conceptualization of reality are unusual among teachers participating educators. However, the notion that individuals gain information through interactions with one another, pupils, technology, their school environment, parents, and so on, is important in teachers professional work since it offers direction for action to encourage learning. The radical constructivist viewpoint is a useful lens for bringing structure to interpretations of what's going on in the classroom (Cottone, 2017; Van Bergen & Parsell, 2019).

The radical perspective expands on Piaget's concept of equilibration. At any given time, there are interactions between the pieces of a person's knowledge and their total body of knowledge, according to equilibration, and "there is a constant differentiation of the totality of knowledge into the parts and an integration of the parts back into the whole as according to Piaget's concept". Radical constructivism expands on this idea of equilibration by claiming that these constructs are not interpretations or approximations of an external objective reality that the knower has come to know, but rather are the knower's reality. The theory of knowledge is based on two principles: (1) knowledge is actively built up by the cognizing subject rather than passively received; and (2)

cognition is adaptive and assists the structuring of the experiential world rather than the finding of ontological reality (Cottone, 2017; Van Bergen & Parsell, 2019).

2.5 The Role of the Teacher in a Constructivist Classroom

It is essential to consider the subject matter in the light of the teacher in the classroom as teachers are at the centre of the study. According to Sjøberg (2010), the teacher's actions in teaching and learning inculcate those of all learners. The teacher's major objective in a constructivist environment is to produce a collaborative environment for problem-solving. The teacher's major objective in a constructivist environment is to make learners active and engaged. It is vital to mention that the teacher needs to see the learners as the centre of teaching and learning when preparing, delivering, and evaluating lessons (Alzaharani & Woollard, 2013a). The conception of the teacher being in charge and becoming a know-all person is the ideology of the traditional teaching style. It is ideal for classroom teaching to follow the global movement of change where the classroom becomes a platform for learners constructing knowledge and not consistently receivers. Again, the world of education seeks to inculcate in learners' skills that demand their active participation. From this perspective, the teacher acts not as an instructor but as a classroom facilitator. The teachers are to ensure that they understand students' pre-existing conceptions and styles of learning and be ready to guide learning activities to address the learning needs of the students (Bouw et al., 2019). As the focus of the process is knowledge assimilation by the learner, the teacher needs to act as a facilitator having in mind the various learning needs of the learners and the specific teaching strategy that works for all of them (Fernando & Marikar, 2017)

The teacher's role in a social constructivist classroom is to assist learners in building knowledge, regulating student activities, and guiding them through the process of acquiring and developing

information in the classroom (Alzahrani & Woollard, 2013b). As a result of the social constructivist position in the classroom, it is mainly recommended that the teacher values students' reflection and cognitive conflict and, most importantly, reassures peer collaboration in their learners' learning process (Alzahrani & Woollard, 2013b). The role of the teacher here is to allow the learners' responses to drive the lesson, alter the content and shift instructional strategies in their favour. The central argument of the constructivists is that the student is at the centre of the process of teaching and learning. Therefore, it is the responsibility of the teacher to direct the lessons and their strategies in favour of the learner.

It appears that in the constructivist classroom, the teachers have a limited role to play as they become guides and facilitators. The idea is to allow the learners to lead the course of action in the class. When the teacher's role is limited, it encourages learners to participate actively in collective learning (Alzahrani & Woollard, 2013b). In effect, the educator's role is to primarily serve as a facilitator that provides room for collaborative work and problem solving among learners. Teachers are required to provide dynamic classroom environments and experiences and make learning activities more engaging by integrating opportunities for collective work, problem-solving, and other inquiry-based activities.

Finally, the teacher concentrates on the learners' learning and how best their learning needs can be solved in teaching and learning rather than teacher performance (Alzahrani & Woollard, 2013b). Most teachers actively seek to increase their performance by completing the lesson plan for the duration or the teaching hours. To the constructivist teacher, the responses from the students determine how far the lesson should go and their learning needs being met is the principal measure to the teacher's performance. Therefore, the educators' responsibility is to make sure the learning

needs of the students are met by focusing the lesson on them, so they become the central point of measure to performance.

It is important to note that the literature spelled out some characteristics of constructive learning, and specifically, according to (Alam, 2016) the following are some of them.

- i. Students play a crucial role in mediating and controlling learning.
- ii. Students engage in knowledge construction rather than knowledge reproduction.
- iii. In the classroom, knowledge construction considers learners' prior beliefs and attitudes.
- iv. The teacher can only act as a coach, mentor, tutor, or guide in a constructivist classroom.
- v. Activities and opportunities are provided to encourage self-reflection, self-analysis, self-regulation, and self-awareness.

The researcher considered the constructivist theory as the conceptual framework for this study. This is because constructivists believe that learning is more of a process in which individuals construct meaning. This is to say that the pre-existing knowledge of individuals has a role to play in their learning. The environment and background knowledge of individuals also influence the internal processes, and at the same time, the internal processes affect the environment. Therefore, the pre-knowledge of teachers from their experiences, background, and earlier studies has a role to play in their teaching. The processes that teachers follow before teaching mainly have to do with lesson planning, preparation, and delivery in the classroom. This implies that the pre-existing knowledge of the teachers regarding students learning styles will directly influence their planning, preparation, and lesson delivery. Therefore, the researcher considered this theory to underpin the entire process, again knowing well that the studies dealt with students and how they construct

knowledge. The researcher could not go further but settled on the constructivist theory as a framework.

2.6 Concept of Learning

Several definitions of learning differ significantly between fields and are mostly influenced by the methods employed to arrive at such a result. It's worth noting that these definitions can be more easily reconciled provided they are considered as congruent with a specific conception of learning and the hands-on usefulness of each definition of learning in its context (Barron et al., 2015). Learning in itself can be seen as a step-by-step process in which an individual faces significant, meaningful changes in awareness, behaviour, or ways of viewing the world. It has also been described functionally as behavioural changes resulting from practice or mechanical changes in the organism resulting from observation (An & Carr, 2017; De Houwer et al., 2013).

Teachers are required to provide dynamic classroom environments and experiences and make learning activities more engaging by incorporating appropriate opportunities for collaborative work, problem-solving, and other inquiry-based activities. Learning, therefore, can affect the developmental process of a child and, for that matter, a learner (An & Carr, 2017). Though there are traditional forms of learning through which the learner can learn, the learner or the child can learn new things through learning. Some peculiar skills that make up the educational space, such as intellectual skills, are all developed through learning, to the extent of the decision of what makes right and wrong are all products of the learning process. Some educators conclude that learning is a powerful tool affecting all aspects of our lives (An & Carr, 2017).

Lastly, learning can be defined as the process of changing one's behaviour as a result of previous experiences. It is clear in the learner's life how the learning process influences and aids in altering

behaviour. Many people regard it as a relatively permanent shift in the learner's conduct and changes in their personality features. Therefore, learning cannot be considered a one-time thing or a one-time benefit, but its process is long and perhaps for a lifetime while its benefits extend generations (An & Carr, 2017).

2.7 Theories of Learning

Some theories underpin every field of study or concept, so is the concept of learning. These theories depending on the particular discipline, have their origin and proponents. Several theories came to bear from the beginning of the concept at hand concerning learning. For this study, the researcher considered the following theories that underpin learning: cognitive, social, behavioural, and constructivist theories.

2.7.1 Cognitive Theories

According to cognitive theorists, they aim to comprehend the role of thinking processes in learning in order to direct those thoughts. Learners are impacted by cognitive learning theory because understanding their thought process might help them study more efficiently. Teachers can encourage children to ask questions and ponder aloud by providing opportunities for them to do so. These approaches can assist learners understand how their minds work and how they can utilize that information to improve their learning opportunities and study more effectively. It's important reiterating that the development of a person's thought processes is the subject of cognitive theory. It also examines how these brain processes impact our perceptions of and interactions with the world.

According to Good and Brophy (1990) as cited in (Doran, 2012), many learning associations are formed by contiguity and repetition. Accordingly, they recognize the value of reinforcement, even though they emphasize its role in delivering feedback on proper responses rather than its position as a motivator. Even if they accept behaviourist conceptions, cognitive theorists consider learning to be the acquisition or restructuring of the cognitive structures that people use to process and store knowledge. The concept of schema, which can be conceived of as an internal knowledge framework, is frequently connected with cognitive theorists. Piaget (1952), for example, was a well-known cognitive psychologist who felt that learning entailed an individual's ability to read external inputs in ways that allowed for an internal "re-organization of experiences." (Deville, 2011). Fundamental to cognitive theories is the belief that individuals control learning through their mental capabilities (Ahn & Picard, 2006; Deville, 2011; Kolfshoten et al., 2010).

2.7.2 Behaviorist Theories

Behaviourist theories, which underpin traditional pedagogical practices, emphasize that a person's training or conditioning accomplish desired outcomes. Considered one of the founding fathers of this orientation, Watson, as cited in Doran (2012), claimed that, "give me a dozen healthy infants, well-formed, and my special world to bring them up in and I'll guarantee to take one at random and train him to become any kind of specialist I might select . . . regardless of his talents, penchants, tendencies, abilities, and race of his ancestors". Thorndike, Hull, Pavlov, and, perhaps most notably, Skinner are well-known behaviourism theorists. Skinner's (1953) operant conditioning study, as stated in Doran (2012), emphasized the positive and negative repercussions of conduct. "To predict and control the behaviour of individual organisms," Skinner's guiding concepts were

basic (p. 35). Skinner's and other scholars' implications from the behaviourist approach are embedded in modern school systems worldwide.

The behavioural learning hypothesis, often known as behaviorism, is a commonly accepted belief that draws implications from how students learn. All behaviors, according to behaviorism, are taught through interaction with the environment (Doran, 2012). Behaviorism is important to educators because it affects how students react and behave in the classroom. It claims that teachers have a direct influence on their students' behavior. It also aids teachers in comprehending how a student's home environment and lifestyle influence their behavior, allowing them to objectively examine and correct it (Doran, 2012). Behavioural learning theory is required to understand how and where to inspire and support learning. "Information is communicated from teachers to pupils as a result of a response to the proper stimuli". "Learners are passive participants in behavioral learning; teachers offer them with information as part of a stimulus-response system" (Doran, 2012). Educators use behaviorism to educate students how to behave and respond to various stimuli. It is widely recommended that teachers use behavioural theory frequently to remind pupils of their behaviour to impact the learners.

2.7.3 Social Theories.

Behavioural and cognitive learning theories are frequently used in social learning theories. According to social learning theorists, learning occurs due to watching, observing, mimicking, and modelling others (Doran, 2012). Miller and Dollard (as stated in Doran (2012)) were early social learning theorists who looked at how people learned "through observation by borrowing from stimulus-response and reinforcement theory." Social learning theorists, credited mainly to Bandura, emphasized individual interactions with the environment, behaviour, and psychological

processes are all examples of human interaction. (Doran, 2012). One of the most evident applications of social learning theory in everyday life is learners copying family members, friends, famous people, and even television characters. Students will do so at some point if they believe that doing so will result in a significant reward. To put it another way, social learning theory claims that people learn through observing others (Doran, 2012). When it comes to aggressive conduct, social learning theory is crucial to how everyone learns, especially children.

2.7.4 Constructivist Theories

According to constructivist theorists, learning is a process of generating meaning and making sense of events (Merriam, 2004). Constructivist ideas synthesize the four previously mentioned orientations; each examined differently. Piaget (1952), Vygotsky (1978), and Bruner (1980) were influential in the development of constructivist theories (1986). Piaget emphasised that learners generate knowledge by evoking previous information as well as a "rational combination of internal problems helped by the force of environment," according to Faryadi (2009) as cited in Doran (2012). Vygotsky (1978), contribution to the advancement of constructivist theories included the concept that social contact is an essential component of the learning process, as Doran (2012) mentioned. Finally, according to Bruner (1986), as Doran (2012) discussed, the learner is responsible for developing their knowledge. As a result, education works best when it is student-centered and contains established feedback mechanisms to ensure that students' objectives are met.

2.8 Concept of learning styles

Different people absorb information in different ways, which is referred to as learning styles. As a result, people have various preferences for what type of instruction or study works best for them

(Buckley & Doyle, 2017). So no two learners are the same in this regard. Learners in a particular classroom can all not learn in the same way; they are existing factors that guide how learners accommodate knowledge though the same knowledge is being given to them all simultaneously.

According to Halili et al. (2015), learning styles are an individual's preference for learning. That means all learners cannot be the same though some might have the same learning style preference for how to learn. Learners' preferences also go as far as determining what learning needs they have in the classroom and how they can make meaning of whatever is presented to them in the classroom. Learning styles are also the most crucial element affecting the learning process and knowledge (Halili et al., 2015). According to Corbin (2017), learning styles are personal characteristics that affect a learner's capacity to acquire information, engage with peers and teachers, and even participate in classroom learning activities. The point here is that these abilities are mainly personal, which means they vary from person to person and are dependent on the person in question. The learning styles are again considered the strengths and preferences in how learners accommodate information and make meaning when processing information (Corbin, 2017). The distinct nature of how each learner adapts information and process makes the concept of learning styles vital to promoting the essence of learning.

However, some scholars argue that learning styles have some factors that influence them, such as the identity of gender (Corbin, 2017; Halili et al., 2015; Meihua & Shi, 2015). They explain that the gender of a learner has a role to play in the specific learning styles the learner will subscribe to, which implies that males and females differ in terms of their preference of learning styles. More importantly to this argument, it was evident that gender and discipline significantly impacted students' learning style preferences. This is to say that the learning styles preference of a particular

student is dependent or influenced by the gender of the student. In as much as some studies demonstrated that gender has the potency to influence the types of learning styles of the learner, other research have shown that there is no link between learning methods and the gender of the learner.

Gholami and Bagheri (2013), discover that there is no link between gender and the VAK learning styles of students as utilized in their research. Gender, therefore, does not affect the type of learning styles used by the student in the classroom when it comes to the VAK learning styles. Demirbas and Demirkan (2007) explain that students' learning style preferences did not significantly differ by gender. Though there was no consistency in all the three groups they studied, the survey's outcome demonstrated no significant relationship between the three groups regarding their gender. In the study mentioned above, it is conclusive that the gender of a student in this particular survey does not influence the student's choice of learning styles.

According to Gholami and Bagheri (2013), everyone learns differently. Some people need to see things, some need to hear, and some need to do something with the information of actively participating in the process before they can understand. These are all different types of learning styles in the classroom. The point is that all the other groups of people in the class have different learning needs that must be addressed to ensure that the information provided makes meaning to them.

Cimermanová (2018) explains that, in recent years, researchers are paying more attention to learners' learning styles as one of the most important aspects influencing learning in general. Learners' styles are characteristics that are considered vital in selecting the most appropriate methods, techniques, and teaching strategies (Cimermanová, 2018).

Abouzeid et al. (2021) have described learning styles as unique learning attributes that differ from one student to another. It is also the unique method by which learners can cope with the environment as distinct to others. The learning styles also play a significant role in students' preference towards specific teaching approaches and learning environments (Abouzeid et al., 2021). The learners consistently make good use of the styles that they believe are reasonable to them to apply in their setting to guide them to appreciate knowledge in the best way.

According to Şener and Çokçalışkan (2018), the teacher needs to understand their learners learning styles. The issue of teachers understanding the learning styles of their students is very critical to classroom practice. Teachers' awareness of their students' learning styles is crucial as the world of education in the twenty-first century shifts from a traditionally teacher-centred to a student-centred approach. According to Rahman and Ansari (2017), learning styles are based on lines for the development of one's personality, which is often influenced by environmental, emotional, social, and individual feelings. As a result, learning styles vary from person to person.

