

UNIVERSITY OF EDUCATION, WINNEBA

**ATTITUDE OF STAFF AND STUDENTS TOWARDS LITTERING
IN SECOND CYCLE SCHOOLS IN THE SEFWI WIAWSO
MUNICIPALITY**



MASTER OF PHILOSOPHY

2022

UNIVERSITY OF EDUCATION WINNEBA

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SECOND CYCLE SCHOOLS IN THE SEFWI WIAWSO MUNICIPALITY**



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**A thesis in the Department of Social Studies Education,
Faculty of Social Science, submitted to the School of
Graduate Studies in partial fulfillment
of the requirement for the award of the degree of
Master of Philosophy
(Social Studies Education)
in the University of Education, Winneba**

JUNE, 2022

DECLARATION

Candidate's Declaration

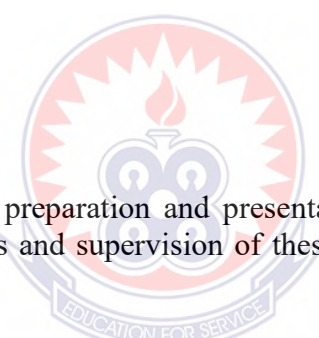
I, **Simon Nipah**, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work and it has not been submitted, with in part or whole for another degree elsewhere.

Signature:.....

Date:

Supervisor's Declaration

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



Name of Supervisor: **Dr. Yaw Asamoah**

Signature:.....

Date:

DEDICATION

This work is dedicated to my wife, Prophetess Mrs. Ida Kelly Nipah



ACKNOWLEDGEMENTS

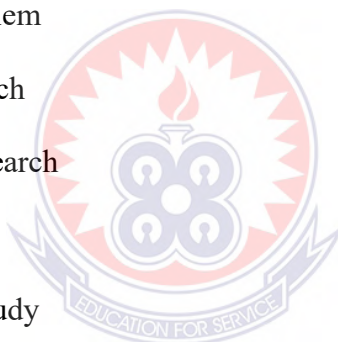
I owe a gratitude to my supervisor, Dr. Yaw Asamoah, for his invaluable encouragement, the promptness with which he corrected the work and the tangible suggestions and guidelines he made available to me. I also express my sincere gratitude to Dr. Emmanuel Carsamer, Dr. Samuel Oppong Frimpong, Mr. Fred Korang, Mr. Patrick Adom Kwarteng, Rev. Vera Baffour Awuah, Mrs. Faustina Kwoffie, Mrs Martha Osei Kofi, and Rev. George Osei for their encouragement and support in diverse ways.

My appreciation also goes to Regina Sanwu, Linda Ampomah Kyeremateng, Rebecca Asare Atieku and Prince Appiah-Kubi who assisted me in typing and proofreading.

Finally, special thanks go to my family and friends for their unflinching support throughout my education especially to my mother, Elizabeth Acquah, my brother, Rev. Gabriel Kwasi Nipah, my children, Samuel Kingsley Brown, Jerry, Adriana, Deborah, Esi, Beth, Keziah and all Inspirational Evangelical Church members. Thank you very much for supporting me to come this far on the educational ladder. God richly bless you all.

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ABSTRACT

Littering is considered a major environmental problem. This problem is growing steadily and is attracting great concerns among the public, scholars and educational institutions. Human attitude is said to be the main contributor to littering as an environmental sanitation problem which, if urgent attention is not taken to address this phenomenon, it might pose serious threats to sustaining life on earth. This study investigated staff and students' attitude towards littering in second cycle schools in the Sefwi Wiawso Municipality of Ghana. The objectives of the study were to explore staff and students' perception on waste; examine staff and students' knowledge on the constituents of littering; examine the factors that contribute to littering behavior among staff and students' and to explore the possibilities on the schools ability to shape up staff and students attitudes towards littering. This study investigated staff and students' attitude towards littering in second cycle schools in the Sefwi Wiawso Municipality of Ghana. Guided by the social learning theory, the mixed method approach was employed for this study by combining interview and questionnaire. Purposive sampling was used in selecting the schools studied. Simple random sampling was adopted in selecting the students for the study whereas convenience sampling was used for the teachers. A sample size of 198 consisting of 188 students' and 10 teachers were selected for the study. The quantitative data was analysed using Statistical Package for the Social Sciences (SPSS version 23.0) computers software. The data keyed into the software were converted into frequency counts and percentages which were used to address the research questions posed in the study. The qualitative data were gathered, organised and analysed manually using emerging themes. The study identified that both teachers and students litter though, they know that littering poses a danger to the environment. It was also revealed that students litter due to laziness, absence of waste bins, less sensitization on littering and lack of law enforcement or litter or no environmental law. The study recommended the provision of enough waste bins on the school compounds and formation of waste clubs to educate the students on littering. In addition, students and staff with good waste management practices should be rewarded as a measure of addressing littering problem in second cycle schools'.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Littering is an intrinsic constituent of today's way of life, existing in numerous countries in the world, and it is a problem that is increasingly growing with sustained negative effects on the health of communities, environmental quality and economic growth of the urban and rural areas (Ojedokun & Balogun, 2011). Whereas there are many definitions of littering, Ojedokun (2011) defines littering as an individual's intentional or unintentional act of throwing away waste on the ground as a daily routine. It can also be defined as "a method of incorrectly disposal of waste" (Garg & Mashilware, 2015). Littering as an environmental issue has emerged as a global environmental problem which is increasingly worsening each and every day especially in many developing countries. Human attitude is said to be the main contributor to the environmental sanitation problems in which, if urgent attention is not taken to address this phenomenon it might pose serious threats to sustaining life on earth (Gore, 1993). The relationship of humans to the environment is reciprocal in that, the environment has profound influence on humans and at the same time, humans extensively alter the environment to suit their needs and desires. Some of these changes created new hazards (Wilson, 2007). Man's activities on the environment have tended to degrade and make the environment untidy and unfit for human habitation. Unfortunately, littering is one form of degradation and it is harmful to the health of both humans and wildlife. In fact, all over the world, poor environmental quality is increasingly recognized as a major threat to social and economic development and even to human survival (Acheampong, 2010). Litter is a

visible problem with many sources (Wanjohi, 2016). According to Keep America Beautiful (KAB), one of the most successful anti-litter organizations, the source of litter can be classified into two major groups; stationary and moving sources, where stationary sources are houses, offices, loading docks and construction and demolition sites while moving sources are uncovered trucks, vehicles and pedestrians (KAB, 2009). Whether intentional or accidental, littering begins with individual and the habit has now become so common that it has become an interesting area of research (KAB, 2009). Given the social, aesthetic and environmental problems that result from litter, several strategies have been devised to deal with the littering problem. They have included increased provision and recruitment of equipment, trucks and labour to collect and dispose the litter collected. These strategies however have not been successful as they do not follow the right criteria during implementation (Bell & Russell, 2002). The failure of the strategies implies that it is an attitude or behavioural problem. Furthermore, majority of these programs are not based on sound principles of human behavior (KAB, 2009). The failure also suggests that the strategies require a psychological intervention with the public being consulted to make them successful (Okeoma & Nkwocha, 2009). The attitude of humans towards the environment are still negative as are contrary to the concept of sustainable development which recognizes that economic growth and environmental protection are inextricably linked and that the quality of present and future use rest on meeting basic human needs without destroying the environment on which our life depends (Gamble, 2012). According to Awake (2002), people in developed countries throw away mountains of rubbish. It was estimated that the residents of New York City alone produced enough waste, each year to bury the city's huge central park less than 13 feet refuse, and in

Britain, it was once estimated that the average family of four discard six trees worth of paper in a year.

Littering was one of the first environmental problems to lend itself to systematic behavioral research, with studies dated over four decades. Public Opinion Surveys, Inc., (1968), for instance, in their article, Keep America Beautiful (KAB) reported on the attitudes, beliefs and self-reported behaviors among a large national sample. In similar studies in the United States of America, a sizable amount of research has focused on understanding and preventing litter (Schutz, Bator, Large, Bruni & Tabanico, 2013). India's landscape is littered with polythene bags and this has contributed to a host of problems such as choked sewers, animal death and clogged soils in the country according to Priya (2001). Jacobi (1995) also observed that in Sao Paulo, Brazil, a major environmental concern is the throwing of Waste in the street and streamlets leading to the proliferation of insects and rodents.

The impacts of environmental deterioration are severe on developing countries thus hindering and undermining their development (Bello, 2007). In fact, the inappropriate solid waste management practices in schools in less developed countries, practically in major urban communities, constitute one of the major factors leading to decline in environmental health conditions (Gree, Oloruntoba, Sherdell, Elemile & Sridhar, 2011). The authors report that, most cities of many less developed countries are often littered with human waste, which has been left for rains to wash away or scavengers' to consume. In Nairobi, the littering situation is made worse by the public, who litter and appear to have no regard for the beauty of the city as a result, sanitation and environmental conditions are deplorable in Nairobi and that heaps of uncontrolled Waste, stench from those heaps swarms of flies and the presence of rodents make the

problem undesirable. It is further asserted that the problem of littering has been compounded by the increasing use of plastic and nylon wrapping and uncontrolled hawking activities in the city of Nairobi (Mwanthi & Nyabula, 1997). In Nigeria, urban litter is one of the most visible and persistent environmental issues facing the Oyo State Government and costs the three tiers of government and community associations huge sum of money every year to clean up and repair the damage it causes (Ojedokun & Bolagun, 2011). The authors in their view also asserted that, the urban city of Ibadan (the capital of Ojo State) a cosmopolitan town and the second most populous city in Africa, has its own share of a wide spread of litter problem that is associated with most urban towns and is growing steadily with a well-felt negative impact on public health, quality of the environment, and sustainable growth of the city.

In Ghana, littering is a major worry in most localities; with street cleaners (Zoomlion Ghana Limited) asserting that many citizens is yet to consider keeping the cities of Ghana clean as every one's duty. This situation has led to the review of people's relationship with nature, their attitudes and behaviors towards the environment, the duties and responsibilities assumed by the individuals towards nature, and the redefinition of ecological culture and environmental awareness (Atasoy, 2005). A lot of studies have been conducted in Ghanaian schools on littering and littering management (Jecty, Nuamah & Arthur, 2020). It is believed that litter education at the country's pre university schools will have positive effects on changing students' attitudes and behaviors towards littering. Even though there have been several sensitizations on the negative effects of littering on the environment as well as the students' health, the problem seems to continue unabated. It seems the students are now accustomed with the littering behavior. A cursory observation in schools such as

universities and secondary schools showed that many places are littered with water sachets, pieces of paper, plastics of different types and broken furniture. In hostels, there are many problems of littering, exposure to used sanitary pads, students urinating around the hostels, students defecating in polythene bags. This poor state of sanitary conditions affects the health of both students in the hostels and workers alike. Management of solid waste materials and substances like pieces of paper, pack from wrappings, tins, wood, littering the environment and classrooms is a problem. Where attempts are made to sweep heaps of refuse are uncontrollably dumped haphazardly and mixed up together unsorted with both degradable and non-degradable materials which mix up and causing mind blighting stench, harboring mosquitoes and pests such as rats, cockroaches and eyesores (Vivienne, 2014). A thorough work done by some researchers in Junior High Schools and Senior High Schools in some parts of the country have revealed that the students are all aware of littering and are aware of the devastating effects associated with littering. However, students litter anywhere and indiscriminately due to the unavailability of waste bins on vantage points on school compounds (Ocansey, 2006). This condition, if not curtailed, will deteriorate the environmental quality in some schools and may impact on the health of the students negatively. There have been several interventions by the school administrators to reduce the rate of insanitary conditions in schools, yet students' perception of waste disposal has not changed. If appropriate efforts are not made to halt the practices in schools, they will continue to spend the greater part of its monetary resources in an attempt to ensure good environmental sanitation without success (Vivienne, 2014).

1.2 Statement of the Problem

Littering problem is an inherent fact of modern living that exists in one way or another in many countries, cities, and communities of the World (Ojedokun & Balogun, 2011). Due to the modern lifestyle, environmental issues such as littering have become part of our everyday living, including those in learning environments. It is a common practice for students or learners, as well as other school workers to buy pre-packed items like takeaways, calculators and other disposable items and intentionally and/or unintentionally dispose of them on bare grounds on their classrooms, offices, school compound, etc., thereby, littering the environment (Matsekoleng, 2017). Not only does the improper disposal of waste materials litter school compounds, they also bring about other negative consequences such as bad odour within the school's environment, thereby deteriorating the general aesthetic of the school environment (Matsekoleng, 2017).