Costa et al. (2020), on the subject of *“The theory of learning styles applied to distance learning”* made some remarkable contributions. Their research aimed to link learning style theory to distance education student behaviour by analyzing how they interacted with the virtual learning environment and matching it to their learning style as determined by the CHAE questionnaire. As teaching and learning keep scaling digitally, distance education is becoming one of the leading platforms for which teaching and learning are hosted, but that does not override the disparity in the way students accommodate knowledge. According to Costa et al. (2020), “the concept “learning styles” promotes the idea that individuals vary whether it's the medium of teaching or the method of delivery analysis of information that is most appropriate for them,” which is the

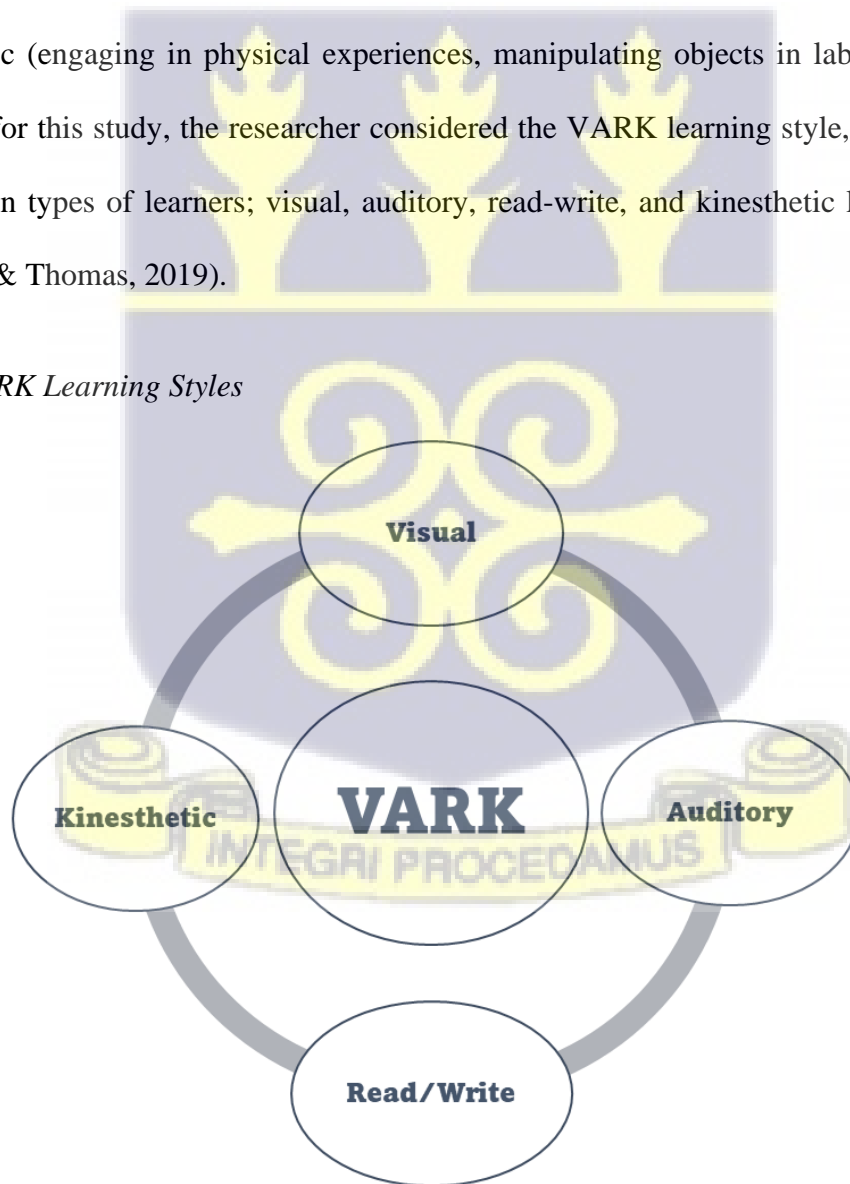
same as the assertion made by (Pashler et al., 2008). In this case, the underlying factor is that they accommodate knowledge differently, but the medium of instructions that propel them to accommodate it actively is also different. This in itself must be a guiding principle for educators, and educational policymakers as the medium of instruction should be tailored to the various learning needs of each student if not the purpose of education cannot be achieved (Akçayır & Akçayır, 2017; Idogho & Agholor, 2013; Smith et al., 2017). “Learning style is a set of biologically and developmentally imposed personal qualities that determine whether a specific teaching approach is beneficial for some students and ineffective for others”. Everyone has a unique learning styles (Dutsinma et al., 2020; Shanti Manipuspika, 2020).

2.9 Types of learning styles

Learning styles and interests take various forms, and not all learners fall neatly into one group (Vinyamata, 2011). Grasha and Reichmann's learning style was discovered. They considered learning styles social interaction and defined them as different roles that students interact with classmates, teachers, and course content. They identify six categories of learning styles Avoidant, Participative, Competitive, Collaborative, Dependent, and Independent learning styles (Jaleel & Thomas, 2019). Peter Honey and Alan Mumford identified four distinct learning styles: Honey and Mumford learning style (Honey & Mumford, 2006). The following are the various learning styles identified; Activist, Theorist, Pragmatist, and Reflector learning styles (Jaleel & Thomas, 2019). Another is Kolb learning styles. Kolb's learning styles classify individuals into four learning styles. This is based on a mathematical computation derived from the individual's score on a self-report instrument. The scores measure perception and processing preferences (accommodators, divergers, assimilators, and convergers). According to Jaleel and Thomas (2019), Stacy Mantle

also developed seven learning styles: linguistic, logical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal learning styles. Lastly, for this study, Fleming's Visual, Auditory, Read-Write, and Kinesthetic (VARK) learning styles as cited in (Jaleel & Thomas, 2019). Visual (seeing and creating graphics, animations, graphs, and tables, for example); Aural (listening to lectures, dialogues, and question-and-answer sessions and participating in them); Read and write (reading and writing text associated with the textbook, class notes, laboratory reports, etc.) as well as Kinesthetic (engaging in physical experiences, manipulating objects in laboratories). But in general and for this study, the researcher considered the VARK learning style, and these are the most common types of learners; visual, auditory, read-write, and kinesthetic learners (Cassidy, 2010; Jaleel & Thomas, 2019).

Figure 2: *VARK Learning Styles*



Source: Researcher's own construct

2.9.1 Visual Learning Style

According to Jaleel and Thomas (2019), Students or individuals who learn by visuals are visual learners. They learn best via visual displays, nonverbal cues, facial gestures, textual information, charts and graphs, books, and multimedia illustrations. When it comes to visual learners, they are more focused on watching and reading. Therefore things like photos, tables, displays, and mind maps can also be beneficial. Akram (2014) added that Visual learners tend to think in pictures and learn through multimedia elements like diagrams and films. This is important to note that, for visual learners, learning can only take place through visualization of lessons, no matter what is done in teaching and learning. If there is no visualization of content, then learning cannot occur. Again Foster (2007) added that this type of learner tends to sit in front of the class to see things clearly and mainly benefit from illustrations and presentations, especially those in colours. From the above, it is worth noting that visual learners are moved by the things they see and can learn best with and from visual representations. Learners who better internalize and synthesize knowledge when portrayed in a graphic representation of meaningful symbols are identified as visual learners (Pashler et al., 2008). They can respond to arrows, maps, diagrams, and other visualizations of the knowledge hierarchy. It is important to note some identified behavioural characteristics with visual learners. Rahman and Ahmar (2017) observed the following in their study; babbling, meticulous to details, concerned with the appearance both in terms of clothing and presentation, given what is seen rather than what is heard, neat and tidy, planner and good speller and can see the actual words in their minds. They also appear to see positive educational results when provided with summary charts and diagrams rather than sequential information slides (Cassidy, 2010; Karns, 2006; Kolb & Kolb, 2005; Pashler et al., 2008).

2.9.2 Auditory Learning Styles

According to Foster (2007), auditory learners mainly learn by listening and hearing. They mostly enjoy discussions and talking things through and listening to others. They accommodate knowledge by reading aloud, talking to themselves. Auditory learners are most effective when hearing information conveyed to them by speech (Pashler et al., 2008). Jaleel and Thomas (2019) added that acoustic learning styles involve transferring information through listening. The entrance of knowledge to an auditory learner is through the ear. Therefore, noisy environments might not be the best for such learners. They will perform better when the content in a speech form gets to their ears, which is knowledge entrance. As mentioned above, these learners gain information through aural channels, but their understanding is derived from concentrating on the pitch, tone, and speed of voice in the classroom (Akram, 2014). Akram (2014) continued that they also benefit from reading text and not only reading but reading aloud, and they may not make much use of written information. It is important to note that, there are some identified behavioral characteristics with auditory learners, Rahman and Ahmar (2017), they discovered during their research that they are easily distracted by noise, that they talk to themselves while learning or working, that they move their lips and read out loud when reading, that they are glad when they read aloud and listen, that they can repeat back and mimicked the tone, rhythm, and timbre, that they find it challenging to write, but that they enjoy speaking in a patterned rhythm, that they find it challenging to write, but that they enjoy speaking in a patterned rhythm, that they find it difficult to write. These makes auditory learners so unique and different from other students in the classroom, their learning needs encompasses sound, therefore weak sound in the classroom or noisy classroom management might have an adverse effect on how they can accommodate knowledge (Cassidy, 2010; Karns, 2006; Kolb & Kolb, 2005; Pashler et al., 2008).

2.9.3 Read-Write Learning Styles

Students that have a predisposition for reading prefer printed words and text as a source of information (Cassidy, 2010). Lists, glossaries, textbooks, lecture notes, and circulation are some of their favourite things (Pashler et al., 2008). These students enjoy sketching out lecture notes, paraphrasing classroom notes, and studying multiple-choice exam problems (Murphy et al., 2004). According to Jaleel and Thomas (2019), these students are also note-takers. They learn better by taking notes during lectures or reading demanding content. Research has shown that students who perform best in the reading/writing mode show an evident learning appreciation for the written word. Reading / writing-oriented learners are attracted to understanding by writing, reading papers or books, having to write in diaries, looking for dictionary words, and browsing the internet for more or less anything to read and write as according (Akram, 2014). It is indeed vital to highlight that these students can recall anything they read or write down; they usually enjoy reading in their spare time and take meticulous notes. They prefer writing essays to give an oral presentation, and they can express themselves better in writing than in class.

2.9.4 Kinesthetic Learning Styles

Kinesthetic learners are hands-on, participatory learners who need to be physically active in the learning process to get the most out of their education (Pashler et al., 2008). They frequently prefer to engage all of their senses equally in the learning process (Akram, 2014). Kinesthetic learners succeed in scientific topics with lab components due to their active nature. The skills-based instructional training in these environments engages them in productive ways (Cassidy, 2010; Karns, 2006; Kolb & Kolb &. Touching and doing is one prominent feature of this particular learning style. They actively remember what was done in a class but sometimes forget what was

said in the classroom (Foster, 2007). According to Akram (2014), Kinesthetic learners like movement and work with touchable objects. They enjoy regular breaks and move around their classroom. In addition, It is important to note that there are some identified behavioural characteristics with kinesthetic learners. Rahman and Ahmar (2017), in their research, discovered that they speak slowly, respond to physical attention, touch people to grab their attention, stand close while talking to people, are always physically oriented, and make a lot of movements, and that manipulating and practising is the best method for them to learn. These students mostly want to move around, touch things, and often like practical subjects. Learners enjoy it when lessons are tailored in a practical form (Gallistel, 2016).

2.10 Empirical Review

2.10.1 Teachers' views of learning styles

Teachers or educators are one of the leading players in teaching and learning in the classroom. According to research conducted in Indonesia on *teachers' perception of students' learning style and their teaching* by Agustrianita et al. (2019), concentrating on the way teachers perceive students' learning styles. In Indonesia, about 69% of teachers believe strongly that students have unique learning styles. They need to pay attention to it, 50% of them first came in contact with the concept of learning styles through personal reading and surfing the internet, 18% heard from their colleague teachers, 29% knew the concept through training/workshops, while 4% came to know the concept from their students (Agustrianita et al., 2019). In Afghanistan (2015), research into the same subject matter with the topic "*Teachers' Perception of Students' Learning and Their Teaching in Afghanistan.*" The researcher considered 58 lecturers/ teachers from two different teacher training institutions, using questionnaires for data collection. The data illustrate that most

of the teachers. It was pointed out that 89% and 78% of teachers from his sample schools believed that students have their unique learning styles and consider them essential to their learning process. Though from the study, most of the teachers come in contact with learning styles during workshops and seminars, the majority of the teachers have knowledge about students learning styles in Afghanistan. In Zimbabwe, Secondary schools, teachers have knowledge about students' learning styles, but they have prevailing barriers that make it difficult for them to utilize such knowledge, for instance; their learning styles, lack of subject content knowledge, lack of exposure and inexperience, and failure to identify students learning styles among others (Mangwende & Maharaj, 2019).

More so, other researchers studied the same area of teachers' view of learning styles in the classroom. Some also investigated first-hand information in the literature by observing what teachers demonstrate in the classroom. Haar et al. (2002) investigated "*How Teachers Teach to Students with Different Learning Styles.*" The researchers investigated how teachers teach students with different learning styles to ascertain their views about learning styles. They considered 8 K-12 teachers as a participant. Based on the observation, it was clear that some know about learning styles but find it challenging to know which type of learning styles their learners possess in the classroom. Some classified their students to learning styles that they do not possess. Others who identified the specific learning styles accurately also cannot respond to their various learning needs in the classroom. It is worth noting that, teachers by extension, are good with knowledge about learning styles but practically are not taking steps in addressing the needs in the classroom from the observation by the researchers (Haar et al., 2002).

2.10.2 Challenges of learning styles

In the process of teaching and learning in the classroom, teachers have the responsibility to plan and prepare lesson notes, teach and assess lessons, undertake evaluation with the feedback from students in the classroom (Agustrianita et al., 2019; Gallistel, 2016). In this process, the teacher must consider the student's various learning styles to meet their learning needs. According to Stellwagen (2001), teachers have a challenge identifying students learning styles accurately without an instrument. After the researcher studied “A challenge to the learning style advocate”, this was discovered. From the study, some secondary school principals complained about the instrument for measuring learning styles. They admit that teachers need to identify the learners' learning styles in the classroom to develop a lesson to meet the specific learning needs. Still, they complain about having to do with the instrument needed to measure or rate the various learning styles to accurately identify the place they fall. From the same study, it was discovered that teachers were beginning to believe that there should be differences in how each student is taught. There should be a particular teaching strategy depending on who is learning. Some argue that they have a challenge combining teaching strategies in teaching at a time. Therefore they prefer to use a particular teaching strategy based on who (student) is learning (Stellwagen, 2001). They advocated for personalized teaching and learning in the school system, which is good. Still, in the case of Africa and Ghana, for that matter, where there is an improper ratio between students to teachers, such cannot be applicable. Kharb et al. (2013, p.3) advocated that “One single approach to teaching does not work for every student or even for most of the students. The educators' awareness of the various learning styles of the students and their efforts towards matching the teaching and learning styles may help in creating an effective learning environment for all the students”, therefore the need for teachers to work on identifying their students learning styles but

as mention above, some teachers have issues with an accurate instrument that they can use to measure and group the students into the various learning style types (Stellwagen, 2001).

2.10.3 Learning styles and teaching strategies

According to Kharb et al. (2013), in their study on the topic “*The learning styles and the preferred teaching-learning strategies of first-year medical students,*” it was observed that teachers find it challenging to appropriate a particular student to one type of learning style. Evidence from the study shows that some of the students fall within two or three learning styles, for example, VR/VA/VAK and others which makes it difficult for teachers to evaluate them in their learning styles, thereby serving as a challenge to teaching students with different learning styles in the classroom. Though the teachers or educators accept the fact that there is a great need for them to identify the learning styles and tailor lessons to meet the various learning needs, it is now tricky to directly put one student under one particular learning style as most of the learners have abilities of more than learning styles which means they have diverse learning needs (Kharb et al., 2013).

Literature has a lot to say about teaching strategies that meet different learning styles in the classroom, looking at the important role teaching strategies play in student achievement (Dewi et al., 2019). According to Xia (2020), on the studies topic “*Teaching for Student Learning: Exploration of Teaching Strategies Based on Protocol-Guided Learning*”, it was discovered that there are three types of teaching strategies, namely teacher-centred, student-centred teaching strategies, and student-oriented and teacher-led “dual-master” teaching strategy. According to the research, teacher-centred teaching strategies highlight the crucial role of teachers in the systematic transfer of knowledge, the significance of classroom teaching, and the importance of teaching materials. This type of teaching strategy emphasizes the importance of knowledge transfer,

teaching methods, and teaching outcomes. It offers an ideal path for students to learn basic knowledge by advocating that students acquire knowledge through teaching materials presented by teachers in the interest of teaching and learning. According to the study, student-centred teaching practices lean toward constructivist learning theory. Students are the subjects of cognition and active builders of their knowledge in the classroom. According to this teaching method, students should be at the centre of the teaching and learning process, and they should dominate and play an active role in teaching and learning. Therefore, the teacher should be much concerned about what works for the student and how best the classroom activities can be tailored to solving or meeting their learning needs. The entire time should be spent meeting their learning styles for maximum participation and accommodation.

Lastly, a student-oriented and teacher-led “dual-master” teaching strategy was mainly developed to bridge the various limitations of student-centred and teacher-centred teaching strategies in teaching and learning in the classroom. This “dual-master” model is a compromise between the two teaching strategies where the leading role of the teachers plays a role and reflects students’ recognition to understand the role of the subject and combines the advantages of the two to avoid the negative impact of both. Therefore, teaching materials are important but are needed based on the students' learning styles and learning needs in the classroom. Xia (2020) concluded that “The teaching strategy based on protocol-guided learning is to consider teaching as a complete system, to coordinate the relationship between various elements of teaching, and to maintain a relative balance between teachers and students, teaching and learning, and intra- and extra-curricular elements.” It is clear from the study that the teaching strategy of protocol-guided learning emphasizes the perfect combination of student-oriented and teacher-led activities. Thus,

advocating that all learning should take place on students and give full attention to what can meet their learning needs.

Naimie et al. (2010) conducted a similar study to determine the extent to which EFL classroom teachers accommodate learning style preferences and the influence of match and mismatch of learning and teaching styles on the attainment of learners' learning needs. Instruments such as interview and observation and a survey questionnaire were utilized to collect data from a sample of 100 major English undergraduates and two teachers at the University of Iran. The research shows that active, sensing, and global learning styles were the most popular among students. In contrast, teachers' most popular senses, visual, and equal distribution of international and sequential learning styles. The study's focus was on the teachers' main teaching techniques, with traditional methods of instruction being the most common. Research has shown that the conventional teaching method is not considered the best teaching style or strategy to align with the students' different learning styles.

According to Naimie et al. (2010), the learner's needs in the EFL classroom cannot be met with the traditional method as the dominant teaching method. Therefore, the study recommended that teachers adopt strategies that can help their teaching methods meet the various learning styles of the learners in the EFL classroom. From the study, it is worth noting that the researchers considered finding out the teachers' learning styles as they move with the assumption that the learning style of a particular teacher can impact the type of preferred teaching strategy that particular teacher will adopt in the classroom. Again, the outcome of the study, which indicates the traditional method as the dominant teaching method, is clear evidence that the various learning styles in the classroom might not be taken care of, which is backed by the data from the observation. The traditional

teaching method in itself has the tendency to cause a mismatch in teaching and learning styles in the classroom as it does not consider the various learning needs but takes one way to deliver (Khalid et al., 2017; Nola, 2011).

In 2001 another researcher tested Reid's (1987) hypothesis that incongruences between learning styles and teaching styles lead to learning failure, demotivation, and frustration. Peacock (2001) used Ried's questionnaire with tests and interviews as data collection instruments, with 46 EFL teachers and 206 EFL students in a sampled University in Hong Kong. The data indicated that the teachers preferred auditory, kinesthetic and group styles and disliked individual and tactile styles. In contrast, the students preferred auditory and kinesthetic styles and disliked group and unique styles. This is a clear indication of incongruence concerning auditory and group styles. The result showed that about 70% of the learners were discouraged by incongruence between learning and teaching styles, 76% stated that it had a negative impact on their learning.

In comparison, 81% of the teachers were content with Reid's hypothesis. On that note, the researcher concluded and proposed that teachers should adjust to meet various learning styles. As demonstrated by the study, mismatched learning and teaching styles have a negative impact on students' achievement. The teachers again affirmed this by agreeing to Reid's hypothesis, stating that "incongruences between learning styles and teaching styles leads to learning failure, demotivation and frustration". Mismatched can affect the learning achievement of learners in the classroom (Toyama & Yamazaki, 2019).

Akram (2014) also research the subject matter "Learning Styles and Their Relation to Teaching Styles". He believed that teachers understanding the students' learning styles and preferences could benefit both the students and the teachers. As students learn in diverse ways, it will be

impossible to change their learning styles in the classroom. Instead, it will be more prudent to modify the teaching styles to suit the various learning styles in the classroom (Akram, 2014). From the available literature that he reviewed, he concluded that when students identify their learning styles, they will integrate them into their learning process. Based on that, learning will be more enjoyable, faster, and effective. He added that teachers should work hard to adjust their teaching strategies to match that of their students' learning styles. According to Peacock (2001, p.15), "teachers should strive for a balanced teaching style that does not excessively favour anyone learning style rather than tries to accommodate multiple learning styles." The level of teaching can be rated with how far the teacher is ready to balance their teaching to fit into the learners' learning styles in the classroom. That is not to say, one particular learning style but a balancing required that a teacher combines by leveraging the advantages of those that relate to the specific learning styles in the classroom.

Another study by Massa and Mayer (2006) looked at 52 college students in three experiments at a California university's psychology department. The study created a computer-based electronics lesson with two aid displays, one for visual learners and one for verbal learners, with graphics and printed texts. Using various measuring tools, verbal and visual learners were divided into two groups based on their learning styles, preferences, cognitive style, and spatial abilities. The study aimed to see if visual learners learned better from combined education that included assistance screens with pictures or verbal learners learned better from combined instruction that included help screens with words. The final result revealed that those given support screens that did not match their learning preferences did not have a higher chance of succeeding. The research shows an apparent reduction in support for various teaching techniques for visual and verbal learners. This study supports the fact that mismatched learning styles and teaching styles will have an adverse

effect on learning outcome and the opposite remains that if learning styles match teaching styles where they are solving the learning needs of learners. They will increase students achievement (Dewi et al., 2019).

2.10.4 Gender Differences and Perception Learning Styles

Learners' learning styles related to their gender are significant issues that many researchers considered in their studies. Halili et al. (2015) discover some disparities between students' learning styles and their gender in the article “exploring the link between learning styles and gender among distance learners”. According to the study, the majority of female students preferred independent, competitive, reliant, participative, and collaborative learning methods, whereas male students were more avoidant learners. Again Meihua and Shi (2015) also studied “university students’ learning styles : gender and discipline differences. it was observed that there were significant differences in learning styles between students of different disciplines”. More importantly to this study, it was evident that gender and discipline significantly impacted students' learning style preferences. This is to say that the learning styles preference of a particular student is dependent or influenced by the gender of the student. Another study conducted by Corbin (2017) on the topic “assessing differences in learning styles: age, gender, and academic performance at the tertiary level in the Caribbean” showed significant differences in age and gender to the various learning styles that were examined. The examined learning styles were participant, collaborative, independent, avoidant, and competitive.

In as much as some studies demonstrated that their gender has the potency to influence the types of learning styles of the learner, other studies also made it clear that there is no significant relationship between the learning styles and gender of the learner. Gholami and Bagheri (2013),

on the topic “relationship between VAK learning styles and problem-solving styles regarding gender and students' fields of study,” discover that there is no link between gender and the VAK learning styles of students as utilized in their research. Gender, therefore, does not affect the type of learning styles used by the student in the classroom when it comes to the VAK learning styles. Demirbas and Demirkan (2007) also studied the topic of “learning styles of design students and the relationship of academic performance and gender in design education.” The survey outcome showed that students' learning style preferences did not significantly differ by gender in all three groups. Though there was no consistency in all the three groups, the survey's outcome demonstrated no significant relationship between the three groups regarding their gender. In the study mentioned above, it is conclusive that the gender of a student in this particular survey does not influence the student's choice of learning styles.

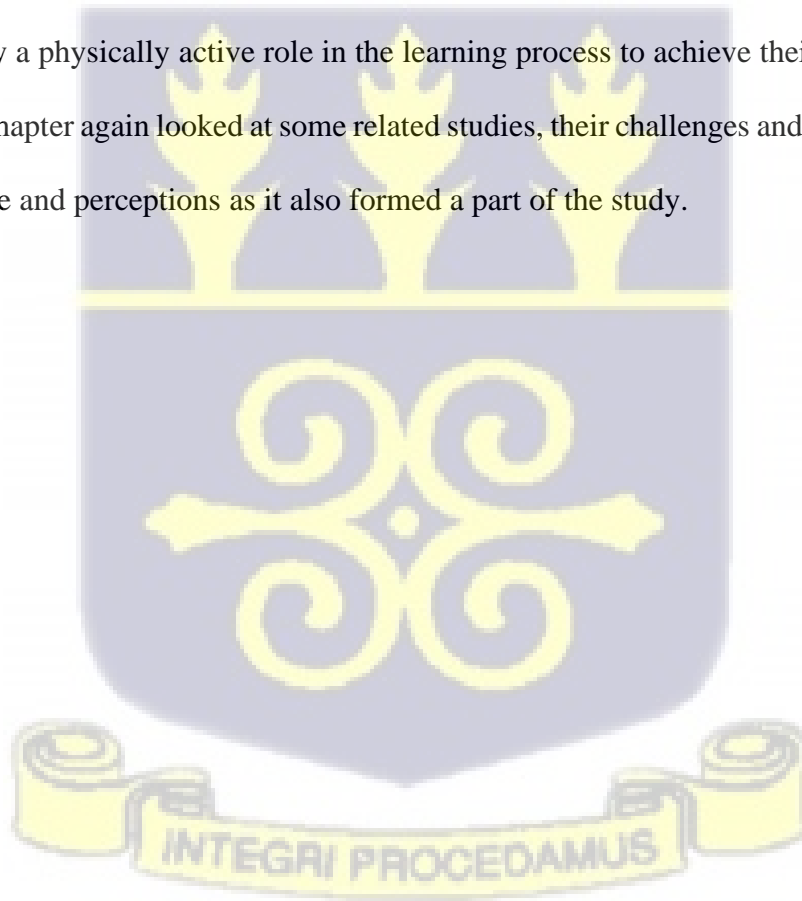
One of the most critical areas to promoting an all-inclusive education is to consider the views of all, both male and females. According to (Swai et al., 2012), men and women differ in the social contract. They perceive things differently, so gender perception of social arrangements might always not be the same. According to Amponsah (2013), in a study that finds out the “gender differences in learning environment and student attitudes in high school chemistry classrooms in South Africa”, though there was no relationship between physical sciences students' perception of their classroom environment and their attitude towards chemistry by gender, in another study by Adasi et al. (2020) on the subject of “gender differences in stressors and coping strategies among Teacher Education Students at University of Ghana”, the studies showed that there were differences when it comes academic stressor and health stressors by gender though there differences were insignificant likewise differences in coping strategies which was also not significant. More to the above, Çera et al. (2018) on “gender differences in perception of university

education quality as applied to entrepreneurial intention.” The findings show there are differences in male and female students’ views. In the study, both countries used female students perceived the quality of education more positively. In contrast, male students declared a statistically higher interest in entrepreneurial activity than female students. Gender therefore becomes a critical when it comes to social contracts as it cannot be directly determined unless proven by research.

2.11 Chapter Summary

This chapter dealt with the framework underpinning the entire research work, the Learning theory. The learning theory is based on constructivism philosophy. A bottom-up approach to the theoretical assumptions that underpin constructivist philosophy. According to the theory, before meaningful learning can occur, the learner's mind is paramount and plays a significant role. This chapter also looked at three categories of constructivism: cognitive constructivism, social constructivism, according to Lev Vygotsky's writings, and radical constructivism. As the teacher also plays a role in the classroom, the researcher further in this chapter looked at the role of the teacher in the constructivist classroom. The role of the teacher in the social constructivist classroom is to help their learners construct knowledge, moderate the activities of learners, and guide them in the process of acquiring and creating knowledge in the classroom. The teacher, therefore, acts not as an instructor but as a classroom facilitator. The concept of learning was also discussed in this chapter. Learning in itself can be seen as a step-by-step process in which an individual faces significant, meaningful changes in awareness, behaviour or ways of viewing the world. As there are theories that underpin every field of study, this chapter looked at some theories that underpin the field of learning: cognitive, social, behavioural, and constructivist theories. The concept of learning styles was vigorously discussed as it forms a significant part of the study. The

following are some of the types of learning styles according to the VARK learning styles. Visual learners, Auditory learners, Read-Write learners, and Kinesthetic learners are the most commonly used types of learners in the classroom. Visual learners are students or individuals who learn through visual, auditory learners are students who mainly learn by listening and hearing, read-write students like to arrange lecture notes into sketch form, paraphrase classroom notes, and study multiple-choice exam questions, and the kinesthetic learners are hands-on, participatory learners who need to play a physically active role in the learning process to achieve their best educational outcomes. The chapter again looked at some related studies, their challenges and most importantly, gender difference and perceptions as it also formed a part of the study.



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focused on the research methods that the researcher used in this study. The study examined the perceptions of Ghanaian Senior High School teachers' perceptions of students' learning styles in public Senior High Schools. These schools are in La Nkwantanang Madina and Ga-East municipalities in the Greater Accra region. Therefore, this chapter offers a thorough explanation of the research paradigm, design, approach, population, sample, and sampling techniques methods of data collection and data analysis procedures used by the researcher. It again looked at ethical issues that the researcher considered during the study period.

3.2 Research Approach

When it comes to research, Creswell (2014) opined that there are three approaches. The qualitative research approach, quantitative research method, and mixed research approach are all variants. The three techniques are, without a doubt, not even as different as they seem. Qualitative and quantitative methods should not be considered opposites or dichotomies but rather as different and adaptable categories. Instead, they reflect the opposites of a spectrum.

Mixed research methods are one of the three types of methodologies. The mixed research approach entails collecting quantitative and qualitative data, merging the two forms of data, and applying various designs containing philosophical assumptions and theoretical frameworks (Creswell, 2014b). Quantitative research is seen as the process of gathering observable data to find solutions

to some specific research questions with the support of statistical, computational or mathematical techniques (Apuke, 2017). It is considered more accurate and valuable than qualitative study, which only focuses on gathering non-numeric data (Manuel et al., 2013). According to Eyisi (2016), the quantitative research approach is more beneficial due to its statistical data to save time and resources. More researchers are constrained with resources when it comes to research work. Some studies take a long time and as many demands more resources in completing them. However, quantitative research, which emphasizes numbers and figures in data collecting and analysis, is deemed scientific (Eyisi, 2016).