Indeed, a knowledge of this and several others have prompted several studies, including what could be the reasons behind littering on school campuses, as well as ways to ameliorate the situations. Jecty, Nuamah and Arthur (2020) found a lack of waste bins, no strict measures to check littering, lack of education and littering being a common practice in Ghana as the major reasons why people litter in three schools in the Assin North Municipality in the Central Region of Ghana. A very similar finding was found in the Greater Accra Region when students of some selected Senior High School were studied by Aduku (2014). The study focused on the *assessment of the attitude of Senior High School students towards environmental sanitation in Ghana*. In a similar setting as those in Senior High Schools in Sefwi Wiawso, Vivienne (2014), when investigating the attitude of students and staff of Asamankesse Senior

High School towards environmental sanitation also found that the unavailability of waste bins on school compounds compelled people to litter.

Schools, especially second cycle ones, in the Sefwi Wiawso Municipality have over the years kept pace in trying to ensure environmental sanitation on school campuses to curb littering. With the efforts by school authorities, the Municipal Assembly supports act of environmental sanitation on the various campuses by provisions of waste bins. Aside from these physical materials provisions and perhaps as informed by Loubser, Swanepoel and Chacko's (2001) argument that a clean and healthy environment is dependent on the environmental literacy of people, Ghana Education Services sees the need to inculcate environmental sanitation in pupils and students, hence, a topic in environmental sanitation in Religious and moral education for Junior High School on ways for protecting the environment, which include proper refuse and waste management weaved into the curricula (Ghana Education Service syllabus for Junior High School). In the Senior High School Integrated Science syllabus, there is a mutual relationship between environmental education and science education. Some of the environmental topics in the syllabus are diseases in humans (cholera, dysentery, malaria and typhoid), Industrial and Domestic waste, collection and disposal of waste. Other topics are Public Health and Sanitation, Health Services (personal hygiene and cleanliness of surroundings). Students have also been encouraged to form environmental sanitation clubs in some schools.

Though attempts have been made, the question remains as to why littering remains a common phenomenon in school compounds and in classrooms of Sefwi Wiawso Municipality. However, there have been several studies on littering in Ghana (Aduku, 2004; Boateng, Agyei-Baffour, Boateng, Rockson, Mensah, & Edusei, 2019; Jecty et al, 2000; Ocansey, 2006, Mensah, 2016) but there were gaps. None of these studies

was done in Western North region of Ghana, let alone the Sefwi Wiawso Municipality. Again, all these studies are either quantitative or qualitative none of them was a mixed method study. Besides, the studies above concentrated on basic schools and the population outside school but this current study was on Senior High School students and staff. Furthermore, Vivienne (2014) ;Aduku (2014) and Mensah (2016) looked at environmental sanitation but this current study specifically looked at littering It was therefore extremely important to study and document the littering situation in some second cycle schools, by investigating the attitudes of students as well as staff. This study therefore sought to investigate staff and students' attitudes to littering in selected second cycle schools in the Sefwi Wiawso Municipality, by using the mixed method approach and the convergent parallel design to examine the reasons that contribute to persistent littering on school campuses in the municipality.

1.3 Purpose of the Research

The purpose of this study was to document the littering situation and the attitudes of staff and students towards littering in second cycle schools in the Sefwi Wiawso Municipality, in order to put in measures to improve the littering situation in the second cycle schools.

1.4 Objectives of the Research

The Specific objectives of the study were to:

1. explore staff and students' perception on waste.
2. examine staff and students' knowledge on constituents of littering.
3. examine factors that contribute to littering among staff and students.
4. explore the possibilities on schools' ability to shape up staff and students' attitudes towards littering.

1.5. Research Questions

To carry out the study, the researcher was guided by the following questions.

1. What is the perception of staff and students on waste?
2. What is the knowledge of what constitutes littering among staff and students of second cycle schools in Sefwi Wiawso Municipality?
3. Why do staff and students' litter in the second cycle school of Sefwi Wiawso Municipality?
4. How can schools shape up staff and students' attitudes towards littering?

1.6 Significance of the Study

The findings of this research serve as a blue print that will enable the staff and students in second cycle schools to better understand and cultivate a habit of maintaining a clean environment.

The findings of this research will also enable the stakeholders in the waste management to realize the extent of environmental conditions in the schools. This serves as a guide to them on how they have to manage the sanitation conditions on the campuses of the Senior High Schools in the Municipality.

The outcome of the study is serving as an appeal to the non-governmental organizations, co-operate institutions, philanthropists and the various stakeholders of education to contribute their quota towards eradication of indiscriminate littering on campuses.

Further, it is envisaged that the findings of the study will add up to the existing body of literature on the attitude of people towards littering as well as serving as a basis for further research. It is also serving as a source of information for policy makers such as metropolitan, municipal, district assemblies among others and other stakeholders in

the field of environmental education which aims to equip the individual with relevant knowledge, attitudes, values and skills in order to raise concern and awareness for the environmental problems and the prevention of new ones. The work is available on the electronic resource of the University as a source of information.

Essentially, the ministry in charge of sanitation and other stakeholders that emphasize environmental issue may obtain requisite information from this research to help them adopt strategies to affect both young and the old with regards to environmental improvement. Copies of the work have been made available to them. Again, suggestions have been given regarding the appropriate and proper way of disposing waste in educational institution. Finally, the findings of the study are helping students and staff in second cycle schools in Sefwi Wiawso Municipality, who are benefiting from the environmental education programme on littering and its effects. This is helping them because they have now become more enlightened as far as littering is concerned and is helping them, because they now exhibit it in their behavior on their school campuses.

1.7 Limitations of the study

Like many other researches, this work encountered limitations. This limitation constituted factors that were beyond the control of the researcher. However, these limitations do not nullify the findings of the study because the researcher took several steps that helped to overcome the limitations.

- The first of these limitations was the sample size which comprised only two senior high schools instead of covering the four senior high schools in the Municipality. If the four schools in the municipality have been taken, that could have increased the sample size. However, with these two schools the results were used to generalised.

- Secondly, the topic that was researched upon was limited, a broader topic could have given a perfect result.
- Language was also a problem because most of the students did not understand English that made the administration of the instruments difficult. During the administration of the instruments the researcher had to go round to explain further to students whose understanding of English was low.
- Finally, only two instruments (questionnaire and interview guide) were used for the study, additional instruments like observation and focus group discussion could have been added.

1.8 Delimitation of the Study

Though the issue of littering seems to be a major problem in the country and most developing countries, the study had Sefwi Wiawso Municipality as its focus. The Sefwi Wiawso Municipality was chosen based on the reason that, there is a literature gap. That is, a little is known about the littering situation and the attitudes of staff and students towards littering as an environmental issue in the municipality. The study is also limited to only the attitude of staff and students of second cycle schools in Sefwi Wiawso Municipality. The selected population comprises all staff and students of second cycle schools in the Sefwi Wiawso Municipality. Since there are four Senior High Schools in the area and all are boarding, the study covered only two of the Senior High Schools. The reason is that, the students from the four schools share similar characteristics in terms of age and behaviour. The four second cycle schools are Sefwi Wiawso Senior High School, Sefwi Wiawso Technical School, Asawinso Senior High School and St Joseph Senior High School. The Sefwi Wiawso Senior High and Sefwi Wiawso Technical School can be found in the northern part of the Sefwi Wiawso Municipality and St. Joseph Senior High and Asawinso Senior High

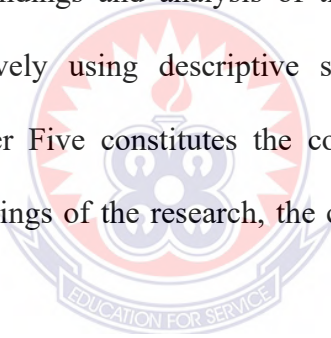
School can also be found in southern part of the Sefwi Wiawso Municipality. So the researcher picked one from northern part and one from the southern part.

1.9. Operational Definition of Terms:

- **Attitude towards littering:** It is defined in this study as a person's inclination to react positively or negatively towards throwing away wastes.
- **Attitude:** It is defined as individual learnt ideas, concepts and perceptions that are generated towards an object, environment or people.
- **Environment:** It has been defined in this study as the total of conditions which organisms live.
- **Environmental sanitation:** it has been defined as the principle and practices affecting health and hygienic condition in the environment to promote public health and waste materials.
- **Environmental awareness:** knowing the impact of human behavior on the environment.
- **Waste:** It refers to solid waste.
- **Litter:** It is defined in this study as any piece of glass, plastic, paper, metal, cloth, rubber, food or food by-product which is thrown away in public places outside waste collection containers.
- **Littering** is an individual's intentional or unintentional act of throwing away waste on the ground as a daily routine.
- **Sanitation:** It is defined in this study as the provision of facilities and services for safe disposal of human urine, feces, and waste materials.

1.10. Organization of the Study

The research report is organized into five main chapters. Chapter one covers the background to the study, statement of the research problem, the purpose and objectives of the study, research questions, significance of the study, limitations of the research, delimitation of the study and organization of the study .Chapter two focuses on theoretical framework and review of the relevant literature on the study. Chapter three presents the methodology adopted for this research. It consists of the study area, research design, and the population, sample and sample techniques. It also outlines the instruments for data collection, data collection procedures, validity, reliability measures, data analysis techniques and ethical issues. Chapter four deals with the presentation of results, findings and analysis of the data collected. This data was analyzed both quantitatively using descriptive statistics and qualitatively using thematic analysis. Chapter Five constitutes the concluding phase of the report; it summarizes the main findings of the research, the conclusion, recommendations and areas for further studies.



CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter covers conceptual definitions, theoretical and empirical review. This includes:

- A. Conceptual review
 - i. Environment
 - ii. The Concept of waste
 - iii. Defining Sanitation
 - iv. Environmental Sanitation
 - v. The Concept of littering
 - vi. Littering in Africa and Ghana
 - vii. Attitude towards the Environment
 - viii. Littering as a Problem
 - ix. Attitude towards Littering
 - x. Factors affecting littering
 - xi. Effects of littering
 - xii. Litter prevention strategies
 - xiii. Environmental education,
- B. The theoretical framework (The Social Learning Theory)
- C. Empirical review
- D. Summary.

2.1 Conceptual review

2.1.1 Environment

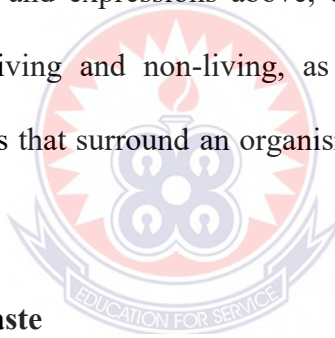
Environment, according to Encarta (2009), is the natural world within which people, animals and plants live. Ecologically, it is all the external factors influencing the life of organisms such as light or food supply. There are many interpretations of what is meant by the environment.

Generally, the term environment is from the French word “environner”, which means to encircle or surround. Cunningham, Cunnngnam and Saigo (2003) literally refers to anything either tangible or abstract, found around an organism or group of organisms. Definitions of the word environment are very similar in their description of what the word entails. For example, Bell, Greene, Fisher and Baum (2001) describe the environment as one’s surrounding which include one’s social environment, for example, the people and groups among which we live; one’s physical environment for example the non-animal aspect of one’s surrounding such as the wilderness, cities or farmlands, the natural (non-humans) and the built (human-made). In its modern concept, environment includes not only water, air and soil but also the social and economic conditions under which we live (Park, 2011). From the above definitions, environment can be explained as the sum total of condition with which organisms live. Such environment can be natural, built and personal. Eni (2005) maintains that humans by nature live in two universes. First is the natural universe of nature consisting of soils, animals, air, water and plants that preceded the existence of human beings by hundreds of millions of years of which the human being is an integral and inescapable part. The second is the world of social institutions and artifacts (built world) that humans deliberately created for them using science, technology, culture, political organization and many others.

Environment is the entire global system that is everything from the outer most reaches of the atmosphere to the earth's inner core. Inherent in this are all the factors that influence the environment, from its geology to the fauna and flora as well as the entire prevailing climate". Michaels (2004) corroborates this by affirming that the environment is "the sum of all external conditions and influences affecting the development and life of organisms".

According to Benson, Ngaaso and Yaokumah (2018), the term 'environment' connotes the sum total of the natural conditions that surrounds an organism. These natural conditions can be categorized as biotic (living) and abiotic (non-living) elements that have effect on an organism in its habitat. The biotic elements include various plant and animals species while the abiotic elements comprise the temperature conditions of a place, precipitation, air, phenomena (Benson et al., 2018). Appiah, Mensah and Hippolyt (2020) posit that the environment is full of an amazing variety of things, and the various things in the environment have a wide range of differences in their structure. The environment is therefore made up of the whole set of natural or physical and man-made or socio-cultural systems in which man and other living things live and interact (Boadu & Kwenin, 2020). As identified by Obong (2007), three major segments of environment include the natural, built and personal environments. The built and personal environments are what to a large extent determine the conditions of a school environment. As part of the deliberate world created by humans is the school environment that constitutes the learning atmosphere for the young minds. Neglecting to manage this environment is to undermine the future of any society. The particular concern here is that it is the product of anthropogenic activities (Vivienne, 2014).

The environment shapes the lives of human beings and is in turn shaped by human beings. This is because human beings depend to a way large extent for their survival. Human beings exist in the environment, eat from it and all their activities take place in the environment (Nnaemeka & Nlekuwa, 2021). Without the environment man will be nothing, in fact man is the environment and the environment is man. Man's total environment includes all the living and non-living element is his surrounding which could be natural or built (man-made), etc in a complex networks of systems (Okaba & Obong, 2006). Kwansah-Aidoo (2004) asserts that some countries in Africa such as Morocco, Tunisia and Egypt seem to be succeeding in their development efforts because they have integrated environmental issues into their development plans. Drawing from the views and expressions above, environment can operationally be defined as everything, living and non-living, as well as the social and cultural activities of human beings that surround an organism and have effect on its ability to survive and develop.



2.1.1 The Concept of Waste

Most human activities generate waste (Bruner & Rechberger, 2014). Waste is a dynamic concept which can be defined in different ways (Pongr'acz, 2009). The Chambers dictionary defines waste as rejected, superfluous, uncultivated, unused and unproductive. The Longman Dictionary of Contemporary English also defines waste as unwanted materials or substances that are left after you have used some.

Waste is any substance which is discarded and considered as worthless, defective and of no use. The term is often subjective, because waste to one person is not necessarily a waste to another (Benson et al, 2018). Waste also refers to an item, material or substance you as an individual consider useless at a given time and place (Mugambwa, 2009). Furthermore, waste is defined as residual materials which are as

a result of human activities which cannot be re-used or recovered as resource, recycle into materials production processes or thermally /biologically utilized for energy production (Agwuoke, 2012). Waste can also be defined as any product or substances that has no further use or value for the person or organization that owns it and which is or will be discarded (Kolekra, Hazrab & Chacrabartyc, 2016). Orhororo and Oghoghore (2019) further defined solid waste as the useless and unwanted substances in solid state discarded by members of the society.

In generic terms, waste can be defined as unavoidable by- product of human activity. Economic development and rising living standards have increase the quantity and complexity of generated waste (Muzenda, 2014). Waste generated in all sort of ways and its composition and volume largely depend on consumption patterns and on industrial and economic structures. Every school generates waste arising from routine activities such as classwork, sweeping, serving of food and bush cutting (Adeolu, Enesi & Adeolu, 2014). The common types of solid waste found in various schools in less – developed countries include paper, pure water bags, biscuits, ice cream and sweet or candy wrappers, sugar cane, maize cobs, groundnut shells etc. Adeolu et al (2014) and Benson et al. (2018), in their work, classified waste into three main categories which are solid waste, liquid waste and gaseous states. In this study waste refers to solid waste. In this study waste can operationally be defined as substances or solid objects which are disposed of or are intended to be disposed of or are required to be disposed of at appropriate location.

2.1.2 Sources and Types of Solid Waste

From the definitions provided, there are different categories of solid waste, and many researchers have classified it according to its origin (such as domestic, industrial, commercial, construction or institutional); according to its contents (such as organic

material, glass, metal or plastic paper); or according to hazard potential (such as toxic, non-toxin, flammable, radioactive and infectious). Tchobanoglous, Theisen & Vigil (1993). have categorised solid waste according to sources, the facilities that generate it, the types of activities that generate it, and the locations associated with the type of waste. This classification is presented in Table 1.

Table 1: Typical waste generation facilities, activities, and locations associated with various sources of solid waste

Source	Typical location	Types of Solid Waste
Residential	Single-family and multifamily dwellings, low-medium and high-rise apartments	Food wastes, rubbish, ashes and special waste
Commercial /municipal	Stores, restaurants, markets, office buildings, hostels, motels, print shops, medical facilities and institutions	Food wastes, rubbish, ashes, demolitions and construction wastes, special wastes, occasionally hazardous wastes.
Industrial	Construction, fabrication, light and heavy manufacturing, refineries, chemical plants, lumbering, mining demolition.	Food waste, rubbish, ashes, demolition and construction wastes, special wastes and occasionally hazardous wastes.
Open areas	Streets, alleys, parks and vacant plots, playgrounds, beaches, heavy and recreational areas	Special wastes, rubbish
Treatment plant	Water, wastes bins, and industrial treatment processes	Treatment plant wastes, principally composed of residual sludge
Agricultural	Field and row crops, orchards, vineyards, dairies, feedlots and farms	Spoiled food wastes agricultural wastes, rubbish, hazardous wastes

Source: Tchobanoglous, (1993)

In addition to the above classification of waste, Tchobanoglous et al., (1993) also identified forms of solid waste and grouped them into food waste, rubbish, ashes and residues and special waste. Each of these forms of solid waste has been explained in the ensuing paragraphs.

- (i) Food waste: Asare, (2021) stated that food wastes include all animal, plant and vegetable residues which may result from the preparation, cooking and the eating of foods. One important feature of food wastes is that they are exceedingly perishable and in warm weather, they decompose very quickly. Regularly, offensive odours may be developed as a result of the decomposition. The rapid decomposition nature of food waste usually influences the design and operation of solid waste collection.
- (ii) Rubbish: The composition of rubbish is combustible and non- combustible solid wastes which are generated from institutions, commercial activities and households. It excludes food wastes or other extremely perishing materials. Typical combustible rubbish includes items such as plastics, paper, rubber, textiles, cardboard, wood, garden trimmings leather and furniture. Also, the non-combustible rubbish comprises of dirt, ferrous and non-ferrous metal, glass, tin cans, and aluminium cans.
- (iii) Ashes and residues: Tchobanoglous et al., (1993) indicated that ashes and residues are materials that are left from the burning of wood, coal, coke and other combustible wastes industrial, institutions and domestic settings. The purposes of burning these items include heating, cooking and disposing of the waste materials and the remains after the burning process are to generate ashes and residues.
- (iv) Special waste: The items included in the list of special waste are roadside litter, litter from municipal containers, catch-basin debris, street sweepings, and abandoned vehicles and dead animal (Tchobanoglous et al., 1993).

In addition to the classification of solid waste by Tchobanoglous (1993), the Centre for Environment and Development (CED) (2003) has also categorised solid waste

types on three main grounds. The first is based on the source (for example food waste, ashes and residues, rubbish, demolition and construction and agriculture waste). The second classification is based on the features of the material (biodegradable and non-biodegradable) while the third classification is based on the risk potential (hazardous waste). Further, the center enumerated sources of solid waste as residential, waste from shops, commercial establishment, hotels/restaurants/eating stalls, and slaughterhouses, among others. CED classification is akin to the sources and types of categorisations by Tchobanoglous et al., (1993). On the grounds of the types of solid waste enumerated by Tchobanoglous et al., (1993) and the Centre for Environment and Development (2003), solid waste largely includes food waste, rubbish, ashes and residues, demolition and construction, as well as agriculture waste. The sources of solid waste also include domestic, commercial and industrial.

2.14 Contemporary Methods of Managing Solid Waste

According to Denison and Ruston (1990), in this contemporary era, the methods of managing solid waste include source reduction, sanitary landfills, composting, recycling, and incineration. The contemporary methods include source reduction, sanitary landfill, recycling, composting and incineration and which have been discussed as follows. Denison and Ruston (1990) viewed source reduction as any action that reduces the volume or toxicity of solid waste before its processing and disposal in incinerators or landfills. This view is similar to the one given by Kreith (1994). According to kreith, source reduction focuses on reducing the volume and/or the toxicity of waste generated. Source reduction includes the switch to reusable products and packaging, the most familiar example being returnable bottles.

It is agreed that source separation and resource recovery are an important method in waste management because there is nothing like a waste on this earth. Wastes that are discharged may be of significant value in another setting, but they are of little or no value to the possessor who wants to dispose of it.

According to Tsiboe and Marbel (2004), Austria, the Netherlands and Denmark, developed a waste management processes to efficiently resolve the waste disposal problem by essentially coaxing their citizens to separate their domestic solid waste into glass, paper, plastic categories; thereby enabling easy collection and consequently reuse. According to Tsiboe, Marbel and kreith (2004), one way of effectively managing solid waste is to minimize solid waste generation through source reduction.

Sanitary landfilling includes confining the waste, compacting and covering with soil. It not only prevents the burning of the garbage, but also helps in the reclamation of land for valuable use (Centre for Environment and Development, 2003). The placement of solid waste in landfills is the oldest and the most prevalent form of ultimate waste disposal (Zerbock, 2003). Zerbock further argued that landfills are nothing more than open, sometimes controlled dumps. According to Zerbock (2003), the difference between landfills and dumps is the level of engineering, planning and administration involved. Open dumps are characterized by the lack of engineering measures, leachate management, as well as lack of landfill gas management, and few, if any, operational measures such as the registration of users, the control of the number of "tipping fronts" or the compaction of waste (Zerbock, 2003).

Furthermore, landfills are one form of waste management that nobody wants but everybody needs (Kreith, 1994). According to kreith, there are simply no combinations of waste management techniques that do not require landfilling to make

them work of the basic management options of solid waste, landfills are the only management technique that is both necessary and sufficient. According to Kreith (1994), some wastes are simply not recyclable, many recyclable wastes eventually reach a point where their intrinsic value is completely dissipated and they no longer can be recovered, and recycling itself produces residuals. Kreith further highlighted that the technology and operation of modern landfill can assure the protection of human health and the environment.

In contrast to what the various authors have said about sanitary landfill as an option for waste management, they have failed to recognise that landfill in itself has some disadvantages as it is costly to construct and maintain, can pollute groundwater through leaching, its location may be a problem in terms of availability of land particularly in the cities. Other critical factors such as gas recovery, composting, waste to energy recovery, storm water control, distance to any settlement and water bodies were not considered by the authors. Therefore, there could be an alternative which is recycling.

According to Momoh and Oladebeye (2010), recycling has been viewed as a veritable tool in minimising the amount of household solid wastes that enter the dumpsites. It also provides the needed raw materials for industries. According to Momoh et al., recycling has been established that it is the best, efficient and effective method of solid waste management system. However, this may not be cost-effective in developing countries such as Ghana. The United States Environmental Protection Agency (USEPA) (1999) has recommended recovery for recycling as one of the most effective waste management techniques. According to USEPA, recycling turns materials that would otherwise become waste into valuable resources and, it yields environmental, financial and social returns in natural resource conservation, energy

conservation, pollution prevention, and economic expansion and competitiveness. More importantly, a sizeable portion of what is thrown away contains valuable resources metals, glass, paper, wood, and plastic that can be reprocessed and used again as raw materials (USEPA, 1999). Kreith (1994) also conceded that recycling is the most positively perceived and doable of all the waste management options. According to kreith, recycling will return raw materials to the market by separating reusable products from the rest of the Municipal waste stream. The benefits of recycling are many, kreith added. Recycle saves precious finite resources, lessens the need for mining of virgin materials which lowers the environmental impact for mining and processing. For example, according to the Institute of Waste Management cited in Tsiboe and Marbel (2004), UK recycles only 11 percent of its household waste, Italy and Spain only 3 percent, Netherlands 43 percent, Denmark 29 percent and Austria 50 percent. Having proposed recycling by different authors as the best option to manage solid waste in modern times, they have forgotten about the cost component which is important to a successful implementation of any recycling project. Even developed countries are not able to successfully do it. But alternatively, it may be the best option for effectively managing solid waste in Ghana.

Composting process uses micro-organisms to degrade the organic content of the waste. Aerobic composting proceeds at a higher rate and converts the heterogeneous organic waste materials into homogeneous and stable humus (Centre for Environment and Development, 2003). UNEP (2009) defined composting as a biological decomposition of biodegradable solid waste under controlled predominantly aerobic conditions to a state that is sufficiently stable for nuisance-free storage and handling and is satisfactorily matured for safe use in agriculture. According to the UNEP (2009), composting is the option that, with few exceptions, best fits within the limited

resources available in developing countries. A characteristic that renders composting especially suitable is its adaptability to a broad range of situations. According to Zerbock (2003), a low-technology approach to waste reduction is composting. Zerbock, further said, that in developing countries, the average city's municipal waste stream is over 50 per cent organic material.

According to the Centre for Environment and Development (2003: 9), incineration is a controlled combustion process for burning combustible waste to gases and reducing it to a residue of non-combustible ingredients. According to the Centre, during incineration, moisture in the solid waste gets vaporized and the combustible portion gets oxidized and this produces water vapour, ash and non-combustible residue. Incinerators can reduce the volume of waste drastically, up to nine-fold than any other method (Kreith, 1994). According to Kreith, incineration can also recover useful energy either in the form of steam or electricity. Kreith, however, recognized that the main constraints of incineration are high cost of operation, relatively high degree of sophistication needed to operate them safely and economically as well as the tendency to pollute the environment through emissions of carbon dioxide. Having assessed the major methods that have been proposed by the various authors, literature has further revealed that there is an alternative method of managing solid waste effectively which is synonymous to waste reduction and recycling as mentioned earlier on.