According to Eyisi (2016), generalization is possible with this strategy because scientific methodologies for data collection and analysis are used. Generalization is one of the significant targets of many researchers to generalize the findings to other areas with the same characteristics. It's permissible to infer from a small sample of people's interactions. While the explanation of research findings is the same, it is not an accident. The fact that there are already existing fields in society with the same common problem shows that the finding of such quantitative study can be generalized provided they meet the fundamental characteristics.

Regardless, another benefit of employing this study technique is its replicability, as advocated by (Eyisi, 2016). The researcher does not need to make educated guesses because the research process is based on hypothesis testing; instead, he will follow clear principles and objectives. The research study using this type of instrument is conducted in a complete or public manner because of its defined goal and criteria. It can be performed at any time and in any environment, and the consequences will be the same. Regardless of many investigations, the validity of the data from

the quantitative study remains the same, maintaining the dependability of the obtained facts from early studies.

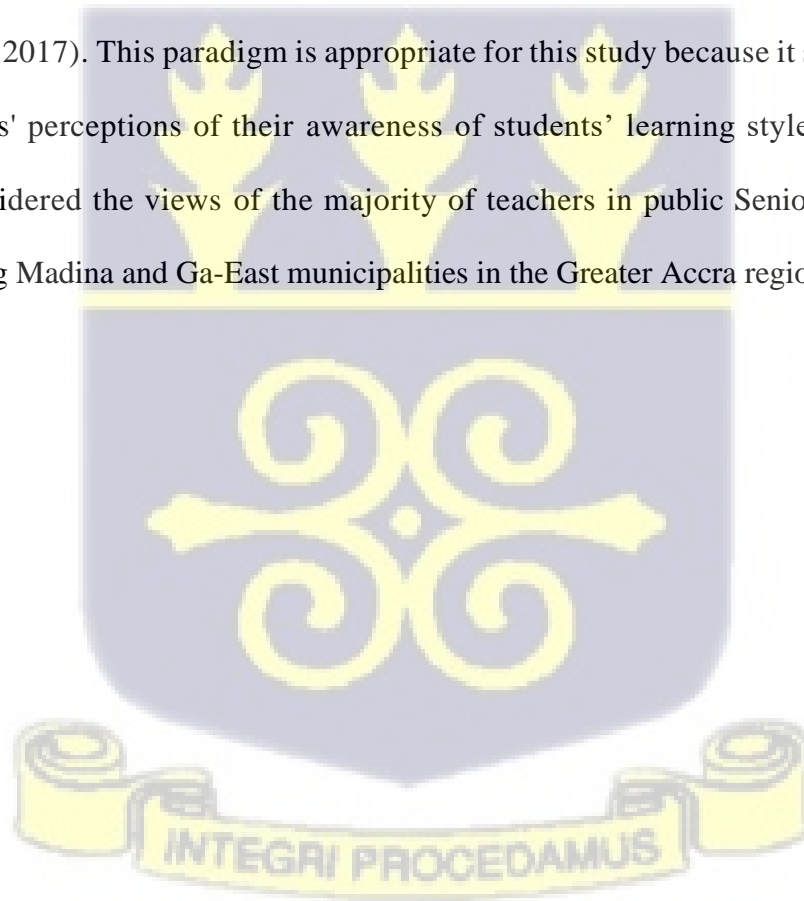
Again, this research approach helps in dealing with the issue of bias when it comes to research. One of the main challenges of research that becomes a criticizing criterion for critics of specific surveys is the researcher's involvement in the study. It is vital to mention that this research approach is highly mindful of such bias. In situations where the researcher is not in personal or physical contact with the participants, such as phone calls, emails, hard copy materials, the biases in the study is significantly reduced. Alternatives such as analyses, reasons, and inferences are totally under the researcher's control. In other words, the researcher's objectivity will be unaffected (Eyisi, 2016).

The researcher employed the quantitative research approach for the study. The purpose of the study, which is mainly to explore teachers' knowledge about the concept of learning styles, demanded no educated guesses because the research process is based on hypothesis testing instead, to follow clear principles and objectives. The researcher was interested in gathering more excellent knowledge of the subject matter and understanding how teachers first encounter the concept. It is important to note that, because the study was not ever conducted in Ghana, there was the need to gather standardised data to eliminate all subjectivity and mainly focus on the objective view.

3.3 Research Paradigm

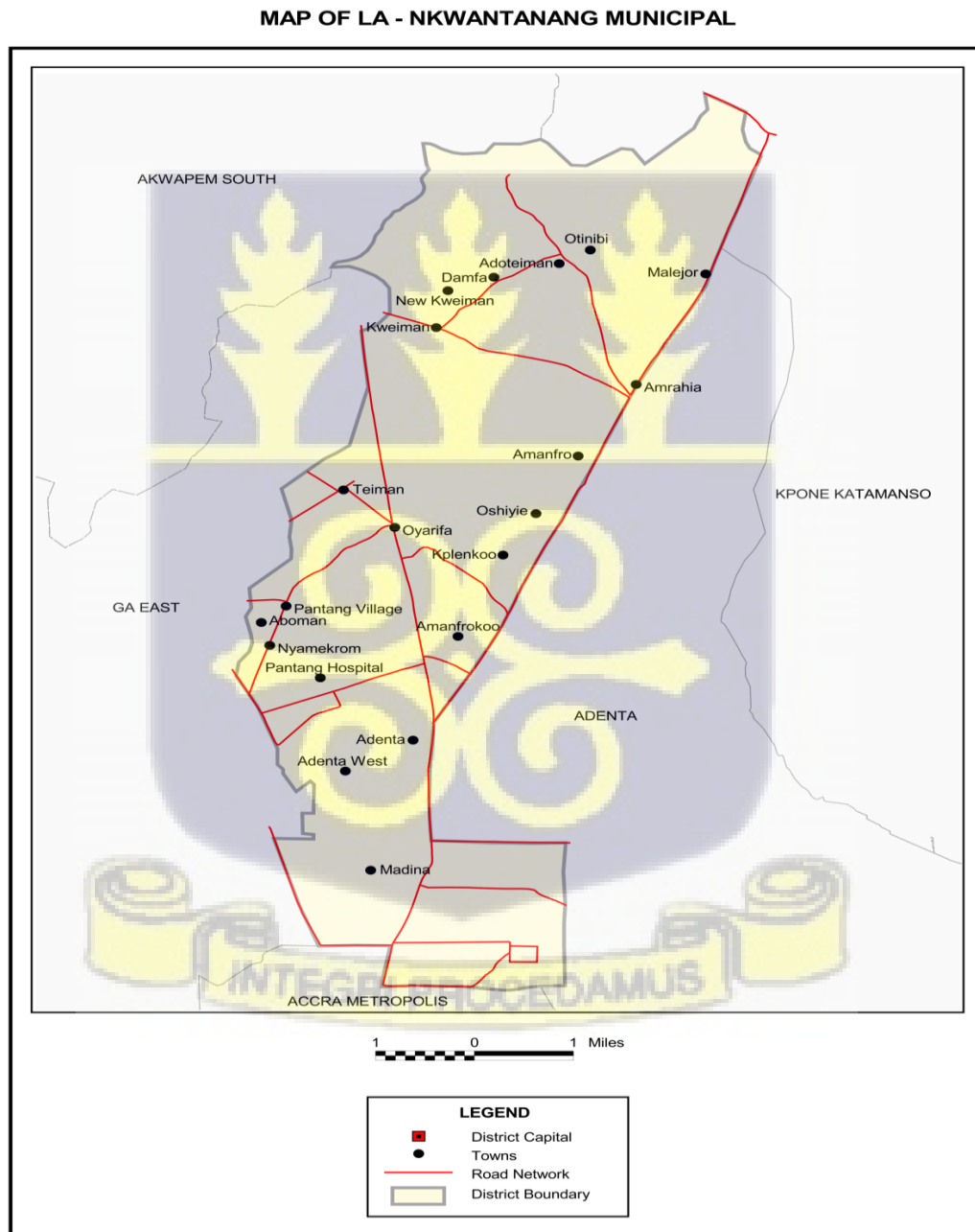
This study employed the post-positivist paradigm. Post-positivists critically analyse a population's thoughts and conclude what the majority says is acceptable (Szyjka, 2012; Weideman, 2018). Panhwar et al. (2017) argued that post-positivism bases problems in context by involving

the more significant population and reveals the outcome as a representation of the entire study area. The choice of the paradigm was made with the best hope of achieving objectivity. They went on to say that post-positivism is accompanied by quantitative analysis, which includes historical, comparative, philosophical, and phenomenological viewpoints. Post-positivist accentuates an appropriate grasp of the directions and perspectives of scientific studies from multi-methods and multi-dimensions rather than undermining positivism in research (Panhwar et al., 2017). This paradigm is appropriate for this study because it seeks to critically analyse teachers' perceptions of their awareness of students' learning styles. Therefore, the researcher considered the views of the majority of teachers in public Senior High Schools in La Nkwantanang Madina and Ga-East municipalities in the Greater Accra region.



3.4 Profile of the Study Area

Figure 3 *Map of La Nkwantanang Municipal*



Source: Ghana Statistical Service, GIS

The La-Nkwantanang-Madina Municipality, with Madina as its administrative capital, arose from the Ga East in 2012 and is one of the new districts and municipalities established in 2012. The La Nkwantanang Madina Municipal is one of Ghana's 260 Metropolitan, Municipal, and District Assemblies (MMDAs) and one of the Greater Accra Region's 29 MMDAs. Legislative Instrument (L.I.) 2131 established the La Nkwantanang Madina Municipality, launched in June 2012. It is located in the northern section of the Region, formed out of the Ga East Municipality. It has a total size of 70.887 square kilometres of land surface. According to the 2010 population and housing census, the Municipality's population is 111,926 people. The area hosts two public Senior High Schools, West Africa Senior High School Adenta and Presbyterian Boy's Secondary School, Legon. These are the only public Senior High Schools in the municipality though the area host number of private Senior High Schools such as Albert Academy, Smart College, Preset Peacesetters Senior High School, Elim Academy, Faith Baptist and others. Figure 3 *Map of La Nkwantanang Municipal* gives a pictorial view of the area that the two public schools serve.

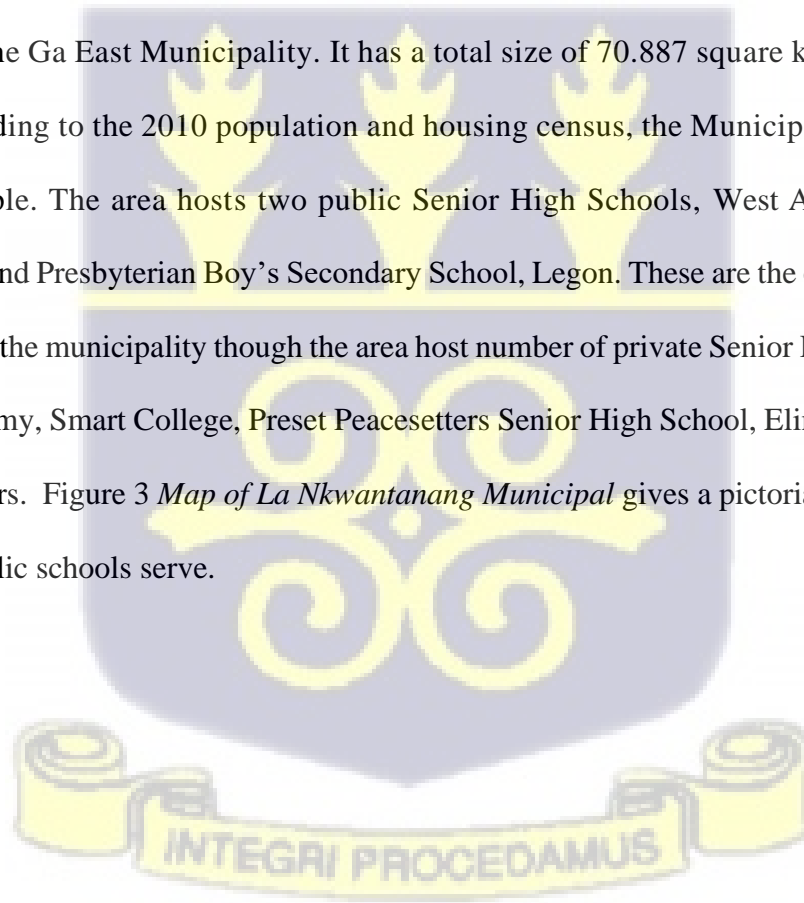
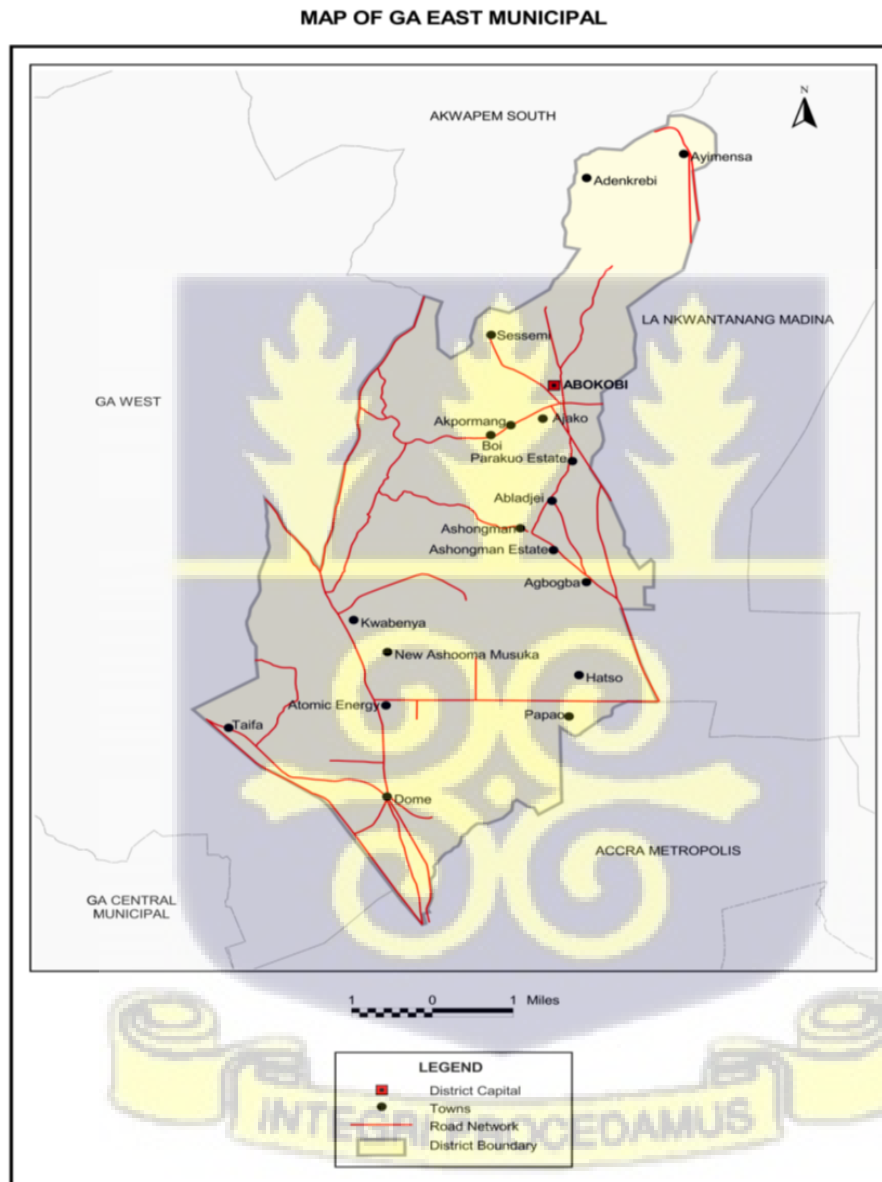


Figure 4 Map of Ga East Municipal



Source: Ghana Statistical Service, GIS

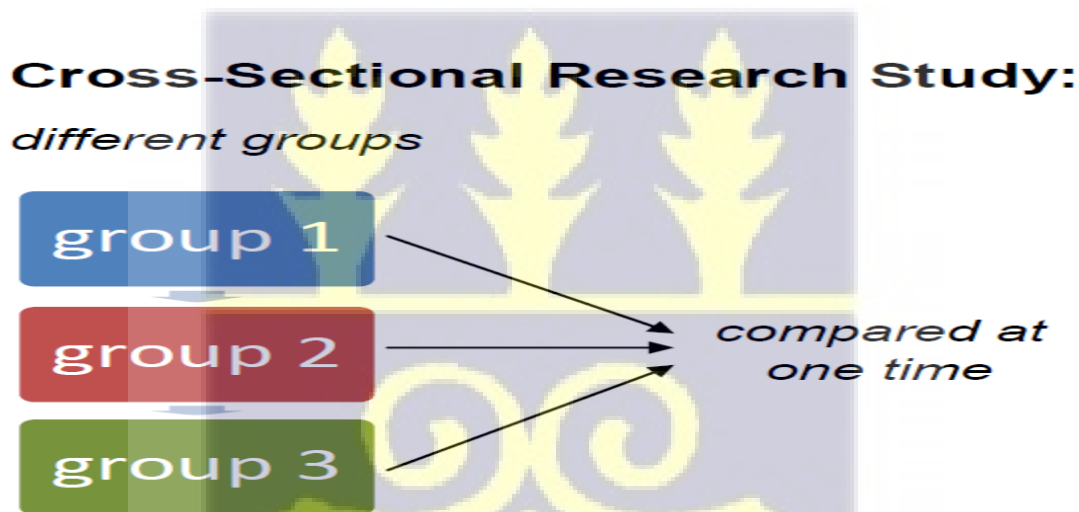
also shows the pictorial view of the Ga-East municipal assembly. Located in this area is only one public Senior High School, a community day Senior High School. With a projected population of 186,230 people, the Ga East Municipality is one of the Greater Accra Region's 29 districts. Ga East is notable for its well-planned physical layout and hosting its elite population in the nation's capital. The Akuapim South District in Ghana's Eastern Region borders Ga East Municipal District to the north. It is surrounded by other districts of Ghana's Greater Accra Region. The Ga West District is to the west, the Accra Metropolis District is to the south, and La - Kwantanang Municipal is to the east. These are the various nearby locations around the study areas. These areas are developing communities that are fast-growing in the country.

3.5 Research Design

The study used the cross-sectional survey design. The cross-sectional survey was a valuable design as the researcher collected one-time data from different teachers in the population. The researcher was not interested in the cause and effect of teachers' knowledge on their students' learning styles but only interested in describing Ghanaian Senior High School teachers' perception of their knowledge about students' learning styles. A cross-sectional research methodology gives a quantitative representation of a population's characteristics and attitudes by collecting standardized data in a single shot (Lavrakas, 2013; Creswell, 2014).

A cross-sectional survey design mainly aimed to simultaneously compare or study different groups with the same characteristics. The researcher considered the public Senior High Schools in the two

municipal assemblies and grouped them under school categories A, B, and C. The Madina municipality hosts two public senior high schools. The Ga-East hosts one, namely West Africa Senior High School, Presbyterian Boy's Secondary School, and Dome Kwabenya Community Senior High School. The school categories were used as groups and studied at the same time.



(Connelly, 2016)

Intending to compare to ascertain if there were differences in teacher perception across the various schools in groups, the researcher considered them simultaneously. The researcher went to the field to study these groups; considering which school should fall under categories A, B and C, the researcher referred to the Ghana Education Service school categorization.,

3.6 Population of the Study

All public Senior High School teachers in La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana make up the population. The Madina municipality host two public Senior High Schools, and the Ga-East host one, namely West Africa Senior High School,

Presbyterian Boy's Secondary School and Dome Kwabenya Community Senior High School, with a teacher population of 180, 260 and 68, respectively. The total population of the study was 508 teachers in the three public Senior High Schools in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra Region of Ghana.

The La Nkwantanang Madina and Ga-East Municipalities were chosen because the three Senior High Schools in the municipalities fall under the three categorizations: category A, B, and C. They are close in proximity, two are considered among the best schools with a high academic standard by observation, and one is a newly established community day school. Presbyterian Boy's Secondary School is a second cycle school in the Greater Accra Region of Ghana. It is popularly referred to as PRESEC-Legon; they are noted for their outstanding performances during the nationwide Maths and Science Quiz. It is considered one of the oldest schools in the country, founded in 1938 by the Presbyterian Church of the Gold Coast. Currently, Presbyterian Boy's Secondary Schools have a student's population of about 3,700 with about 260 teachers.

In the same La Nkwantanang, Madina Municipality is West Africa Senior High School, Adenta. As its short name, WASS was founded in 1946 as West Africa College of Commerce and later was absorbed into the government system as a public Senior High School. It is a non-denominational school and a mixed day and boarding school. The West Africa Senior High School host about 1639 students with teacher population of about 180. They are primarily represented in the popular maths and science quiz in Ghana.

The Ga-East has only one Senior High School in the municipality, called Dome Kwabenya Community Senior High School. Kwabenya community Senior High School was established in 2016, and it is said to be the new upcoming community Senior High School in the Greater Accra

region of Ghana. Though recently founded can boast of about 1,200 students with about 68 teachers in the school. As a community Senior High School, Kwabenya community Senior High School is a day school serving the people of Kwabenya, Agbogba, Ashongman Estate to Atomic and other students from diverse locations, as shown in the figure above.

3.7 Sample and Sampling Technique

Creswell (2012) states that a sample is a subset drawn from the studies population but must represent the population. Many researchers deem 10 percent of a population as a sample size to represent the entire population. However, Uttley (2019) clarified that a higher quantity of samples provides a much accurate outcome with much more confidence and reliability. Therefore, the researcher considered 40% of the entire population to get varied views from respondents. A total sample of 206 teachers represented the whole population of public Senior High School teachers in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana. To secure a fair representation from each school, the researcher calculated a ratio on the number of teachers in each school that make up the population. Therefore 30 out of 68, 76 out of 180, and 100 out of 260 were the proportionate representation from Dome Kwabenya Community Senior High School, West Africa Senior High School and Presbyterian Boy's Secondary School respectively.

The researcher with the aim of meeting the objectives employed multiple sampling techniques. First of all, the researcher employed the stratified random sampling technique to divide the population into the various schools' categorizations system under the Ghana Education Service (GES). According to Bhattacharjee (2012), "stratified random sampling is a sampling frame where the population is divided into homogeneous and non-overlapping subgroups customarily referred

to as strata”. Sharma et al. (2017) explain that stratified random sampling classifies a population into a certain number of groups with a minimum variance called strata and then selects samples independently from each stratum. The underlying fact is that the population must be divided into subgroups called strata but with the same characteristics or some specific features that define the group.

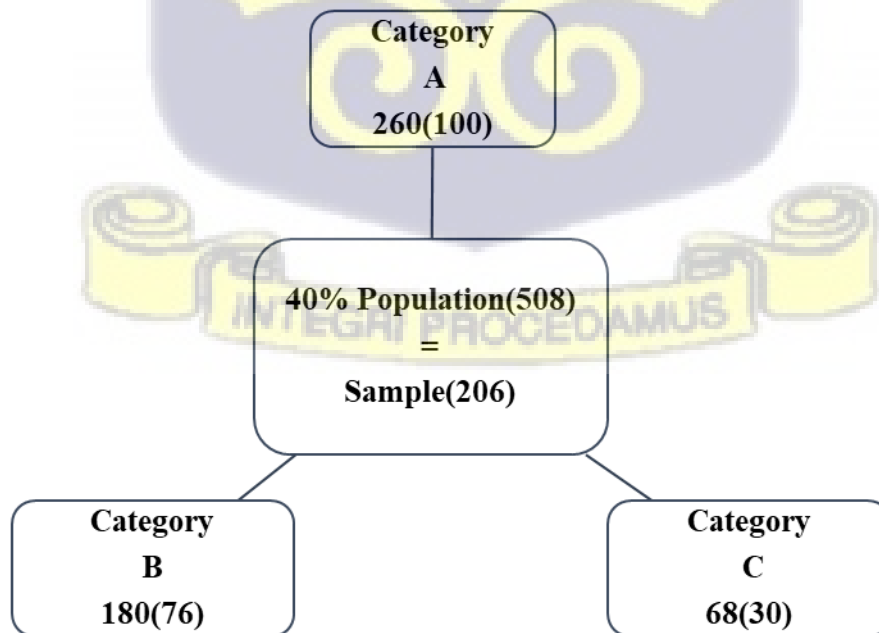
The stratified random sampling offers some flexibility to highlight some strata over others by controlling sample size distribution (Nguyen et al., 2019). It is also important to note that stratified random sampling is applied when the population from which the sample is to be drawn from the group does not have homogeneous groups, which is generally used to obtain a representative of a good sample. The stratified type of sampling divides the population into subgroups of the same population that are individually more homogenous than the total population (Etikan, 2017).

Simple random sampling was used to select the teachers from each school so that there was a fair chance for each teacher being chosen for the population to be very well represented. Simple random sampling is a method for taking a small number of samples from a bigger group to conduct research and generalize the results. It's one of several methods analysts and scholars employ to select a sample from a population. The ease of use and representation accuracy of a simple random sample are some of its benefits. There is no need to partition the population into sub-populations or go further than picking the requisite number of research subjects randomly from the larger group. The only requirements are that the selection is based on chance and that each member of the broader population has an equal probability of being chosen.

The stratified random sampling was selected as the sampling technique for the study because the specific population as take needed to be further divided. The total population represents the entire teachers in the three public Senior High Schools, and there was the need to ensure that all the three

schools were duly represented in the sample size for the study. Therefore, the researcher considered the category system by the Ghana Education Service as a means to classify the population into stratum. The Dome Kwabinya Community Senior High School is a category C school with a teacher population of 68, West Africa Senior High School with a teacher population of 180 and the Presbyterian Boy’s Secondary School with a teacher population of 260. Considering the 40% of the total population to get the sample size of 206, the researcher calculated the same ratio on the various strata. This was done with the aim of getting a fair representation from each school. Simple random was selected as a further sampling technique for the various strata because all teachers in the strata had an equal chance of being selected. There were no characteristics to define a sample in the strata further. The figure below is the graphical representation of the stratified random sampling technique used for the study.

Figure 5 *Stratified Random Sampling*



Source: Researcher’s own construct

3.8 Inclusion and Exclusion

The study focused only on teachers teaching in West Africa Senior High School, Presbyterian Boy's Secondary School, and Dome Kwabenya Community Senior High School, consisting of 508 teachers. The literature review indicated from an early study such as Demirbas and Demirkan (2007) that there was no relationship between gender and learning style among the three different groups of schools used in their survey. There was the need to look at different schools to ascertain if the finding were the same or otherwise. The researcher specifically relied on an already established school categorization with the Ghana Education Service, including categories A, B, and C. The closest public Senior High School with distinct features that falls with the study was these three schools in the two municipalities. The schools are not far apart, share municipal boundaries but with different categories. Therefore, it was an excellent ground to compare the location's standard features but distinct categories. It is important to note that the schools are all public senior high schools. They are closely related with municipal boundaries with two in one municipality and one in a nearby municipality but with three different categorizations.

The researcher also considered teachers with a minimum of five (5) years of teaching experience in the three selected schools. It is vital to understand the subject matter to consider teachers who have some teaching experience. There are teachers with some teaching experiences when it comes to classroom practice. The researcher considered the minimum of five (5) years of teaching experience because, in the space of five (5) years, teachers will have ample time to interact with the students enough to justify if they know about the concept from the classroom practice perspective.

Though other teachers were teaching in the selected area, private and essential schoolteachers were not participants in the study. The study specifically focused on the public schools in the area, as the public schools operate under the enormous body (GES) and are all regulated by such. Most private schools in the country are hardly well organized as some focus on students who are resitting their papers. Most joined the schools in their final year because they only interned to resist their papers. Again, most of the private senior high schools' teachers are not professionally trained teachers. Some who are professionally trained teachers are not permanent teachers in the schools. Teachers teaching in the other public school in the same municipality were not allowed to participate in the study.

The study was explicitly for Senior High School teachers. This is because teachers are closer to the students with their course specialization at the Senior High School level. In the Senior High School system, students can specialize in courses such as business, science, and home economics. Teachers end up having more contact time with the learners as they specialized; therefore, it was much easier to know them and their learning needs. Other institutional teachers, such as the Universities in the municipalities, were also not given the chance of inclusion.

3.9 Demographic Characteristics of the Respondents

This section of the research methodology dealt with the demographic data of the respondents such as age, gender, educational qualification, category of school they teach according to the Ghana Education Service school categorisation system and the duration of teaching in the current school at the time of the study.

Table 1: Demographic Characteristics of the Respondents

Variables	Groups	Frequency(N=206)	Percentage (%)
Gender	Male	112	54
	Female	94	46
Age	Below 25	2	1
	25-29	50	24
	30-39	102	50
	40-49	41	20
	50-59	11	5
Category of Schools	A	100	49
	B	76	37
	C	30	15
Qualification	HND and below	2	1
	Degree	143	69
	Masters	59	29
	PhD	1	0.5
	Others	1	0.5
Duration in current School	1-2 years	50	24
	3-5 years	94	46

6-10 years	40	19
11-15 years	18	9
16-20 years	3	1.5
More than 20 years	1	0.5

Source: Field data (2021)

As shown in Table 1, the total respondents were 206, comprising 112 male teachers and 94 female teachers from the three selected schools. It is clear from the table that, majority of the respondents were males, 112 respondents representing 54%, while 94 representing 46% were females.

Again, Table 1 shows the respective ages of the respondent. It is evident that the teachers who took part in the survey, 2 were below 25 years, representing 1% of the total respondents, 50 were between the ages of 25-29 years, representing 24%, and 102 were between 30-39 years, representing 50% of the total respondents. It is worth noting that, between 40-49 age group were 41 teachers representing 20% of the total respondents and between 50-59 age group were 11 teachers representing 5% of the total respondents. It is again important to note that most of the teachers who took part in the survey fall within the age group of 30-39, with 102 teachers representing 50% of the total respondents. These age groups of the respondents are the young age in the three selected public Senior High Schools in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana.

According to the Ghana Education Service school's categorization, some Senior High School teachers in the selected municipalities fall within some categories such as A, B, and C. In Table 1 the result is represented by the categories of the respondents' schools. Over there, 100 teachers representing 49% of the total respondents were from class A school, specifically Presbyterian Boy's Secondary School. In the same table, 76 teachers representing 37% of the total respondents

were from category B, specifically West Africa Senior High School. Thirty teachers representing 15% of the total respondents were from category C, Dome Kwabenya Community Senior High School, all in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra Region Ghana.