2.1.3 Defining Sanitation

The term “sanitation” has been given various definitions by different authors and has been used regularly in various aid programs. Yet what exactly is sanitation?

Schertenleib and Dionys (2002) define sanitation as interventions to reduce people's exposure to diseases by providing a clean environment in which to live and with measures to break the cycle of disease. This usually includes hygienic management of

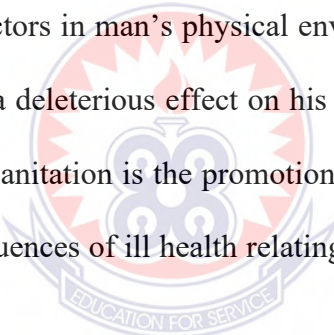
human and animal excreta, refuse and wastewater, the control of disease vectors and the provision of washing facilities for personal and domestic hygiene. According to the Sanitation Foundation of USA, the word sanitation is defined as a way of life that is expressed in the clean home, farm, business, neighbourhoods and community (Park, 2011). According to Mensah (2002), sanitation is the state of cleanliness of a place, community or people particularly relating to those aspects of human health including the quality of life determined by physical, biological, social and psychological factors in the environment.

Also, sanitation is explain as the provision of facilities and services for the safe disposal of human urine, faeces and waste materials (UNICEF & WHO, 2012), provides a more elaborate definition for the term sanitation as maintenance of hygienic conditions through services such as Waste collection and waste-water disposed. It deals with the control of all those factors in man's physical environment which exercises a deleterious effect on his physical development, health and survival (WHO, 2013). The views of WHO (2013) corroborate the assertion of Alabi (2010) who sees sanitation as the principle and practice of affecting health and hygienic conditions in the environment to promote public health and welfare, improve quality of life and ensure a sustainable environment. From UNICEF and WHO, (2012) assertion, it could be gathered that sanitation must promote clean environment which may lead to healthy and quality life to help the development of the individual in society. Mensah (2002) noted that improving sanitation is known to have a significant beneficial impact on health both in households and across communities (Bellamy, 2007). Uchegbu (2002) referred to "sanitation as the arrangement for protection of health, especially the removal of human, industrial and domestic waste". In its broad sense it includes the whole process and procedures of keeping the environment clean

from waste (both domestic and industrial, keeping the surrounding air and land free from all that could harm them and make them unfit for human usage and thus cause harm to human beings and other living organisms in the ecosphere and biosphere. Therefore, improved sanitation is an essential component of development (Asare & Frimpong, 2013). From the above definitions, sanitation can operational be defined as the principles and practices relating to the collection removal or disposal and treatment of human excreta, refuse, household waste water, drainage of storm water and treatment of industrial sewage as they impact upon people and the environment.

2.1.4 Environmental Sanitation

The World Health Organisation (WHO) (2008) defines environmental sanitation as the control of all those factors in man's physical environment, which exercise or may exercise or may exercise a deleterious effect on his physical development, health and survival. Environmental Sanitation is the promotion of hygiene and the prevention of diseases and other consequences of ill health relating to environmental factors (WHO, 2017).



The World Health Organisation (WHO, 2019) emphasizes environmental sanitation as one of the major means of achieving healthy living at all times. Environmental Sanitation includes issues such as disposal of human excreta, urban solid waste management, domestic water supply drainage systems, sewage and waste management personal hygiene, household and community cleanliness, food hygiene, disease vectors and pest control (Nnaemeka & Nlekwa, 2021). According to Vivienne (2014), environmental sanitation is the practice of collective, reuse and disposal of human excreta and domestic wastes within the overall objective to protect the school health.

The concept of environmental sanitation entails the control of water supplies, vectors of diseases, housing conditions, food supplies and the safety of the working environment (Acheampong, 2010). Mmom and Mmom (2011) opine that effective environmental sanitation in cities is a function of positive environmental behavior and availability of facilities and services thus Olowoporoku (2014) and Afon and Faniram (2013) complimented that adequate environmental sanitation facilities and enabling environmental sanitation policies positive of a healthy living environment.

According to Teer (2007), environmental deterioration, extinction, or pollution in many vital earth systems such as air, water, soil, forest and biological diversity have required protecting and developing the earth and promoting global corporation on these issues. Poor attitudes of city residents toward environmental sanitation coupled with weak institutional facilities have affected the development of cities in many ways (Napari & Cobinnah, 2014). For the purposes of this study, environmental sanitation refers to efforts or activities aimed at developing and maintaining a clean, safe and present physical environment in all human settlements.

2.1.5 The Concept of Littering

Litter is any piece of solid waste (Geller, 1980) as cited by (Schultz, Bator, Large, Bruni & Tabanico, 2011). This can range from small items, such as cigarette butts or candy wrappers, to abandoned automobiles, appliances and even spacecraft. Most commonly, litter refers to items that are discarded by an individual, but it can include any item that is in an unacceptable location regardless of the origin, (Schutz et al, 2013). This could not only include the candy wrapper dropped on the ground but also the newspaper that blows out of the trash can. The distinction here is between litter (the item) and littering (the behaviour).

Schutz et al., (2013) and Ojedokun (2011) define littering as an individual's intentional or unintentional act of throwing away waste on the ground as a daily routine. According to Orock (2017), littering is the improper disposal of rubbish or waste objects on the ground, sea, rivers, oceans, streams and lakes. Littering is an act of discarding or scattering trash about in disorder over a socially inappropriate area. It is an ugly, expensive, widespread and dangerous phenomenon.

According to Schultz et al., (2011), littering' refers specifically to the human behaviour of disposing of waste improperly. Littering is a worldwide problem that has been receiving attention in research and in prevention efforts. However, littering is more common in the Middle East and Africa and receives less attention and focus (Arafat et al., 2007). Littering is unpleasant from the view of city cleanliness (Green, 2001), harmful to people and animals, and contributes to horrible odour in the environment. Litter can be any compact or fluid domestic or commercial refuse, wreckage or Waste. Without limiting to the generality of the above, litter includes soft drink bottles (both plastic and metal), glass, metal, cigarette butts, small pieces of paper, chip, fabric, and confectionery wrappers, fast-food packaging, bottle covers, other bottles, plastic straws, wood, food, abandoned vehicles, abandoned vehicle parts, construction or demolition materials, garden remnants and trimmings, and soil sand or rocks generally (Arafat, Al-Khatib, Daoud & Shwahneh, 2007). Every school generates waste arising from routine activities such as classwork, sweeping, serving of food, and bush cutting. The common types of solid wastes found in various schools in less-developed countries include paper, grass, nylon (pure water bags and biscuits, lollipops, ice cream, and sweet or candy wrappers), sugar cane, maize cobs and groundnut shells. Other forms of wastes may also be found on school premises, and these may not have even been generated directly by pupils and teachers (Adeolu et

al., 2014). Due to that, the littering of waste in urban and natural sceneries decreases the beautiful and ecological value of the environment (Crabb & Lessack, 2014). For the purpose of this study, littering can be operationally defined as individual's intentional or unintentional act of throwing away solid waste at unacceptable place.

2.1.6 Littering in Ghana and Africa

Globalisation has raised some troubling concerns for the developing world, including Africa. One such concern is its impact on urbanization and the ramifications that go with it. Cities are traditionally engines of social modernization and economic growth and at the same time theatres in which globalization stages its actions. For Africa, this has meant fuelling the already unprecedented urban growth phenomenon and increasing the challenges that go with it. One of these challenges is sanitation (Achankeng, 2003). The plastic litter menace, therefore, is going to be a double agony if environmental issues through the mass media and environmental consciousness on littering and indiscriminate disposal of waste by individuals are not made a priority. For instance, in sub-Sahara Africa, the last few decades have witnessed a steady increase in the usage of plastic products resulting in a proportionate rise in plastic wastes in the municipal solid waste streams in large cities (World Bank, 1996; Yankson, 1998).

The need for a more hygienic mode of packaging food, beverages, iced-water and other products, brought plastic packaging to replace the existing cultural packaging methods such as leaf wrappers, usage of brown paper and metal cups in cities and towns. Fobil and Hogarh (2006) were of the view that the drastic change in the plastic packaging product has not been correspondingly backed by appropriate plastic waste management policy. This weakness has left many cities in Sub-Sahara Africa littered with plastic wastes thus resulting in visual nuisances and other public health

problems. Most countries in Sub-Saharan Africa do not have data on waste stream composition but individual management authorities recognize and acknowledge the growing magnitude and prominence of the plastic waste problems (Fobil & Hogarh, 2006).

In South Africa, for instance, plastic bags have been littered on the streets to such an extent that they earned the nickname ‘national flowers.’ They could be seen flapping from fences and caught in bushes (www.wikipedia.com). In Nigeria, urban litter is one of the most visible and persistent environmental issues facing the Oyo State Government and costs the three tiers of government and community associations huge sum of money every year to clean up and repair the damage it causes. (Ojedokun & Balogun, 2011). In Tanzania, the environmental director, Mugurusi (2006), said ‘the place has become an eyesore, plastic bags fly very easily and their use is widespread –almost every town and city, the litter is conspicuous’. The per capita generation of plastic wastes in Ghana, stands at 0.016-0.035kg/person/day. Plastics make up between 8-9% of the component materials in the waste stream (Fobil & Hogarh, 2006). Empirical evidence available on plastic waste composition in the waste stream in Ghana shows a rising trend. Between 1996 and 1997, the proportion of plastic waste in the waste stream was 5% (Archer, Larbi & Anim, 1997). This proportion had increased to 8% by 2000 (Worlanyo, 2013).

In Ghana, the perception that sachet water is cleaner and more mineralized than tap water is one factor. People after gulping down the liquid content discard the sachet bags indiscriminately thus, littering the whole environment (Wienaah, 2007). Sachet water bags appear in very high proportion in the municipal solid waste stream causing environmental problems such as choking of animals and soils, blockage of water

ways and rivers; blight of landscape and trees; and resource depletions (Wiennaah, 2007).

The sachet bags choke the drainage systems in urban centers of the country to such an extent that it takes only the slightest of rainfall to cause floods in the major cities like Accra, Kumasi and Takoradi. A Daily Graphic report on (March 16, 2005) captioned, ‘The recent rains in Accra exposed the havoc being caused by plastic waste’ tells it all. A minimum of two hours rain in Accra on March 15, 2005 for instance led to flooding in some parts of the city. A few years ago, the same duration of rain would not have resulted in flooding (Fobil & Hogarh, 2006). In the president’s State of the Nation’s address (2009), His Excellency, the late Professor Evans John Atta Mills announced that 21million Ghana Cedis would be allocated to tackle sanitation in the urban communities in the country. A yearly programme, dubbed “Environmental Film Festival of Accra, 2009”, which was produced by a Non-Governmental Organization, Creative Storm, in collaboration with UNICEF, British Council and other international organizations, vividly tell the story in motion pictures the menace waste plastic bags are causing to the environment at both national and international levels (www.effaccra.org).

Consequently, to change Ghana’s status as one of the worst performing countries regarding sanitation issues, the government, corporate institutions as well as, non-governmental organisations have put forward a number of interventions to help promote proper waste management practices in Ghana (Adu-Boahen, Atampugre, Antwi, & Osman, 2014). For instance, the government through the Ministry of Local Government and Rural Development has declared the first Saturday of every month for clean-up exercise (Ghana News Agency, 2014). This initiative was introduced with the aim of sensitizing the citizenry about health-related benefits associated with

proper waste disposal practices. In addition, the government in its quest to reduce waste in the country spends an average of \$290 million annually distilling choked gutters and creating awareness of waste management (Abalo, Peprah, Nyonyo, Ampomah-Sarpong, & Agyemang-Duah, 2018). This is a worrying situation considering that this huge expenditure on waste management deprives the country of resources that could have been directed towards other developmental programs.

Despite the aforementioned interventions, reckless littering attitudes and environmentally unfriendly practices among most Ghanaian households have dwarfed efforts to improve the sanitation position across the country (Graphic Online, 2013). There seems to be no desirable results because little or no efforts has been made to understand and subsequently change the attitude or behavior of individuals/households towards adopting acceptable waste disposal practices. Meanwhile, improper waste disposal practices have behavioural underpinnings, and, thus demand behavioural change techniques toward their prevention (Adu-Boahen et al., 2014); arguably, even where trash bins and containers with lids are provided people still litter the roads, stream channels, bush lands and open spaces (Fobil, Armah, Hogarh, & Carboo, 2008) and these practices result in environmental problems such as flooding, disease, loss of valuable materials and even death (Puopiel, 2010). For instance, on June 3, 2015, during a downpour, there was an explosion of a gas filling station which cost the country the lives of 159 people and left 60 injured as a result of choked gutters due to littering and poor waste disposal behavior (Graphic Online, 2017). A reader's comment in a newspaper on the sanitation problem at Mallam Atta Market, New Town, and Accra was: "The refuse had heaped into rounded mounds and into the gutters. The sanitation workers sweep the lorry stations in the morning. By dusk the stations are in a mess again. Therefore, the clean-up alone though a very

important part of the solution, is somewhat a superficial approach to solving the problem. This is akin to cutting a tree and leaving its stump in the soil. Attitudinal change is required to solve the problem” (The Daily Graphic, 2008, p.9).