Furthermore, out of the total respondents in the survey, 1% of teachers have HND, 69% hold first Degrees, 29% hold master's degrees, 0.5% hold PhD, and 0.5% of teachers hold other qualifications that were not stated in the study. From the survey, it is evident that the majority of the teachers that took part in the survey were first degree holders, followed by master's degree holders.

Finally, during the study, the researcher considered finding out how long the teachers had been teaching in their current school due to some of the study's objectives. In Table 1, 24% of teachers have 1-2 years teaching experience, 46% of the teachers have 3-5 years of teaching experience, 19% of teachers have 6-10 years experience, 9% have 11-15 years of teaching experience, 1.5% of teachers have 16-20 years teaching experience, and 0.5% of teachers have more than 20 years teaching experience. That notwithstanding, it is clear from the figures that most teachers in the La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana have been working in their current school between the past 3-5 years.

3.10 Data Collection Instrument

Questionnaires were adapted from the studies on the title "*Teachers' Perception of Students' Learning and Their Teaching in Afghanistan*" used as an instrument to collect data from respondents (Khan, 2015). The questionnaire was grouped into different sections in order to gather specific data. A questionnaire is a type of information-gathering tool that consists of a series of

questions and other prompts used to collect data from people (Roopa & Rani, 2012). At the heart of a survey is its means of collecting the information from the respondents, which is mainly through a questionnaire (Krosnick, 2017).

Questionnaires are seen as the best medium for data collection for a survey as it has its own standardized set of questions, the same question for all under the same circumstances and time. It is evident in finding the kind of objective data that it has the potential to gather. Questionnaires are seen as practical than any form of data collection tool (Gonzalez-Franco & Peck, 2018; Krosnick, 2017). The type of questionnaires will be mainly structured. The questions capture the entire objectives of the study to arrive at reasonable conclusions regarding the topic. The questionnaire was adapted from an early study done by (Agustrianita et al., 2019).

The questionnaire that was adapted was used in the context of Ghana to collect complete and accurate information regarding the knowledge teachers possess on students learning styles. These instruments were first to measure the teachers' demographic characteristics, measure the knowledge teachers possess on students learning styles using a five Likert scale, and measure what they think about students' learning styles in their teaching. The Likert scale of 1-5 was used for the study.

1= Strongly disagree

2=Disagree

3= Neither disagree nor Agree

4= Agree

5= Strongly Agree



It is important to note that the items on the questionnaire are divided into three parts. Part one is a set of items that guided in collecting background data of the respondents with six items. Part two consists of sixteen items with Likert scale that aided in measuring the teachers' perception of the concept of students learning styles. The last section, which was named part three, consisted of three items employed to ascertain where the teachers first encountered the concept of students learning styles and the role they play in their teaching. The researcher considered this instrument as the instrument appropriate for this study because a similar study was conducted elsewhere, and the same instrument was used. As the researcher intended to conduct a similar study in Ghana, it was prudent for the researcher to use the already used and verified instrument.

Table 2: *Scale Reliability Analysis*

Variable	Cronbach's Alpha	Number of items
Perception of Teachers	0.838	16

Source: Field data (2021)

Table 2 shows the reliability of the instrument. The Cronbach's alpha for the variable is 0.838 (83.8%), which shows that the instrument used for the study was reliable for the data collection of the variable. All notwithstanding, the researcher submitted the instrument to the University of Ghana Ethics Committee for the Humanities (ECH), where a thorough examination and review was conducted on the instrument and later recommended for this specific study.

3.11 Data Collection Procedure

First, the researcher ensured the credibility of the procedure by submitting it to the University of Ghana Ethics Committee for the Humanities (ECH), where a thorough examination and review was conducted on the instrument and later recommended for this specific study. The researcher,

after approval from the ECH (The letters are attached in the appendix section), introductory letters from the Head of Department of the Teacher Education Department, University of Ghana, Legon, were taken to the two Educational Directors in the municipalities.

The municipalities are La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana (The letters are attached in the appendix section). After going through the instruments and the essence of the study, the Educational Directors gave an approval letter with a directive introducing the researcher to the various headteachers in the three public Senior High Schools (The letters are attached in the appendix section). After several meetings with the heads of the schools, the researcher arranged for the various days for the data collection.

The researcher first introduced himself to the teachers one by one, then sought their consent before giving the tablets to them after participating in the survey. The questionnaire was administered strictly using google forms. Teachers were given tablets on which the questions were loaded to be completed. Every teacher was given tablets one after the other. They then filled the various questions on the questionnaires. It is essential to mention that all the teachers filled the questionnaire on the tablet, which was online. There was little interruption with the respondents during the data collection.

3.12 Data Analysis

The researcher organized, managed, and analysed the data using the Statistic Package for Social Sciences software (SPSS) version 25. After the online questionnaire had been administered and completed, the data was extracted to Microsoft Excel and later to SPSS. The researcher did data cleaning in Microsoft Excel before exporting to SPSS. As proposed in the research proposal, the researcher intended to use percentages, means, T-test, and ANOVA for the data analysis. After the data collection, the researcher ran the normality test, and the significant assumptions were violated;

therefore, the researcher resorted to a non-parametric test of the parametric test. Thus, means were used to check teachers' total perception of students' learning styles. The Mann-Whitney test was used to find differences in teachers' perception of students' learning styles and gender differences in teachers' perception of student learning styles. Percentages with mean were used to measure teachers' views on students' learning styles in their teaching. In addition, the Kruskal-Wallis test was used to examine if there were differences in teachers' perception of students learning styles in the three categories of schools. These various tools were used because of the nature of the data, the study's objectives and the variables present in the research questions.

3.13 Ethical Considerations

The researcher seeks ethical clearance from the ethical committee. To commence, the researcher seeks the approval of the District Directors of Ghana Education Service in the La Nkwantanang Madina and Ga-East Municipalities consent and heads of the schools where studies were conducted. Confidentiality was ensured by using the information only for the intended purpose and secured electronically with passwords. The researcher considered some ethical issues, such as seeking teachers' consent about their willingness to participate in the study. Allow respondents to stop when they felt uncomfortable to continue the questionnaire as some did during the study. The researcher provided hand sanitisers for all who were provided with tablets to fill on-site and maintain social distancing during the face-to-face contact. The researcher gave all face-to-face respondents a nose mask and kept a social distance as Ghana Health Service agreed as a result of Covid-19 to ensure that respondents were not physically and emotionally harmed during the study. Consent involves a process by which a person can decide whether or not to partake in research (Schrems, 2014). The role of the investigators is to ensure that the respondents have a complete

comprehension of the meanings of the investigation, the techniques used in the investigator, and the challenges and expectations put on the respondents (Kahn et al., 2006).

Ethical approval was received from the University of Ghana Ethics Committee for the Humanities (ECH) (Appendix C). Permission was requested from the two District education offices to notify them of using the selected schools (Appendix D). A request letter was written to the headmasters of the schools telling them of the investigation's aims and the plan to use the teaching staff in this investigation (Appendix D). Finally, in response, the directors of Education in the two municipalities wrote back to the schools to allow the researcher to undertake the study (Appendix E).

3.13 Chapter Summary

The section outlines and justifies the type of techniques that were used in the survey, i.e., Methodology. As a result of the nature of the study, the researcher used a cross-sectional quantitative design with a questionnaire as the data collection instrument to gather the teachers' views in the study area. This chapter also defined the population, sample and sampling techniques that were used in the survey. More so dealt with related ethical issues in the study.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter specifically dealt with data analysis, interpretation and discussion of the results of the data collected for the study. The chapter was presented according to the research questions of the study. The first section showed the research question one of the studies in the following order. The rest of the sections in this chapter is in accordance with the research questions set for the study, with discussions on the result of the study.

4.2 Research Question One: What are Teachers' Perceptions on Students' Learning Styles?

Research question one sought to look at the perceptions of teachers on students learning styles. The aim of research question one it to ascertain from teachers' responses if they have knowledge of their students' learning styles or not.

As shown in Table 3, on average 2% and 3% of the teachers strongly disagree and disagree respectively with the various statements regarding their knowledge of students learning styles. Another 6% of the responses' teachers were undecided with the various statements regarding their knowledge of students learning styles. Also, 35% of teachers agree with the various statements regarding their knowledge of students learning styles, and 54% of the teachers in the respondents strongly agree with the various statements regarding their knowledge of students learning styles in the classroom. It is worth knowing that 89% of the total respondents positively affirmed the statements in Table 3. Add to that, it is crucial to find the mean of the respondents to identify the teachers' total perception. In Table 3, there were 206 valid respondents with an average mean of 4.1845 as shown in Error! Reference source not found..

More so, as much as teachers claim that they have knowledge of students learning styles, the researcher went ahead to find out from the teachers where they first encountered the concept of the learning style. The researcher considered areas as per the literature review pointed out. As shown in Error! Reference source not found., 19% of teachers first encountered students learning styles at a training/workshop, 69% of teachers believe they first encountered the concept of learning styles during their studies in school. Again, 5% of teachers first encountered students learning styles from their colleague teachers, while another 5% of the teachers first encountered students learning styles through their reading/surfing the internet. It is worth noting that 2% of the teachers out of the total respondents first encountered students learning styles from their students.

Table 3: *Descriptive Statistics of Teachers Perceptions of Students Learning Styles*

Statements	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean
	%	%	%	%	%	
Different students have different preferences while acquiring or processing new information	1.0	1.9	2.4	39.3	55.3	4.46
I have knowledge about students learning styles	1.5	3.9	10.7	52.9	31.1	4.08
I know there are different learning needs of students in the classroom	2.4	0.5	1.5	23.8	71.8	4.62
I believe various	1.5	1.5	3.4	36.4	57.3	4.47

backgrounds of learners inform the way they accommodate knowledge

I know knowledge will not be imparted when the learning needs of the students are not met

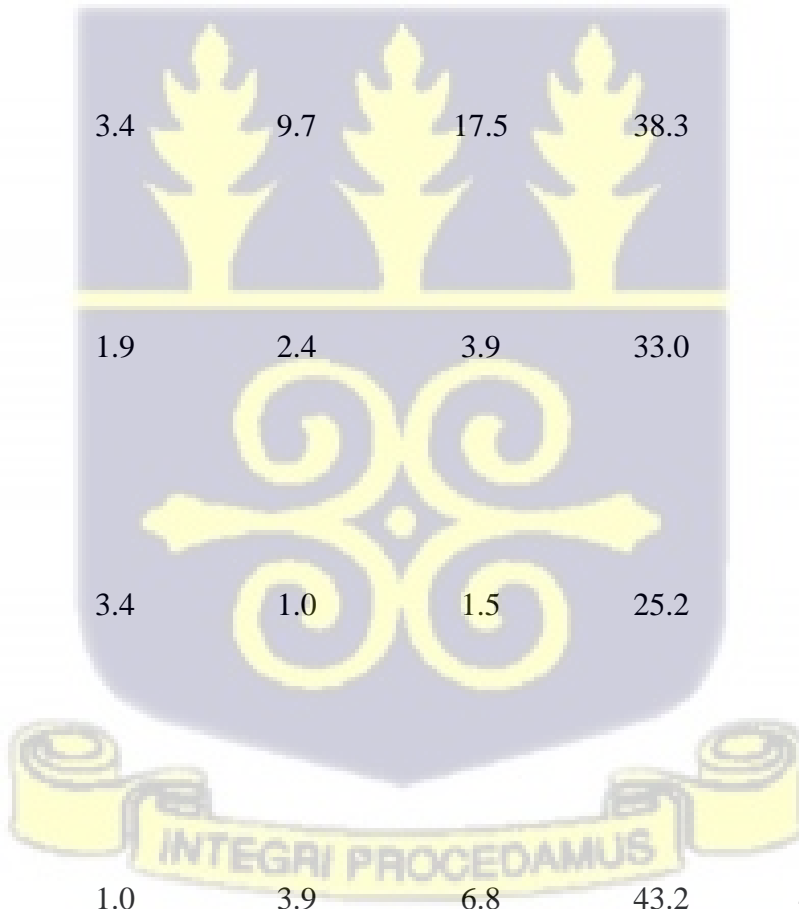
If students not learn the way you teach, teach them the way they learn

If integrated methods are used, students with different learning styles will benefit

As a teacher, I know my learners are not the same in the way they accommodate knowledge

Some students learn better when they explain lessons to others or speak it loud

Some students learn better when they see pictures,



diagrams, flip charts, graphs, films and handouts

Some students learn better when they do things and hand-on experience

Some students learn better when they highlight important points in chapters and summarize information

I believe if integrated methods are used, students with different learning styles will benefit?

Average Scores

First contact with learning styles

Where have you first heard about the concept of learning styles?

Frequency(N)=206

Source: Field data (2021)

4.2.1 Discussion of Findings on Research Question One

The analysis in Table 3 concludes that the majority of teachers (89%) in the Senior High School level in Ghana have knowledge about students learning styles. This finding confirms the assertions made by Agustrianita et al. (2019) and Khan (2015). Agustrianita et al. (2019) concluded after their study in Indonesia on teachers' perception of students' learning style and their teaching that about 69% of teachers in Indonesia have knowledge of students learning styles. This is again supported by Khan (2015), who attested that between (78%-89%) of teachers in Afghanistan believe students have unique learning styles in the classroom and they are necessary for their academic achievement.

In the context of Ghanaian Senior High School teachers, the majority of teachers (69%) first encountered the concept of learning styles during their study time in school. While 19% of teachers first encountered the concept of learning styles at a training/workshop, 5% from their colleague teachers, another 5% through their reading/surfing internet and 2% from their students. This finding, however, contradicts an aspect of Khan's (2015) study. According to Khan (2015), the majority of teachers in Afghanistan first encountered the concept of students learning styles through workshops and seminars. This claim from the study is again different from the Indonesian finding. According to Agustrianita et al. (2019), 50% of teachers first came in contact with the concept of learning styles through personal reading and surfing the internet, 18% heard from their colleague teachers, 29% knew the concept through training/workshops, while 4% came to know the concept of learning styles from their students.

4.3 Research Question Two: What are the Gender Differences in Teachers' Perceptions of Students Learning Styles?

Research question two seeks to identify differences in teachers' perceptions of students learning styles based on their gender. Though results for research question one shows the total perception of teachers already, the researcher went ahead to find out if there were differences regarding the perception of teachers based on their gender.

For the researcher to decide which type of analysis to run for research question two, the researcher considered some assumptions. A normality test was run. Below is the Shapiro-Wilk test for normality output that the researcher conducted.

Table 4: *Test of Normality for Gender Difference*

Shapiro-Wilk		
Statistic	df	Sig.
0.670	206	0.000

Source: Field data (2021)

As shown in Table 4, the p-value for the Shapiro-Wilk test is 0.000 ($p= 0.000$). This clearly indicates that the p-value is less than 0.05, which makes it significant. Still, for the assumption, the p-value must be greater than 0.05 in order to conduct any parametric analysis. Again, it is worth concluding that the data is not normal, stating that the assumption is violated, as shown in Table 4: *Test of Normality for Gender Difference*. On that note, the researcher considered the non-parametric tests of the parametric tests that were initially proposed. Originally the researcher proposed an independent sample t-test for research question two. After the normality test revealed that the data

was not normal, the research conducted non-parametric analysis (Mann-Whitney) for the research question two.

As displayed in

Table 5, the total number of respondents where 206 teachers, with 112 males and 94 females taking part in the survey. Again, from the mean rankings, males were 103.80 and females 103.14, as shown below.