2.1.7 Attitudes towards the Environment

An attitude can be defined as the positive or negative evaluation of performing a certain behavior, in this case littering (Ojedokun, 2011). Various beliefs determine this attitude, which can either be positive or negative. People acquire beliefs automatically by relating them to certain items, characteristics and or occasions. People analyze benefits and costs of doing particular behaviors and they therefore tend to form good attitudes towards behavior that seem to have a consequence that they desire and bad attitudes towards those that don't have a consequence they desire (Leijdekkers *et al.*, 2015).

According to Bezzina and Dimech (2011), attitude is the psychological emotion that an individual attaches to a behavior which determines whether performing the behavior will yield positive or negative outcomes. As Hagger, Chatzisarantis and Harris (2006) put it, an individual's positive attitude towards behavior influences his/her performance of the behavior. Thus, in advancing the argument, Rex, Lobo and Leckie (2015) assert that the adoption of a sustainable behavior is preceded by positive attitude. To this end, positive attitudes towards behavior become the starting point for achieving a behavioral outcome. Environmental attitudes are in a way perceived as how to be in proper relationships with regard to one's environment, (Puohiniem 2002). Schmidt (2007) defines it as that attitude which “must be perceived by the individual as connected in some meaningful way to a specific situation to serve as the basis for evaluating a reaction in that situation.” Milfont and Duckitt (2010) also see environmental attitude as a psychological tendency expressed

by evaluating the natural environment with some degree of favour or disfavour. Schultz et al. (2004) have defined Environmental attitudes as the set of beliefs, impressions, and behavioural intentions as perso holds regarding environmentally related activities or issues. As such, environmental attitudes provide a good understanding of the set of beliefs or values that influence pro-environmental behaviour (Wiseman & Bognero, 2003). Traditionally, environmental attitudes has been viewed as an undimensional construct ranging from being unconcerned to concerned about the environment. (Milfont, 2007).

Other authors argue that environmental attitude is the concern one shows towards the physical environment (Dunlap & Jones, 2002). Muammer (2002) posits that environmental attitude is about the perception of values about a given environmental issue. Researchers such as Schultz (2000) believe that people's attitudes towards the environment and the type of concern they develop towards the environment, are associated with the degree to which they view themselves as interconnected with nature. They add that people with different value-orientations will ultimately have different attitudes towards, for example, the environment (Schultz, 2001). The negative attitude of the society towards the environment has also affected the educational institutions. (Ifegbensan, 2010). Drawing from the views expressed above, environmental attitudes can operationally be defined as a set of values and feeling of concern for the environment and motivation for actively participating in environmental improvement and protection

2.1.8 Demographic Factors that Influence Environmental Attitudes.

Various studies have indicated that different group of people have different attitudes toward the environment (Vivienne, 2014). Researchers have initially attempted to explain the difference by focusing on demographic variables such as level of

education, age, gender, ethnicity, income and place of residence as possible determinants of environmental attitudes. These researchers however have never been able to establish a strong relationship between demographic variable and environmental concern (Samdahl & Robertson, 1989). Results have been inconsistent and even contradictory regarding most of these variables (Vivienne, 2014). One of the most consistent findings in the literature suggests a link between environmental attitudes and level of education. Studies in US and South Africa indicate that individuals with high academic achievement tend to be more environmentally concerned than those of low academic achievement (Blum, 1987; Buttel & Flinn, 1978b; Grieve & van Staden, 1985; Reynolds, 1992; Craffet & Willers, 1994; Willers, 1996). Reynolds (1992) for example found that people with matric or post-matric qualifications showed a more caring attitude towards the environment than did people with lower qualifications. Findings by Willers (1996) support this viewpoint. According to her study, improved educational qualifications yielded a higher percentage of environmentally concerned respondents. Siemer and Knuth (2001) add that the type of education people receive also influences how they view their environment.

Researchers such as Bell and his colleagues, (2001) and Fiedeldey et al. (1998) believe that age is also one of the best predictors of environmentally concerned attitudes. Fiedeldey et al. (1998) for example refers to research in the US that shows the younger adults expressed more concern for the environment than their older counterparts. Studies of Arcury and Christianson (1990) support this viewpoint and also show that age is inversely related to positive environmental attitudes as older people were found to be less concerned about the environment than younger ones. However, Lyons and Breakwell's (1994) research conducted among learners between 13 and 16

years old, reveal that age is in fact positive related to environmental concern. They believe that the positive relationship may be a result of restricted age range they used (13-16) and because of a possible difference in the educational curricula of different grades. Gender has shown poor consistency and poor conclusiveness as a predictor of environmental attitudes (Vivienne, 2014). Studies by Blum, (1987) and Roth and Perez, (1989) for example show no difference between the two sexes, whereas studies, for example, Williams and McCrorie (1989) suggest that women are more concerned about the environment than men. Studies by Arcury and Christianson (1990) however show that men are more environmentally concerned than women. Researchers such as Schahn and Holzer (1990) offer a possible explanation. According to their findings the difference levels of environmental concern between men and women are dependant on specific environment issue under consideration. Research by Scott and Willits (1994) support this viewpoint. Their findings suggest men may be more likely to engage in relevant political behaviour whereas women are more likely to participate in environmentally protective consumer behaviour.

Lyon and Breakwell's (1994) study among 13- 16 years old learners revealed no sex difference in the level of environment concern. However, their study indicates a statistically significant difference in the level of self-reported environmental knowledge between boys and girls. Girls tended to report less knowledge on industrial pollution than boys. Lyon and Breakwell (1994) suggest that this may be because industrial related topics are considered to be scientific and technological, hence girls assume that they would know less than boys on these topics and this is reflected in the way they answered these questions.

Gender is variable that has received consistent attention among researchers (Jones & Dunlap, 1992; Arcury & Christianson, 1993; Lyon & Breakwell, 1994; Petts, 1994).

Raudsepp (2001) found that women were significantly more likely than men to be concerned with environmental problems. Females have been consistently shown to have higher environmentally conscious attitudes than men. The common reason advanced for gender differences is the different socialization patterns between boys and girls (Raudsepp, 2001; Diamantopoulos, Schlegelmich, Sinkovics, and Bohlen, (2003). More often than not, girls are made to carry out most of all sweeping and cleaning activities; they are called upon than their male counterpart to perform maintenance tasks at home or in school.

However, in other studies such as Van Liere and Dunlap (1981) gender was not a significant predictor of the environmental concerns and attitudes as other social-demographic variables. Eagle and Demare's (1999) comparison of mean attitude scores on the protest with gender showed that girls scored significantly higher moral attitude scores than boys; there is no significant difference in ecologic attitude scores of boys and girls. Kellert (1985) found no gender difference in these two attitudes for U.S. children in the second grade. Eages and Muffitt (1990), in a study of Canadian students in 6th, 7th and 8th grade, found no attitude differences between the sexes.

Studies by Lindemann-Mathies (2002) however show gender to be a strong predictor of environmental perception. Participation in an environmental education programme affected girls and boys differently. A higher proportion of girls (46.6) than boys (39.7) in a class stated that they could identify and name more species of animals and plants in their immediate environment. This phenomenon occurred for all age groups.

In Ghanaian societal settings, cleanliness is broadly embraced as a virtue but most of the time the perception of cleanliness is restricted to one's immediate environs with little care for what happens outside their households. The belief is that the state will

take care of the things hence, one should not be bothered. This kind of orientation has some historical underpinning since in the colonial days; Ghanaian were alienated from events that took place outside their homes. Moreover, sanitation and its related issues were seen as preserve of colonial administration that usually employed sanitary officers to take care of the environs (Kendie,1999). To properly understand the culture of waste management in Ghana, the researcher used the following section to delve more into the Ghanaian perception and attitude towards waste.

As argued already, cleanliness and good sanitation are considered in Ghana as one of the core societal values. Growing up in Ghana, it was always taught by our parents and in fact we grew up knowing that, dirty household and unhygienic individuals are frowned upon by the society. However, to the ordinary Ghanaian, waste management is simple process of waste collection and disposal. Mothers mostly do the collection whilst disposal is the preserve of the young girls in the household who dispose of waste in turns. There is the belief that if the tip of a used broom touches a boy; he is likely to be become impotent then explaining why the boy is made to distant himself from the waste handling. Thus, it was only girls who did the sweeping of the compound in morning and collecting of waste.

Kwawe has outlined the reason for female exclusive handling of waste in Ghana as follows: In the first place, in the institution of marriage, it is the duty of the women to cook, fetch water and clean the house so it makes sense for her learn from her parents how to clean, dispose of waste and keep the house in order; secondly, since it is the woman who produced the waste as a result of her domestic chores, it behold on her to find the means to disposal of her own waste; the man is out of the house most of the time and as such produce less refuse as compared to other members of the family hence should not be bothered (Kwawe, 1995).

Ethnicity, like gender showed poor consistency and poor conclusiveness as a predictor of environmental attitudes. However studies by Taylor(1989), Caron(1989) and Honnold (1981) indicate difference in attitudes towards the environment between white and black US citizens. Bell et al.(2001), also believe that ethnic and cultural differences may influence how people view different aspect of the natural environment. Although there are limited data on ethnic differences in environmental concern in South Africa (Fiedeldey et al.,1998), studies by van Aswegen(1992) and Craffert and Willers (1994) for example, indicate that ethnicity has been significantly related to people's views on environmental degradation. Craffert and Willers (1994), show that 93 % of the white, 70 % of the colored, 67.2 % of the Asians and 55.4% of the blacks, samples regarded environmental degradation as a priority. Supporting this are findings from Willers (1996) study, which show ethnic grouping as the single most significant and consistent predictor of environmental concern. Most of these studies however warn against unidirectional causal interpretations and assert that other interacting factors such as socio-economic status and place of residence be considered when interpreting differences in attitudes exhibited by different ethnic groupings. Lyon and Braekwell's (1994) studies show that, the middle and upper classes were more concerned about the environment than the lower classes. Learners from higher socio-economic backgrounds were found to be more environmentally concerned than learners from lower socio-economic backgrounds. According to them, there may be various explanations for this difference. For example, the difference may reflect differences in parenting influences, as higher-class parents are more likely to be knowledgeable and discuss these issues with their children than parents from lower social classes. The difference may also be a result academic

achievement between the two groups or reflect differences in the curricula of the schools these different social groups were likely to attend.

Taylor (1989) stated that there are social, economic and psychological reasons why blacks seem to be less concerned about the environment. According to her those who form part of the lower socio-economic classes, tend to live in poorly serviced, densely populated and polluted surroundings and are less aware of polluted and overcrowded conditions than their middle and upper class counterparts. Bell et al. (2001) agree and add that socio-economically disadvantaged people do not possess the political or economic power or sufficient information (knowledge) to address these forms of tend to make up the majority of people living under these conditions, this may explain why they tend to be less environmentally concerned.

Lyon and Brakwell (1994) also asserts that another variable namely level of scientific knowledge is a good discriminator between different socio-economic groups. They have concluded that it is possible that scientific knowledge raises to them, learners who score high in science quiz, which was an objective test of knowledge, would be more receptive to information on these issues and have thought about them therefore have formed opinions compared to those who have lower scores. Nevertheless, research by Buttel and Flinn (1978) show a weak link between socio-economic status and environmental attitudes or concern. Place of residence can also be seen as a predictor of environmental attitudes. Bell et al., (2001) for example, found that urban and rural residents in the US view the natural environment differently. Other findings from studies in the US suggest that urban residents are more likely to be environmentally concerned than rural ones (Fiedeldey, et al., 1998). Lyons and

Breakwell (1994) agree that place of residence and academic achievements are related to environmental concern.

2.1.9 Littering as a Problem

Litter has been a major problem in both developed and developing countries worldwide. Studies have shown that in United States, a significant portion of the air borne dust is pulverized human feces (Keizer, Lindenberg & Steg, 2008). In rural areas and small towns of China, there are no disposal facilities and there is therefore indiscriminate disposal of refuse. Plastic bags are blown away from uncovered waste disposal sites and eventually end up hanging on trees (Haihong, 2002). In a study conducted in Botswana, about 61.5% of the respondents indicated that can litter was a serious environmental problem, 56% cited bottle litter as a serious problem whilst 65.2% considered paper and plastic litter as a very serious environmental problem (Chanda, 1999), Plastic makes up 90% of all large debris stranded on South African beaches and is particularly troublesome because it disperses easily and degrades slowly (Balance, Fitz, Ryan & Turpie, 2000).