In the non-parametric test, it is needed for a test to be run to compare the output of males and females in terms of their mean rankings. The Mann-Whitney test is a direct test to directly demonstrate the difference from the mean rankings in terms of the grouping variables. The table below also shows the Mann-Whitney test, the Z-value is -0.079, and the p-value is 0.937.

Table 5 *Gender Differences of Teachers Perception of Students Learning Styles*

Gender of Respondents	Frequency(N=206)	Mean Ranks
Male	112	103.80
Female	94	103.14

Grouping Variables:

Gender of the Respondents

Mann-Whitney U	5230.500
Z	-0.079
Sig. (2-tailed)	0.937

Source: Field data (2021)

4.3.1 Discussion of Findings on Research Question Two

This section of the study seeks to answer the research questions of whether or not there are gender differences between teachers' perceptions of students learning styles. As shown in

Table 5, from the mean ranks, there are no significant differences ($p > 0.05$) in the perception of teachers on students learning styles according to their gender. Specifically, the mean rank for males is 103.08, while that of females is 103.14. Though the figures are not the same, the difference between both mean ranks is not statistically significant. Mann-Whitney test, which the researcher used to find whether there are differences in teachers perception based on their gender, came out with a result of its p-value being 0.937 ($p = 0.0937$). The p-value is greater than 0.05, which makes it not significant. Therefore, the Mann-Whitney test indicates no statistically significant differences between the perception of male and female teachers about students learning styles. This finding is supported by early results such as (Demirbas & Demirkan, 2007; Gholami & Bagheri, 2013). Gholami and Bagheri (2013), concluded from their study that there is no relationship between gender and learning styles. This, by extension the way teachers will perceive the learning styles based on their gender. Demirbas and Demirkan (2007) also opined from their survey that there are no significant relationships between learning style preference and gender. According to the current finding in this study, teachers will also have the same perception based on their gender. This finding contradicts some early studies (Corbin, 2017; Halili et al., 2015; Meihua & Shi, 2015). The contradiction is that they opined that there is a statistically significant relationship between gender and learning styles. Therefore, teachers will have different perceptions of the learning styles of their students based on their gender. The current study

demonstrates the opposite and confirms the earlier assertion that the gender of students does not influence their choice of learning styles, and teachers, therefore, have the same perception of learning styles irrespective of their gender.

4.4 Research Question Three: What are the Views of Teachers on the Role of Students' Learning Styles in their Teaching?

Since the teachers are aware of students' learning styles, it is essential to find out what role the knowledge of students learning styles plays in their teaching. The researcher finds out how the teachers considered the knowledge of students learning styles when it comes to their lesson preparation, delivery, and feedback in the classroom.

Table 6 *Views of Teachers on the Role of Students' Learning Styles in their Teaching*

Statements	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
	%	%	%	%	%
When making a lesson plan, I take into consideration the various learning styles of my students	3	2	6	41	47
	Important		Compulsory	Needed	Optional
	%		%	%	%
To maximise learning and increase engagement in classroom, I think it is _____ for teachers to understand the learning styles of students.	83.5		9	7	0.5
	Yes		No		
	%		%		
As a teacher, I think my level of knowledge about how my students learn have a role to play in their academic performance	98		2		
Frequency(N)=206	Source: Field data (2021)				

In Table 6, the researcher asked the respondents about how they considered the various learning styles of their students when making a lesson plan. As shown in Table 6, 3% of the teachers

strongly disagree, and 2% disagree. In comparison, 6% neither disagree nor agree that they consider the various learning styles of their students when making lesson plans. More so, 41% of the teachers agree to the statements, while 47% of the teachers out of the total respondents strongly agree that they consider the various learning styles of their learners when making lesson plans.

Again, Table 6 also shows the importance teachers place on the learning styles of their learners in their teaching. The researcher asked them, among some list of items, how they think teachers' understanding should be when it comes to maximizing learning and increasing classroom engagement in using students' learning styles as a factor. As shown in Table 6, 83.5% of the teachers who took part in the study considered it important for teachers to understand the learning styles of their students. As it is compulsory, 9% of the teachers deemed it compulsory for teachers to understand the learning styles of their students, 7% of teachers considered it as needed. In comparison, 0.5% of the total respondents considered teachers understanding of the learning style as optional.

More so, the researcher went ahead to find out on the subject matter by asking the respondents whether they consider their level of knowledge about how their students learn to have a role to play in their academic performance. As shown in Table 6, 98% of the teachers said yes, they think their level of knowledge about how their students learn to have a role to play in their academic performance. In comparison, 2% of the teachers said no, they do not think their level of knowledge about how their students learn has a role to play in their academic performance.

4.4.1 Discussion of Findings on Research Question Three

In Table 6, under this research question which seeks to find out teachers' views on the role of students' learning styles in their teaching, it is evident from Table 6 that most of the teachers consider the various learning styles of their students when making lesson plans. These are shown

with 41.3% and 46.6% being agree and strongly agree respectively to the statement. About 87.9% of the total respondents positively affirmed that they consider the learning styles of their students in lesson planning.

The majority of the respondents also declared that it is essential for all teachers to understand the learning styles of their learners in the classroom because they consider it essential to maximizing their engagement. This also constitutes about 84% of the total respondents. Again about 98% also I think their level of knowledge about how their students learn to have a role to play in their academic performance. This is to say teachers in Ghana do not only consider the learning styles as important, but they consider their knowledge of it as paramount to the academic achievement of their students. This finding is supported by (Khan 2015).

The study by Khan (2015) confirms that between (78-89) % of teachers believe that students have their unique learning styles in Afghanistan. They consider their knowledge if it is essential to the students learning process. Taking their understanding of the students learning styles as essential to their learning process means they involve it during their lesson preparation to make sure that their learning needs are served. This is the same account in this study as teachers believe they consider it when planning their lessons and consider it important to maximise learning and student engagement in the classroom. However, Haar et al. (2002) oppose that teachers, by extension, are good with knowledge about learning styles but practically are not taking steps to address the classroom needs from their observations made in their study. The analysis shows that the case of Ghana is not the same.

4.5 Research Question Four: What are the Differences in Teachers' Perceptions of Students' Learning Styles in the three Categories of Schools?

This section dealt with the various categorizations of schools; the researcher found out if there were differences in teachers' perceptions based on the category of schools they teach. For the researcher to decide which type of analysis to run for research question four, the researcher considered some assumptions. A normality test was run. Below is the Shapiro-Wilk test for normality output that the researcher conducted.

Table 7 *Test of Normality for Difference in Category of Schools*

Shapiro-Wilk		
Statistic	df	Sig.
0.670	206	0.000

Source: Field data (2021)

As shown in Table 7, the p-value for the Shapiro-Wilk test is 0.000 ($p= 0.000$). This clearly indicates that the p-value is less than 0.05, which makes it significant. Still, for the assumption, the p-value must be greater than 0.05 in order to conduct any parametric analysis. Again, it is worth concluding that the data is not normal, stating that the assumptions were violated, as shown in Table 7. On that note, the researcher considered the non-parametric tests of the parametric tests that were initially proposed. Originally the researcher proposed one-way ANOVA for research question four. After the normality test revealed that the data was not normal, the research conducted non-parametric analysis (Kruskal-Wallis test) for research question four.

The researcher used the Kruskal-Wallis test because the data did not meet the normality test. The table below shows the mean ranks per the category of school. Accordingly, the mean rank of category A is 106.11. Category B is 97.62, and category C is 109.72.

Table 8 *Differences in Teachers' Perceptions of Students' Learning Styles in the three Categories of Schools*

Variables	Frequency(N=206)	Mean Ranks
Category of school of respondents		
A	100	106.11
B	76	97.62
C	30	109.72
Grouping Variable: Category of schools of respondents		
Kruskal-Wallis H	1.259	
df	2	
Asymp. Sig.	0.533	

Source: Field data (2021)

Table 8 also shows the p-value of the Kruskal-Wallis test, taking into consideration the mean ranks of the grouping variable. This was done to determine if there were differences in the mean ranks of the various categories of schools, namely category A, B and C. On the mean ranks, the asymp. Sig. Value is 0.533, which is the p-value ($p=0.533$), as shown in Table 8.

4.5.1 Discussion of Findings on Research Question Four

In making a much better conclusion, the researcher considered investigating if the categories of schools the respondents are teaching influence their perceptions of students learning styles. As a non-parametric test, the results gave various mean rankings on which the Kruskal-Wallis test was used to find the difference. It is evident in Table 8 that the mean ranks for all the categories of schools are not far from each other. There appear to be some differences in the mean rankings for all the categories. For categories A and B, the difference is 8.49, categories A and C, the difference is 3.61, and for categories B and C, the difference is 12.1. But from the table with the Kruskal-Wallis test, the p-value of the mean ranks indicate that the differences between the mean ranks are not significant. The p-value is greater than 0.05 ($p=0.533$, $0.533>0.05$). Therefore, despite the various difference across the mean ranks of the categories of schools, such differences are not statistically significant. This finding is supported by an early study by Khan (2015).

The study by Khan (2015) confirms that between (78-89) % of teachers believe that students have their unique learning styles in Afghanistan. The main issue here has to do with the different institutions that were used in their study. The researcher considered 58 lecturers/ teachers from two different teacher training institutions. The outcome shows that there were no significant differences in the teachers' knowledge from the two different institutions.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This final chapter of the study was basically to review the research process in conjunction with the objectives and research questions to summarise the research findings, conclusions, and recommendations. The chapter also considered some suggestions for future study or further study in the same area.

5.2 Summary of the Study

The research focused on the study's significant findings, which were based on the research questions from chapters one to five. In this study, the researcher tried to examine teachers' perceptions in Ghana on the concept of students learning styles. The study finds out if there were gender differences in teachers' perception of students learning styles and in the different schools they teach. As part of the study, the research tried to ascertain the role the concept of learning styles plays in Ghanaian teachers teaching.

Key findings

1. The study revealed that most of the teachers in the public Senior High Schools in La Nkwantanang Madina and Ga-East Municipalities in the Greater Accra region of Ghana know students' learning styles. In the same light, the majority of the teacher first encountered the concept during their study time in school.
2. The study shows no differences in gender perceptions of teachers in the study area when it comes to the concept of students learning styles.

3. The study's findings showed that the majority of teachers affirmed that they consider the learning styles of their students in lesson planning. Most of the respondents also declared that it is essential for all teachers to understand the learning styles of their learners in the classroom because they consider it vital to maximizing their engagement. Again, most teachers think their level of knowledge about how their students learn has a role in their academic performance; therefore, they must pay much attention to it.
4. The outcome of the data analysis revealed that despite the various difference across the mean ranks of the categories of schools, such differences are not statistically significant. Therefore, there are no differences in teachers' perception of students learning styles in the three categories of schools in the sample.

5.3 Conclusion

It is concluded that Ghanaian Senior High School teachers have knowledge about students learning styles.

It is concluded that Ghanaian Senior High School teachers first encountered the concept of students learning styles during their studies in school. They consider it crucial to the academic performance of their learners in the classroom and therefore consider it when planning lessons.

It is concluded that when it comes to the concept of students learning styles in Ghana, there are no differences in teachers' perceptions of their gender. That is to say that, irrespective of the gender of a teacher, their knowledge of students learning styles is the same.

It is again vital to conclude that, though there are different categorizations of schools in Ghana, teachers' knowledge of students' learning styles does not differ based on the school they teach. The perceptions of teachers are the same across the schools they teach.

5.4 Limitations

1. Some teachers were not available during the data collection process. Due to the double-track system in most of the second cycle schools in the country, most teachers were not available at scheduled time, this made the researcher to revisit on other occasions.
2. Covid-19 was one of the limitations, ensuring the protocols took time and resources.
3. There was a lengthy bureaucratic process for permission from district educational directors, Headteachers and departmental heads.
4. Inadequate literature in the Ghanaian context about teachers' knowledge of students learning styles.

5.6 Recommendations

Based on the finding above, the following are some recommendations for teachers, policymakers and researchers:

1. Based on the finding that teachers have knowledge of students learning styles, it is recommended that frequent workshops and training be conducted for teachers on identifying the various learning styles of their students in the classroom in order to make good use of the knowledge.
2. Based on the findings that teachers have knowledge of students learning styles, the study also recommended that educators respect their learners' learning needs of their students in the classroom. The teaching and learning focus on impacting the learner even as they are at the centre of the process.

3. Based on the sample size for this study and the finding that teachers in the population have knowledge on students learning styles, it is recommended that further studies be conducted with more larger sample size and in different area.
4. It is recommended that further studies be conducted to find out how teachers are making good use of their knowledge of the concept in the classroom, more importantly, qualitative research with observation.

5.7 Suggestion for Future Studies

1. Based on the research site (La Nkwantanang Madina and Ga-East Municipalities), the researcher recommended conducting further studies in other municipalities and regions.
2. Based on the focus of the study on public Senior High Schools, the researcher recommended that future studies consider private Senior High School and a possible comparative study between public and private Senior High Schools.
3. Based on the methodology used in this study, it is suggested that future studies consider using a different approach and, more importantly, qualitative research with observation on the knowledge of teachers on students learning styles.
4. It is also suggested that future studies be conducted to determine how teaching strategies adopted by teachers meet the learners' learning styles or learning needs in the classroom.

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**APPENDIX A
QUESTIONNAIRE AND CODING FRAME.**

Dear respondent,

My name is Ameko Stephen Kwame from the Department of Teacher Education at the University of Ghana. This study seeks to examine the perception of Ghanaian Senior High School teachers on students' learning styles.

The results of this study would be used for academic purposes only, its findings shall add to knowledge on the perception of teachers on students learning styles. Your participation in this survey is voluntary. You can withdraw from this study at any time you wish. All information will be anonymously recorded and will remain confidential at all times.

Completing the survey will take maximum of 10 minutes. Note that there are no wrong or right answers, kindly respond to all questions.

Should you wish to obtain additional information on the study, please contact the researcher.

Researcher: skameko@st.ug.edu.gh

Contact: 0242662768



Question codes	Identifiers
Section one: Inform Consent	

	If you AGREE to take part in this survey, please proceed to tick the “Yes” box. If you DO NOT AGREE, proceed to tick the “No” box.
1	Yes
2	No
Section two: COVID-19	
	Are you currently experiencing any COVID-19 related symptoms or are you otherwise feeling unwell?
1	Yes
2	No
Section Three: Background information	
Q1	Gender
1	Male
2	Female
Q2	Age
1	Below 25
2	25-29
3	30–39
4	40-49
5	50-59
6	60 and above
Q3	Category of school you teach
1	A
2	B
3	C
Q4	Highest Qualification
1	HND and below
2	Degree
3	Masters
4	PhD
5	Others

Q5	Duration of teaching in the current school
1	1-2 years
2	3-5 years
3	6-10 years
4	11-15 years
5	16-20 years
6	More than 20 years
Section Four: Your Perception of students' learning styles	
Q1	Different students have different preferences while acquiring or processing new information
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q2	I have knowledge about students learning styles
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q3	I know there are different learning needs of students in the classroom
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q4	I believe various backgrounds of learners inform the way they accommodate knowledge
1	Strongly disagree

2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q5	I know knowledge will not be imparted when the learning needs of the students are not met
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q6	I believe all students learn the same in the classroom
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q7	As a teacher, my main aim is to make sure I complete my lesson plan irrespective of the understanding of my students
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q8	If students do not learn the way you teach, teach them the way they learn
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q9	If integrated methods are used, students with different learning styles will benefit
1	Strongly disagree

2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q10	As a teacher, I know my learners are not the same in the way they accommodate knowledge
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q11	Some students learn better when they explain lessons to others or speak it loud
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q12	Some students learn better when they see pictures, diagrams, flip charts, graphs, films and handouts
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q13	Some students learn better when they do things and hand-on experience
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q14	

	Some students learn better when they highlight important points in chapters and summarize information
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q15	I believe, If integrated methods are used, students with different learning styles will benefit
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Q16	When making a lesson plan, I take into consideration the various learning styles of my students
1	Strongly disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree
Section Five: First source and role of learning styles in your teaching	
Q1	Where have you first heard about the concept of learning styles?
1	In a training/workshop
2	During my studies in school
3	From colleagues (other teachers)
4	Through personal reading/surfing internet
5	From students
Q2	To maximize learning and increase engagement in classroom, I think it is _____ for teachers to understand the learning styles of students.
1	Important
2	Compulsory

3	Needed
4	Optional
Q3	As a teacher, I think my level of knowledge about how my students learn have a role to play in their academic performance
1	Yes
2	No



APPENDIX B

UNIVERSITY OF GHANA



PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study:	Examining the Perception of Ghanaian Senior High School Teachers on Students Learning Styles
Principal Investigator:	Stephen Kwame Ameko
Certified Protocol Number	

Section B- CONSENT TO PARTICIPATE IN RESEARCH

General Information about Research

The current study seeks to examine the perception of Ghanaian senior high school teachers on students' learning styles. The study specifically seeks to investigate to find out whether Ghanaian teachers have knowledge of their students learning styles in the classroom. This study is primarily for academic purposes, and it is a prerequisite for completing the MPhil Education programme at the University of Ghana. Participants will be asked to respond to items on the research questionnaire which will take about 10-12minutes.