Dadzie and Awuku (2000) posit that refuse heaps are found around urban areas in Ghana. Gutters, drains, street pavement, lorry parks, beaches and other public places are literally buried under an avalanche of all kinds of waste materials, all sorts of refuse including human excreta parceled in polyethene bags are either thrown out of windows or dropped into the street (Dadzie & Awuku, 2000). Former President Kuffuor, the president of the republic of Ghana has observed that “We cannot litter, we cannot leave our surroundings dirty and call ourselves patriots” (Green, 2001).

The environment and sanitation policy of the Ministry of Local Government and Rural Development of Ghana has defined the roles and responsibilities of individuals,

communities, district assemblies and councils as a way of controlling filth and dirt (Dadzie & Awuku, 2000). In spite of this, some senior high school students do not seem to realize their responsibilities to keeping the environment tidy.

2.1.10 Attitude towards Littering

An attitude can be defined as psychological tendency to view a particular object or behavior with a degree of favor or disfavor (Milfont, 2007). Typically, when we refer to an individual's attitudes, we are trying to explain his or her behavior. Attitudes are a complex combination of things we tend to call personality, beliefs, values, behaviors, and motivations. Attitude towards littering is an individual's psychological tendency to evaluate or respond with a certain degree of favoritism or dis-favoritism towards the throwing of wastes on bare ground. Attitude is cognitive, affective, and normative in character (Ojedokun & Balogun, 2010). Other findings proposed that the littering behavior is influenced by an individual's emotion, intellectual, knowledge, action, value and association with others, including the surroundings (Clark, Clemes & Bean 2000). Individuals with pro-environment attitude are altruistic (Milfont, 2007). Meanwhile, littering is normally connected with littering behavior and awareness (Asmui, Zaki, Wahid, Mokhtar & Harith, 2017). Littering behavior relates personality characteristics and responsible environment behavior. This implies that individuals who possess certain desirable personality characteristics and who have an unfavorable attitude towards littering have more tendencies to be engaged in pro-environmental behavior (Ojedokun, 2009). The negative behavior towards littering can be linked to a decrease in family and community health, bad odour, proliferation of flies, cockroaches, rats and other small and dangerous insects which breed ailments and endanger human health (Ojedokun & Balogun, 2010).

The Environmental Protection Agency (2000) commissioned a study of attitudes towards littering, and the results suggested five mindsets regarding attitudes and behavior towards littering. There are people who are willfully arrogant and anti-establishment types of litterers. These litterers are aware that littering is anti-social, but they have no desire or capacity to change because of peer pressure and broader social problems (Environmental Protection Agency, 2000). Some people litter as a matter of convenience or through ignorance. A person may litter as a willful arrogant while with a peer group, but litter as an inconvenient in a different social setting. The same person can behave differently depending on the situation (EPA, 2000). Review of related literature identifies the following reasons for littering; laziness, a feeling that someone else is paid to clean up the litter and a perception that litter is not an important environmental concern (Bonnetl & Williams, 1998). However, EPA (2000) has indicated that littering is a very important environmental issue and it is never acceptable to litter. Gbadagba (2003) stated that people who sell at market place litter the markets. Passengers on moving vehicles litter the roads with all kinds of things especially iced water sachets. People throw used fan milk containers, pieces of paper and polyethene bags about indiscriminately. People may litter when unobserved, but not when in public. People from all social backgrounds litter. Students and the unemployed had a higher than average rates of littering (EPA 2000).

People may litter when unobserved, but not when in public. People of all social backgrounds litter. Students and the unemployed had a higher than average rates of littering (EPA 2000). Bonnet and Williams (1998) observed that scarcity of litter bins lead to littering in primary school children. However, Colman (2000) and EPA (2000) had indicated that, lack of bins is not a major factor in littering, because most littering occurs within a 5-meter radius of a bin. Lucas (1981) in a research found out that the

attitudes of secondary school students to the environment tended to be positive. Thrall (1996) in a study of high school students showed that gender of students has effect upon the formation of positive attitudes about the environment

2.1.11 Factors affecting littering

Motivations and factors that influence littering behavior and proper disposal behavior include personal, material, social and habitual factors (Lyndhurst, 2013). Personal factors suggest that an individual's sense of responsibility or belongingness could influence littering behavior. In essence, littering is perceived as more acceptable when personal responsibility is diminished (Campbell, 2009). Individuals are more likely to litter if they feel less of a personal responsibility for maintaining their environment and when they feel alienated by their community. Uncertainty about what counts as litter, such as questions about which items, their size, and context, also contributes to causing individuals to litter. Thus, small items may be seen to cause minimal impact, in terms of aesthetic, health and safety (Lyndhurst, 2013). Other personal factors accounting for littering include lack of understanding regarding the impact of littering on the environment, the desire to get rid of messy items (the "icky factors") due to the discomfort of carrying 'dirt' until a wastebin is found (Lewis, et al., 2009) and feeling lazy to walk to a wastebin (Square Holes Pty Ltd, 2011).

Material factors also contribute to understanding why people litter the environment. Existing litter and other indicators of an already littered site increase or decrease the likelihood of further littering (Kallgren et al., 2000). Signs of disorder, such as graffiti on the walls, badly arranged chairs in a classroom, or split liquids, overturned furniture or even uncompleted buildings increase the likelihood of littering in such places (Al-mosa et al., 2017; Keizer et al., 2008) found that 69% of research participants were willing to litter in an environment which featured graffiti, compared

to only 33% in an environment with no graffiti. People are also less concerned about dropping litter in towns and cities than in the countryside, as they believe that urban areas will be cleaned up overnight (Lewis et al., 2009). The absence of wastebins can also cause littering. When bins are available and easily accessible, littering is found to significantly reduce (Schultz et al 2013).

Again, socio-cultural approaches emphasize the interdependence of social and individual processes in the construction of knowledge (Kolodko & Read, 2018). Socio cultural also involves education, as humans generally gain knowledge that will construct their behavior in the future. Bandura (1994) also stated that reality constructs how we see and behave towards life, therefore, education and socio cultural in this context is constructing how people see reality. If they think that littering is not an immoral action to be done that how reality is constructed for them. Social factors such as gender differences and socio-economic status can account for littering behavior and frequency. For example, males have been reported to litter more than females (Al-mosa, et al., 2017; Asmuni et al., 2017; Chung & Lo, 2004; Schultz et al., 2013) while younger adults have been consistently shown to engage in littering more than older adults (Bateson et al., 2013). Low income earners have also been reported to litter more than high income earners (Nkwocha & Okeoma, 2009) while social pressures and disapproval from large group sizes deter individuals from engaging in this anti-social behavior (Bator et al., 2011). Finally, in terms of habitual factors (habits), littering may become an individual's 'default' disposal behavior sometimes done without a particular intention or thought. An example is teenagers engaged in littering behavior that was believed to be thoughtless and ingrained in their habits (Alice Ferguson Foundation, 2011), suggesting that littering behavior may get a point where it is viewed as 'normal'.

Presence of waste bin is another factor contributing to littering; to not litter one must throw their Waste to designated waste. Kolodko and Read (2018) have stated that availability of adequate waste bin plays a big role in the intervention to stop littering. Waste bin should not only be concerned on its quantity, but also the quality. They have also found that people tend to throw waste at open-top and clean waste bin. Therefore, the presence of adequate waste bin with both quality and quantity might be a strong driver for people to avoid littering.

Finally, policy on littering is a factor, in the case of littering policy is needed to prevent and deter people from doing litter. It is crucial to determine the act of litter among society by using policies, because they are mandatory for the society to follow (Sellers, Fiore & Szalma, 2013). For example, in 2016, Ministry of Environment and Forestry of Republic of Indonesia had issued ministerial circulars regarding waste management to promote pro-environmental (Republic of Indonesia Constitution, 2008). However, the implementation of the policy is viewed as inadequate to stop the action due to the fact that littering still occurs frequently.

2.1.12 Effects of Littering

Littering can pose several problems which may have environmental consequences among others (Henewa et al., 2014). According to Ohene Adjei et al., (2017), as an environmental problem, litter can be characterized as a substantial source of contamination and disease outbreak. Misplaced plastic containers plastic bags, glasses and many other commonly used materials accumulate in the environment, posing a number of health and environmental hazards. Such improper disposal of rubbish and this poor sanitation, has been a major issue in Ghana, and the outbreak of diseases such as cholera (Ohene-Adjei et al., 2017), typhoid and fever have

been cited as some of the deadly diseases caused by unclean environments. (Health Ghana Television 2015). Waste in gutters and water bodies especially solid waste causes litter to flowing water to become stagnant and this forms breeding grounds for mosquitoes. (Torgler et al., 2008) found that items littered such as cigarettes, glass, plastic bottles, takeaway food packages and snack wrappers seriously damage the environment as some are not degradable. The littered items cause the death of plants and animals (Torgler et al., 2008). A littered item is also seen to lead to surface and ground water pollution, threat on biodiversity and aesthetic impact (Roffonl, 2006). According to World Health Organisation (2009) poor environmental sanitation constitutes a major source of environmental health hazards, account for an estimated twenty-five percent (25%) of the total burden of diseases worldwide. Nearly thirty-five percent (35%) of ill health problems in Sub-saharan Africa are caused by environmental hazards (World Health Organisation, 2009). Litter is an important environmental issue, approximately 94% of people identify litter as a major environmental and get, and individuals still litter (Muchemwa, 2017). People who live in areas where there are high levels of litter are more likely to be less physically active and therefore, more likely to be overweight and obese. This brings with it all the associated health risks, including heart attacks and strokes and this put more of a strain on local health facilities (Kingdom, 2016)

Littering costs money, this high cost is what led to an increase in the research of littering behavior and effective solutions to littering problem (Cooley, 2005). In the United States, the direct cost of litter cleanup is almost 11 billion dollars annually (MSW consultants, 2009 cited by Schultz et al., 2011). In South Africa, beach cleansing to remove litter was approximately R. 3.5 million in 1994-95

(Balance et al., 2000). It costs the tax payers a huge amount of money to keep their communities clean, which implies that money that could be invested elsewhere in the economy, is rather spent on cleaning up litter (Kingdom, 2016).

According to UNICEF (2001), inadequate sanitation, through its impact on health and environment has implications for economic development. Taking marine litter for example, Charlse Moore a Californian sailor, surfer and a volunteer environmentalist, who was said to be on an expedition in 1997 discovered that the Great Pacific, North of Pacific Subtropical Gyre, has become 90% non-degradable plastic (Great, 2009). The Gyre is a converging point for several major sea currents with bio-degradable float scums the Pacific coasts of South East Asia, North America, Canada and Mexico (Grant, 2009). Among key socio-economic sectors that suffer from marine plastic litter are fisheries, aquaculture, leisure and navigation (Fanshawe & Everard, 2002). Fishing is one of the most economic activities in Anglo, South Africa and Namibia and it is a major contributor to their economics. Litter and pollution from industries are causing degradation of their coastal habitats there eroding their potential to attract tourists (BCLME, 2006). When an area has a litter problem, its residents do not want to spend time there, community spirit suffers and these people's wellbeing suffers. It also means that residents worry about other problems related to litter such as economic impacts and anti-social behavior (Kingdom, 2016)

UNEP (2009) reports that there are 46,000 pieces of plastic in every square mile of the sea. These plastic and cigarette litter in the marine environment leads to death of aquatic animals. The litter is a source of toxic substances which pollute the water e.g. cigarettes have the chemical lead which can leach into the water threatening the wellbeing of the marine life (UNEP, 2009).

2.1.13 Littering Prevention Strategies

Antecedent strategies are preventive strategies and measures to prevent the occurrence of undesired behavior (Dwyer et al., 1993). Abdul, Miswan, Abdullah and Suwaibatual (2012) reviewed 50 studies on three antecedent strategies: environmental design, prompting and cleaning up the prior litter and found that all had both strengths and weaknesses. The environmental design factor focused in different studies on the impact of the availability of the trash receptacles, their numbers, their attractive design and their location on reducing littering behavior, and it was found that all these factors discourage people to litter. Written, oral and visual prompts were found to be the most popular and effective method in reducing littering behavior. Making the message polite, clear, simple and understandable also had an effect.

Abdul Shukor et al. (2012) also investigated the impact of the “Cleaning up prior to litter” strategy found in several studies and they concluded that cleaning up residential areas reduced littering behavior because both residents and visitors determined the accepted behavior from the surrounding environment. Finally, the paper also suggested giving more attention to follow up measurement to ensure the strategies would remain effective even after the intervention is removed.

Schultz et al. (2011) proposed several strategies for litter prevention that are a combination of both structural and motivational activities. Because the results showed that litter begets littering and the presence of litter communicates the acceptability of littering, it was suggested that the key to the success of any litter prevention activity is to clean up and remove existing litter. Roales-Nieto (1988) found out that increasing the number of trash receptacles, when implemented alone or along with publicity campaigns, produced a minimal decrease in litter. However, a significant decrease in litter was observed when active participation of citizens in cleaning up their

neighborhood was added to the availability of trash receptacles and publicity campaigns whose purpose was to make citizens aware of the importance of keeping the city clean. Therefore, involving community residents in clean-up activities can promote a long-term reduction in litter and increase an individual's motivation to not litter. It is unclear though whether active participation is effective only if employed with other factors or could it be successful on its own (Roales-Nieto, 1988). While there is little research on antecedent strategies for littering, it seems likely that in countries like Ghana that have budget constraints and different priorities, it is difficult to provide numerous trash receptacles in some places or increase their numbers in places where trash receptacles already exist.

As for the consequence strategies, which take effect after the act of littering or non-littering, these are either rewards or punishment (fines) (Wever et al., 2010). While most countries have laws against littering, these laws are usually not actively enforced. However, countries that have high fines for littering are very high (Wever et al., 2010). Ghana is among those countries that have laws against littering that are not enforced. The law addresses public cleanliness, and regulates the collection and disposal of wastes from houses, public places, commercial, and industrial establishments.

2.1.14 Environmental Education

According to Hungerford and Volk (1990), the ultimate aim of education is to shape human behavior. Educational systems have therefore been established on a global scale to develop citizens who will behave in desirable ways. Environmental Education (EE) has been identified as an educational method for promoting environmentally responsible behavior in learners and has subsequently been implemented in the curricula of schools throughout the world. The last 10 years

especially saw the scope of environmental education expanding with an increasing emphasis on the role of education in responding to wide ranging, complex environmental issues and risks. Chapter 36 of Agenda 21 recognizes the central role education plays in shaping value orientations and social actions; hence it sees environmental education as a socially transformative and continuous learning process that is based on respect for all life (Lotz-Sisitka, 2002, p.100).

Guidelines for effective environmental education programs that may lead to behavioral changes on the part of learners have also been defined by the 1977 Tbilisi Intergovernmental Conference on environmental education. These guidelines promote the following:

- a. **Awareness:** - to help learners acquire an awareness and sensitivity to the total (natural and build) environment and its related problems;
- b. **Sensitivity:** - to help learners gain a variety of experiences in, and acquire a basic understanding of the environment and its related problems;
- c. **Attitudes:** - to help learners acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection;
- d. **Skills:** - to help learners acquire skills for identifying and solving environmental problems;
- e. **Participation:** - to provide learners with an opportunity to be actively involved at all levels in working toward the resolution of environmental problems (Hungerford and Volk, 1990, pp. 8-9).

These guidelines allow us to define an environmentally responsible person as someone who has an awareness, sensitivity, understanding and concern for the

environment and its problems as well as the motivation for active involvement, combined with the necessary skills to identify and solve environmental problems and who actively engages in working toward a resolution of environmental problems at all levels (Hungerford & Volk, 1990, p. 9). Teaching environmentally responsible behavior therefore goes beyond basic education in its traditional sense and involves the teaching of knowledge about environmental issues, the promotion of pro-environmental attitudes and the teaching of the necessary skills for positive action in society (Hungerford & Volk, 1990).

Despite the guidelines, however, the success rate of environmental education programs varied. Even programs that were seen as successful were not far-reaching or widespread enough. One reason for this is that environmental education does not form part of the formal curricula of most schools and where it is applied; it is usually in the form of an extra-curricular activity. Teachers also have not received adequate training for teaching environmental education and for incorporating environmental education instruction across subject areas (Disinger, 2001; Hungerford, 2002).

These are serious shortcomings as an interdisciplinary approach to teaching and learning is required in order to produce an environmentally responsible citizenry (Paul & Volk, 2002). Another reason is that previous models of environmental education were based on the assumption that knowledge about the environment and environmental problems will lead to environmental awareness and pro-environmental attitudes, which in turn will lead to environmentally responsible behavior.

Various behavioral studies showed that it is a more complex process and that prediction of environmentally responsible behavior depends on various factors that interact (Hungerford & Volk, 1990). According to research done by scientists such as

Hines, Hungerford and Tomera, (1986-1987), factors such as an intention to act, prior knowledge of the problem at hand, and a desire to act are more likely to lead to actual action on the part of an individual. A person's desire to act is influenced by a host of personality factors such as his or her locus of control, attitude toward the environment and toward taking action as well as situational factors such as age, gender and level of education (Hungerford & Volk, 1990). A person with an internal locus of control for example, will be more willing to become actively involved, as such a person may believe his or her action can make a difference (Fiedeldey, Craffert, Dijk, Marais, Van & Willers 1998; Hungerford & Volk, 1990).

Most environmental education programmes, however, do not take these factors into consideration and are still designed to provide knowledge (information) about the environment and increase environmental awareness. Too few incorporate a serious attempt to promote pro-environmental attitudes and develop or increase the behavioral intentions of learners toward environmentally responsible behavior (Hungerford & Volk, 1990). This lack of emphasis on objectives that focus on helping learners actually solve environmental problems and develop problem-solving skills, is contrary to the guidelines as stipulated at the Tbilisi Intergovernmental Conference in 1977 and needs to be rectified (Hungerford & Volk, 1990).

It is imperative that environmental educational programmes move beyond the mere knowledge production and awareness of rising and include ways of increasing the intention and desire of learners to act in environmentally responsible ways as well as equip them with the necessary skills and problem-solving abilities to actively engage in environmentally responsible behavior. (Hungerford & Volk, 1990) A new model of instruction is therefore needed.

2.1.15 Environmental awareness from the Aspect of Educational Philosophy

It has been agreed by many philosophers that education and awareness toward environmental protection and conservation require, knowledge, understanding and the change of attitude by each individual. Within the context of education, it is the process to solve the problem which needed to be implemented among the students since the primary school, as it is able to provide them with technique in dealing with the difficulty within their life. This element is supported by the idea of western philosophy, which is pragmatism movement. The philosophers believe the role of adolescent and adult in taking care of the environment is different based on their development of age (Mak, 2000). This philosophy presumes that knowledge can be acquired from the relation between human and nature, as both elements are interconnected (Abdul & Zakaria, 1987). Thus, within the context of education, the implementation of the environment values among the students can be carried out by giving them the experience through the basic activities such as working together to retain the healthy environment and expose them with the impact of environmental pollutions. Through these activities, it shows that students are not only trained from the aspect of their intellect and physical, but also from the element spiritual and emotion through their courage and appreciation towards the programmes.

Children, in the early years of their lives, recognize the environment by playing the games and through self-experience and the communication they establish with adults. Recognition in this context refers to learning new behaviours and skills during an interaction with the environment and associating these behaviours and skills with existing ones. Thus, children will both improve themselves and gain knowledge about the external world. Knowing the environment knowledge and enabling them to

develop behaviours and attitude about the environment are necessary and important because it shapes development in positive way.

Children, who regularly interact with the environment, will know more about the external world and adapt better to living conditions. They will also have more self-confidence. These all will be reflected on their behaviour in the positive terms. In this recognition period, it is important that the education to be given children is planned carefully to teach them concepts about the environment and to create environment awareness. Providing small children with environmental knowledge and enabling them to develop behaviours and attitude about the environment are necessary for permanence of given information (Russo, 2001). In recent years, especially in developed countries with education systems, more importance is attached on creating environmental awareness in young children.

In USA, Korea and several European countries, environmental education starts between 3-6 years of age (Chu et al.,2007; Domka,2004; Scott,2007). Previous studies (Stoecklin, 2001; Witt & Kimple,2008) have demonstrated that environmental knowledge,behaviours and attitudes and attained in pre school period have short and long – term effects.Short term effects may be listed as follows: children, who gain knowledge about the environment through environmental education and who develop environmental awareness and sensitivity, also develop social adaptation skills and adapt better to their environment and society, their curiosity about nature increases.

Environmental education also reinforces their aesthetic perception and scientific perspective (Shin,2008). In the long term,environment awareness gained in early years continues in ensuing years; and negative behaviours developed against the

environment education especially on preschool children justify the necessity of conducting projects and studies on environmental education for children.

In addition, based on the doctrine of pragmatism towards the issue of environmental awareness, try to believe that the speculation regarding the reality is useless, as the experience of human mainly exemplify the reality (Adul Rahman Aroff & Zakaria Kasa,1987). By looking at the present, the aspect of experience and students are social organisms that are constantly interacting with the surrounding, and change based on time and condition. Thus, the implementation and appreciation towards moral value which is involve the students within the activity and environment are more significant that the learning activity solely based on theory.

It is because the real achievement of students is based on their ability to cope with their problem, including the aspect of academic and the environmental aspect. By involving the students with the activity regarding the cleanliness of the school, students will develop the attitude to love and concern towards their school and the surrounding (Yahya,2005). The knowledge that have been gained by these students is very useful within their life, as the function of knowledge towards the students in the beginning of intelligence and become the last objective of education (Abdul, 2001).

Therefore, supporting the social development of children will provide a basis for the development of positive attitudes towards the environment. The early years of life are extremely important in learning about this type of behaviour. Hence, the objectives of training programa include providing the knowledge and raising awareness about the environment in young children and increasing their sensivity towards the environment.

2.2 Theoretical Framework

Several theories are associated with human behaviour and attitudes. However, the social learning theory is the theory upon which this study is based. The principle of social learning theory has become the principal behavioural school of psychology. In the 1960s, Bandura's social learning theory became well recognized (SLT) (LaMorte, 2019). His strategy acknowledged reinforcement and the significance of witnessing, modelling, and mimicking the emotional responses, attitudes, and behaviours of others in learning (Bandura, 1977). The Social Learning Theory applies to numerous theories of human behaviour in which the acquisition and maintenance of behaviours, such as addictive behaviours, depending on the relationships between personal characteristics, environmental factors, and behaviour (Abdullah & Ahmed, 2022).

According to behaviour psychology, all types of learning emerge from direct contact with the environment via the processes of association and reinforcement. Bandura's theory of social learning postulated that direct reinforcement could not account for all sorts of learning, but only observation of the behaviours of others could. Learning involves interacting with the environment and producing permanent changes to one's knowledge or behaviour that enhance human performance (Braddon-Mitchell, 2019). Accordingly, individuals learn through social interaction when they encounter favorable or rewarding experiences by observing, absorbing, and copying other people's conduct (Nabavi, 2012). The Social Learning Theory indicates that all humans acquire behaviours through reward and imitation, and imitation is the repetition of observational learning (McRae & Gross, 2020). This sort of learning, known as observational learning, may explain a wide range of behaviours, including some frequently inexplicable by conventional learning theories. Bandura's social learning theory provides a valuable framework for comprehending how an individual

acquires knowledge through observation and modelling (Horsburgh & Ippolito, 2018). Cognitive processes are fundamental because learners must interpret and absorb what they observe to imitate the action. In order to align cognition and behavior between the observed and performed, psychological processing is necessary (Horsburgh & Ippolito, 2018). The following diagram represents the three interconnected underlying themes of the social learning theory: environmental, personal, and behavioral factors (modified from Bandura, 1977).

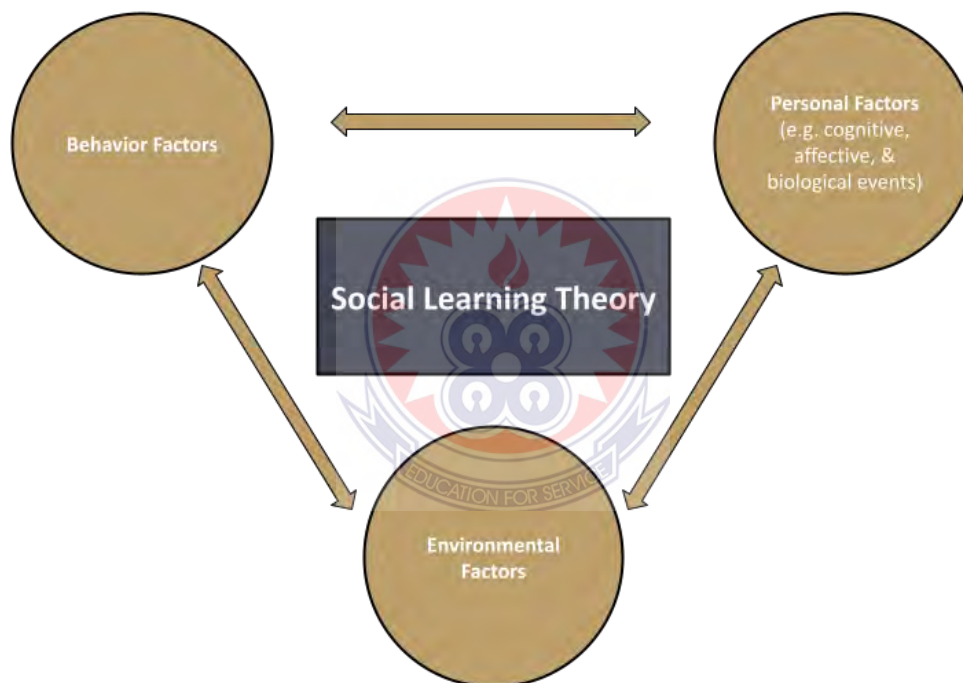


Figure 1.A Diagram illustrating the Theory's Phases

Bandura posited that most human behaviour is acquired through observation and modelling (Bandura, 1977). This implies that by witnessing other behaviours, one can develop a notion of how new actions are performed, thereby shaping the observer's subsequent behaviour. As observed by Bandura, children notice the activities of others and replicate them. As displayed by one of the studies by Bandura, where

youngsters witnessed an adult acting violently against a Bobo doll, the young children, when asked to play with the Bobo doll in a room, began to emulate the violent behavior as witnessed (Abdullah & Ahmed, 2022; Caroline , Choong, Kang, Ling,& Poo, 2019).