Benefits/Risks of the study

Your participation in this study will bring to bear the knowledge of teachers on students' learning styles as this is the first study conducted in the context of Ghana. It is important to note that we are not in normal times therefore I will adhere to the COVID-19 protocols to protect you and I.

- I. The researcher and the participants will wear nose mask throughout the process of responding to the questionnaire.

- II. Participants who will respond to questionnaire tablets provided by the researcher, the tablets will be well sanitized immediately after use.
- III. The researcher will provide new nose mask and portable hand sanitizer to all respondent, I will ensure all participants sanitize their hands before and after responding to the questionnaire.
- IV. The researcher and the participants must stay at least 1 meter from each other during any interruption in the course of the study.
- V. Are you currently experiencing any COVID-19 related symptoms or are you otherwise feeling unwell?

Yes.....

No.....

(If the potential participants responded Yes, the researcher will thank the participants and advise them to visit the nearest Hospital)

Confidentiality

After giving your consent to participate in this study, your responses will be used only for the purpose of this study and the information will be secured electronically with passwords on my personal laptop and my google drive account. There will be no name that will be linked to any respond data. The data provided will be shared with my two supervisors at the University of Ghana's Department of Teacher Education

Compensation

There will be no monetary compensation for the respondent in this study.

Withdrawal from Study

You are informed that your participation in this study is entirely voluntary and that you may withdraw at any time you wish. There are no negative consequences when you choose to withdraw.

Contact for Additional Information

If you want any additional information, or questions you can contact the principal investigator through the following address below;

Dr. Eliot Kumassah. Thesis Supervisor, University of Ghana, Department of Teacher Education.

Email: ekumassah@ug.edu.gh

Stephen Kwame Ameko, MPhil candidate at the Department of Teacher Education, University of Ghana, Legon. Email: skameko@st.ug.edu.gh Contact: 0242662768

If you have any questions about your rights as a research participant in this study you may contact the Administrator of the Ethics Committee for Humanities, ISSER, University of Ghana at ech@ug.edu.gh or 00233- 303-933-866.

Section C- PARTICIPANT
AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

Name of Participant

Signature or mark of Participant

Date

If participant cannot read and or understand the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Name of witness

Signature of witness / Mark

Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Name of Person who Obtained Consent

Signature of Person Who Obtained Consent

Date



APPENDIX C



UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No...ECH 183/ 20-21 ...

July 13, 2021.

Stephen Kwame Ameko
Department of Teacher Education
University of Ghana
Legon

ETHICAL CLEARANCE
(ECH 183/ 20-21)

The protocol title below has been reviewed and approved by the ECH Committee.

TITLE OF PROTOCOL: EXAMINING THE PERCEPTION OF GHANAIAN SENIOR HIGH SCHOOL TEACHERS ON STUDENTS LEARNING STYLES

PRINCIPAL INVESTIGATOR: STEPHEN KWAME AMEKO

Please note that the final review report must be submitted to the Committee at the completion of the study. Your research records may be audited at any time during or after the implementation. Any modification of this research project must be submitted to ECH for review and approval prior to implementation.

Please report all serious adverse events related to this study to ECH within seven (7) days verbally and in writing within fourteen (14) days.

This certificate is valid till July 12, 2022. You are to submit annual reports for continuing review.

Please accept my congratulations.

Yours Sincerely,


Professor C. Charles Mate-Kole
ECH Chair

Cc: Dr. Eliot Kumassah, Department of Teacher Education, UG
Dr. John Sedofia, Department of Teacher Education, UG

Tel: +233-303933866

Email: ech@ug.edu.gh

APPENDIX D



UNIVERSITY OF GHANA
DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP

SEL/DTE. 7

July 8, 2021

Ref. No.:

The Headmistress
Kwabinya Community Senior High School
Kwabinya

Dear Madam,

LETTER OF INTRODUCTION:
STEPHEN KWAME AMEKO (ID: 10524277)

I write to introduce to you **Stephen Kwame Ameko**, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana for the 2020/2021 academic year.

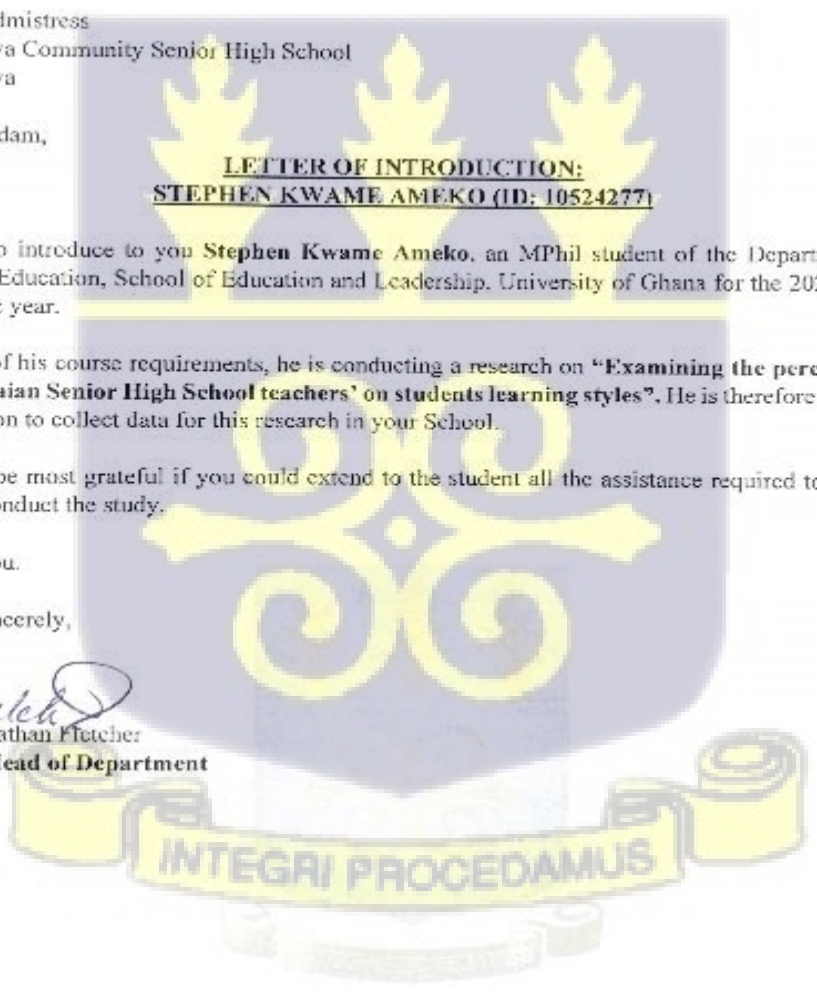
As part of his course requirements, he is conducting a research on “**Examining the perceptions of Ghanaian Senior High School teachers’ on students learning styles**”. He is therefore seeking permission to collect data for this research in your School.

I would be most grateful if you could extend to the student all the assistance required to enable him to conduct the study.

Thank you.

Yours sincerely,


Prof. Jonathan Fletcher
Acting Head of Department



COLLEGE OF EDUCATION

P. O. Box LG 1181, Legon, Accra, Ghana.
• Tel: +233 (0)303 934 692 / 0502 673 636 • Email: teachered@ug.edu.gh • Website: www.ug.edu.gh/led



UNIVERSITY OF GHANA
DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP

Ref. No.: SEL/DTE. 7

July 8, 2021

The Headmaster
Presbyterian Boy's Secondary School
Legon

Dear Madam,

LETTER OF INTRODUCTION:
STEPHEN KWAME AMEKO (ID: 10524277)

I write to introduce to you **Stephen Kwame Ameko**, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana for the 2020/2021 academic year.

As part of his course requirements, he is conducting a research on "**Examining the perceptions of Ghanaian Senior High School teachers' on students learning styles**". He is therefore seeking permission to collect data for this research in your School.

I would be most grateful if you could extend to the student all the assistance required to enable him to conduct the study.

Thank you.

Yours sincerely,


Prof. Jonathan Fletcher
Acting Head of Department

COLLEGE OF EDUCATION

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UNIVERSITY OF GHANA
DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP

SEL/DTE. 7

July 8, 2021

Ref. No.:

The Headmaster
West Africa Senior High School
Adenta

Dear Madam,

**LETTER OF INTRODUCTION:
STEPHEN KWAME AMEKO (ID: 10524277)**

I write to introduce to you **Stephen Kwame Ameko**, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana for the 2020/2021 academic year.

As part of his course requirements, he is conducting a research on “**Examining the perceptions of Ghanaian Senior High School teachers’ on students learning styles**”. He is therefore seeking permission to collect data for this research in your School.

I would be most grateful if you could extend to the student all the assistance required to enable him to conduct the study.

Thank you.

Yours sincerely,


Prof. Jonathan Fletcher
Acting Head of Department



COLLEGE OF EDUCATION

P.O. Box LG 1181, Legon, Accra, Ghana
• Tel: +233 (0)303 934 692 / 0502 673 636 • Email: teachered@ug.edu.gh • Website: www.ug.edu.gh/ed



UNIVERSITY OF GHANA
DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP

Ref. No.: SEL/DTE.7.....

July 8, 2021

The Director
Ghana Education Service
Ga-East Municipal Education Directorate
Abokobi

Dear Sir/Madam,

LETTER OF INTRODUCTION:
STEPHEN KWAME AMEKO (ID: 10524277)

I write to introduce to you **Stephen Kwame Ameko**, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana for the 2020/2021 academic year.

As part of his course requirements, he is conducting a research on "**Examining the perceptions of Ghanaian Senior High School teachers' on students learning styles**". He is therefore seeking permission to collect data for this research at the **Kwabinya Community Senior High School**.

I would be most grateful if you could extend to the student all the assistance required to enable him to conduct the study.

Thank you.

Yours sincerely,


Prof. Jonathan Fletcher
Acting Head of Department

INTEGRI PROCEDAMUS

COLLEGE OF EDUCATION

P. O. Box LG 1181, Legon, Accra, Ghana.
• Tel: +233 (0)303 934 692 / 0502 673 636 • Email: teachered@ug.edu.gh • Website: www.ug.edu.gh/led



UNIVERSITY OF GHANA
DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP

SEL/DTE. 7

July 8, 2021

Ref. No.:

The Director
Ghana Education Service
La-Nkwantnang Municipal Education Directorate
Madina

Dear Sir/Madam,

LETTER OF INTRODUCTION:
STEPHEN KWAME AMEKO (ID: 10524277)

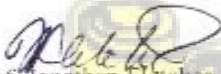
I write to introduce to you **Stephen Kwame Ameko**, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana for the 2020/2021 academic year.

As part of his course requirements, he is conducting a research on “**Examining the perceptions of Ghanaian Senior High School teachers’ on students learning styles**”. He is therefore seeking permission to collect data for this research at the **Presbyterian Boy’s Secondary School, Madina** and **West African Senior High School, Adenta**.

I would be most grateful if you could extend to the student all the assistance required to enable him to conduct the study.

Thank you.

Yours sincerely,


Prof. Jonathan Fletcher
Acting Head of Department

COLLEGE OF EDUCATION

APPENDIX E

GHANA EDUCATION SERVICE

*In case of reply the
number and date of this
letter should be quoted*



MUNICIPAL EDUCATION OFFICE
GA EAST MUNICIPALITY
P. O. BOX AK 91
ABOKOBI

My Ref. No. GES/GEM/3/16

REPUBLIC OF GHANA

Phone: +233-5533-2276
ges.abokobi@gmail.com

14th JULY, 2021

THE HEADMISTRESS
KWABENYA COMM SENIOR HIGH SCHOOL
KWABENYA

LETTER OF INTRODUCTION


This is to introduce to you Mr. Stephen Kwame Amekn, a student of University of Ghana, Legon, and MPhil student of the Department of Teacher Educational, School of Education and Leadership.

He wishes to collect data for his research in your school on the topic '**Examining the perceptions of Ghana Senior High School teachers' on students learning styles**'.

Permission has been granted to him to conduct his research work in Kwabinya Community Senior High School.

Please assist the bearer of this note to undertake his research. Make sure he engages the students during break and not disrupt contact hours.

Thank you.


.....
FAUSTINA ALIMATU BRAIMAH (MS)
DIRECTOR OF EDUCATION
GA EAST - ABOKOBI

GHANA EDUCATION SERVICE

*In case of reply the
number and date of this
Letter should be quoted*



MUNICIPAL EDUCATION OFFICE
LA NKWANTANANG-MADINA
P.O. BOX MD 545
MADINA

My Ref. No. GES/LaNNM/34/Vol4/79

REPUBLIC OF GHANA

21ST JULY, 2021

Your Ref. No.

✓ THE HEADMASTER & MISTRESS
PUBLIC SENIOR HIGH SCHOOLS
LA NKWANTANANG-MADINA MUNICIPAL
MADINA

LETTER OF INTRODUCTION

I write to introduce to you Mr. Stephen Kwame Ameko, an MPhil student of the Department of Teacher Education, School of Education and Leadership, University of Ghana, Legon, for the 2020/2021 academic year.

In partial fulfillment of his course, he is conducting a research on **'Examining the Perceptions of Ghanaian SHS Teachers on Students Learning Styles,'** in the two public Senior High Schools in the Municipality, which requires collection of data.

Heads are by this letter being requested to make the necessary arrangements to help him conduct his research, taking into consideration the observance of all COVID - 19 safety protocols.

It must however be noted that the conduct of this research should not affect instructional hours unduly.

.....
THE MUNICIPAL DIRECTOR OF
EDUCATION
LA NKWANTANANG-MADINA
ANGELA FRIMPOMAA NKANSAH (MS.)
MUN. DIRECTOR OF EDUCATION
LA NKWANTANANG-MADINA

Cc:

The Management Members, LaNMMED

All SISOs, LaNMMED

Prof. Jonathan Fletcher, Acting Head of Department, College of Education, Legon

Mr. Stephen Kwame Ameka, Student, College of Education, Legon

Email: gesgarlannmed013@gmail.com

TEL: 0245502009/0204354060