Studies have proven that observational learning does not necessitate even observing the actions of others alone. However, learning can even result from hearing vocal instructions, such as listening to a podcast, learning via reading, listening, and observing characters' activities in books and films. (Abdullah & Ahmed, 2022)

Bandura also observed that environmental reinforcement was not the only element influencing learning and behavior since reinforcement does not necessarily originate from external sources. The individual's mental state and motivation play a significant part in habit formation (Caroline et al., 2019). Intrinsic reinforcement as an internal reward consists of pride, happiness, and a sense of success. This emphasis on interior ideas and cognitions facilitates the connection between learning theories and theories of cognitive growth. Bandura himself refers to his method as "social cognitive theory," but many textbooks associate social learning theory with behavioral theories. The conditions and procedures needed to be met in observational learning and modeling are listed below (Bandura, 1977; Nabavi, 2012).

Attention: Paying close attention is necessary for learning. Anything that distracts your attention will hinder your ability to learn via observation. If the model is engaging or something fresh about the circumstance, you are far more likely to devote your complete attention to learning.

Retention: The ability to retain knowledge is crucial to learning. Several factors can influence retention, but the capacity to retrieve and use knowledge later is essential to observational learning.

Reproduction: After observing the model and retaining the knowledge, it is time to reproduce the observed behavior. Additional repetition of the learned behavior results in skill development and improvement.

Motivation: For observational learning to be effective, you must be motivated to mimic the modeled activity. Motivation is heavily influenced by reinforcement and punishment.

Observing others receiving reinforcement or punishment can be just as beneficial as experiencing these stimuli (LaMorte, 2019). If you observe another student get additional credit for being on time to class, you may begin to arrive a few minutes early each day. Social learning theory has several applications in the real world. For instance, it can assist researchers in comprehending how hostility and violence may be transferred via observational learning. By examining media violence, researchers can acquire a more profound knowledge of the elements that may influence youngsters to imitate the aggressive behavior they witness on television and in movies.

However, social learning may also be used to teach individuals beneficial habits. Using social learning theory, researchers may explore and comprehend how good role models can be utilized to promote desired behaviors and assist societal change (Bandura & Walters, 1977). In addition to impacting other psychologists, Bandura's theory of social learning has had significant repercussions in the field of education (Koutroubas & Galanakis, 2022). Teachers and parents now appreciate the importance of modeling good conduct. Social learning theory also informs other teaching practices, such as encouraging youngsters and fostering self-efficacy. Observing others is essential for gaining new information and abilities (Abdullah & Ahmed, 2022).

This theory resonates very well with the current study since littering behavior is not only among students. However, teachers and other staff on the school campuses are sometimes guilty of the same offense. It is, however, expected that the adults will serve as models and ambassadors of a clean environment for the young ones to emulate. Per the tenets of this theory, if the students observe that adults exhibit good examples of keeping the environment clean, they are likelier to emulate the same. If the teachers educate the subject, it will create awareness and decrease littering behavior. If there are measures to motivate and reward good behavior and punish offenders, the littering behavior is less likely to reoccur; hence the employment of the theory for this study.

2.3 Empirical Review

One approach to understanding littering focuses on the demographic and personal qualities of the type of person who litters—the “litter bug.” Although much of these data come from surveys in which people self-reported littering rates, a few studies have conducted observations (e.g., distributing a marked flyer or handbill under varying conditions and monitoring to see which accumulate as litter). The widely accepted conclusions from these studies are that littering is more common among males, younger adults, and individuals living in rural communities more than cities. However, the research results on these characteristics of the “litter bug” are far from conclusive and many studies have failed to find significant demographic predictors (Beck, 2007). As a result, there is little consistent evidence for demographic characteristics of the “litter bug.”

How often do people litter? Given the volume of litter that accumulates nationally and worldwide, it is important to understand the littering behavior of individuals. One way to address this question is by watching the behavior of individuals in public

spaces (Selby, 2011). Although only a handful of studies have utilized observational methods, the results are instructive. An early study by Obiri, (2020) reported Litter as a social construct. According to Obiri, litter is simply waste in the “wrong” place, littering behaviour is the process by which that waste ends up in the wrong place. Littering behavior, in turn, comes about as the result of interactions between items that are considered as litter, the individuals, and the factors that influence their actions. Thus understanding this behaviour is the key to finding meaningful tactics to deal with the problem. Littering should therefore be seen as a by-product of incidences. Once we study these incidences, we find our solution.

Interestingly, Amankwaa-Poku and Ofori (2020) found that littering behaviour results from individuals shifting the responsibility of disposing of litter to “others”, seeing littering as normal and imitating others who litter, as well as the unavailability of bins. Though they had knowledge and understanding of what constituted littering, they littered without weighing the consequences, perhaps because littering is not characterised as a serious crime. These findings reveal the need to increase efforts in education with respect to littering behaviours, while focusing on cognitive restructuring to change attitudes and behaviours that influence littering. Laws and policies on littering should be publicised and enforced to deter such behaviour, while reward systems should also be introduced to sustain proper litter disposal and maintain cleanliness. Individuals should be educated to understand that keeping a clean environment should be the shared responsibility of every citizen of Ghana and not the sole responsibility of the government or cleaning agencies (Amankwaa-Poku & Ofori, 2020).

Adu-Boahen, Atampugre, Antwi, Osman, Osei, Mensah, and Adu-Boahen (2014) conducted a study on litter and waste management practices in Ghana: challenges and

prospect of Jukwa in the Central Region of Ghana. The study first concluded that the dominate form of litter and waste generated by the inhabitant of Jukwa was solid and liquid in nature and include polythene bags and other solid related waste. Because every individual in every house generate both liquid and solid waste combine, hence that findings. With reference to how waste is disposed off, the study revealed that burning is the most used method of waste. This is due to the fact that burning contributes to the degradation and pollution of the environment and the likely impact on the people. Again, in connection with the challenges the people face in regard of how they disposed off of their waste, the study revealed that poor sanitation and sickness are the main challenges and this had led to the outbreak of diseases such as cholera, typhoid and other insanitary related diseases. Finally, the study revealed that provision of dustbins and allocation of collection points are the most efficient ways of improving the waste management challenge and practices as it will put in place mechanism to check individual behaviour and attitudes.

Aduku (2014) in his study, concluded that scientific knowledge about the environment affects environmental behaviour. He noted that the present environmental problems have resulted partly from irresponsible of people on the environment scene. He again noted that the environmental education is considered an appropriate intervention for creating awareness of and an understanding of the challenge of environmental degradation so as help reduce the problem of unsanitary surroundings. The research work was carried out in the Ga West Municipality, Accra. The main objective was to examine the attitude and knowledge of JHS students towards environmental sanitation conditions in our public schools in Ghana and its effects on the health of the people.

Vivienne (2014) investigated the attitude of staff and students of Asamankese Senior High School students toward environmental sanitation. The study concluded that staff and students' litter because of indiscipline acts, unavailability of strict litter laws, poor supervision by school teachers and prefects, laziness and inadequate waste bins on the school compound. It was revealed that insanitary condition in the school has led to rampant illness and diseases such as typhoid, malaria and diarrhea in the school.

Another study was Mensah (2016), the purpose of the study was to examine environmental sanitation attitude among residents of Amanfrom a suburb of Asamankesse in the Eastern Region of Ghana. The findings of the study revealed that Amanfrom experience poor environmental sanitation due to inadequate waste bins, incinerators and negative growing culture of creating refuse dumps at any available space by the residents. It was revealed through the study that sanitation problem affects the health of the residents, their livelihood, tarnishes the image of the study area and also leads to frequent outbreak of diseases such malaria, cholera and diarrhoea and among others. This study recommended the provision of enough waste bins and other forms of refuse receptables, provision of permanent land space for waste disposal, periodic clean-up exercise, there should be regular waste regular waste collection, provision of permanent land space for waste disposal and conscious environmental education as a measure of addressing environtal sanitation problems in Amanfrom.

Ocansey (2006) conducted research to assess the attitude of JSS 3 students towards littering. A descriptive sample survey was conducted in 12 JSS in the Cape Coast Municipality of Ghana. In this study the following recommendations were made; efforts should be made to increase awareness among students on the effects of

littering. Again, it was recommended that students should be encouraged to look for waste bins to dispose litter.

Collected litter. By far, the most commonly used method for litter research is to count and characterize the types of litter collected from different locations (KAB, 2007). Litter clean-ups happen on a regular basis, including the KAB (2007) Great American Clean-up, regular Adopt-a-Highway clean-ups, and the Ocean Conservancy's International Coastal Clean-up. In addition, states and local governments regularly conduct "litter surveys" to identify the types and sources of materials found along roadways throughout the country. These events remove millions of pounds of litter annually from roadways, parks, shorelines and natural areas worldwide. In the 2007 Coastal Clean-up, the Ocean Conservancy collected 6 million pounds of materials, including cigarette butts (1,971,551 or 27% of all collected items), food wrappers (10% of collected items), caps and lids (9%), bags (8%), plastic beverage bottles (7%), plastic utensils (5%), and glass beverage bottles (5%), (Ocean Conservancy, 2007).

2.4 Summary

This chapter defined litter as any piece of misplaced solid waste which can range from small items, such as cigarette butts or candy wrappers, to abandoned automobiles, appliances and even space craft. It defined littering as an individual's intentional or unintentional act of throwing away waste on the ground, as a daily routine. Sanitation has been defined in this chapter as the principles and practices relating to the collection, removal or disposal and treatment of human excreta, refuse, household waste water, drainage of storm water and treatment of industrial sewage as they impact upon people and the environment. Again, this chapter defines environmental

attitude as a set of values feeling of concern for the environment and motivation for actively participating in environmental improvement and protection.

The chapter also tried to examine factors that influence littering behaviour and proper disposal behaviour, which included personal factors, material factors socio-cultural approaches, presence of waste bin and policy on littering.

This chapter further explored the measures to reduce littering among staff and students, which covers antecedent strategies and consequence strategies. Antecedent strategies are preventive strategies and measures to prevent the occurrence of undesired behaviour. The consequence strategies which take effect after the act of littering or non-littering, these are either rewards or punishment.

Theoretical framework that guided the study was not left out in this chapter. The theoretical framework chosen was the social learning theory. The theory posits that individuals learn through social interaction when they encounter favourable or rewarding experiences by observing, absorbing and copying other people's conduct.

Finally this chapter made a review of empirical studies, some of the studies that were reviewed included a study on litter and waste management practices in Ghana; challenges and prospect of Jukwa in the central Region of Ghana. A study carried out in the Ga West Municipality, Accra; a study among residents of Aman from a suburb of Asamankese in the Eastern Region of Ghana. Other studies included a survey conducted in the Junior High Schools in the Cape Coast Municipality of Ghana and an investigation into the attitude of staff and students of Asamankese Senior High School.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The focus of this chapter is to describe the method and procedures which were used in gathering data for the study. The topics discussed in this chapter include the study area, research design, target population, sampling techniques and instruments for data collection. The data collection procedures and methods of data analysis are also presented in this chapter.

3.1 Profile of Study Area

The study was carried out in the Sefwi Wiawso Municipality in the Western North Region of Ghana. Sefwi Wiawso Municipality is bounded by Juaboso District to the North, Atwima Mponua (Ashanti Region) and Asunafo Districts (Ahafo Region) to the North – East, Bibiani - Anhwiaso- Bekwai Municipality to the South – East, Wassa Amenfi West and East Districts to the South and Bodi and Akontombra District to the West. Sefwi Wiawso which is the Municipal Capital also serves as the Regional Capital of the newly created Western North Region. Apart from the indigenous residents, the area is inhabited by other people from different tribes. The major occupations in the area are farming, trading, lumbering, teaching, banking etc. The total population of the municipality is 151, 220. Out of this, 69,753 representing 50.1% are males and 69,447 representing 49.9% of the population are females (Ghana Statistical Service, 2021).

There are a total of 272 basic schools in the area. These consist of 155 public schools (88 Primary and 67 Junior High School and 117 private schools (67 primary and 50 Junior High Schools. There are also 4 Senior High Schools which are Sefwi Wiawso

Senior High School, Sefwi Wiawso Senior Technical School, St. Joseph Catholic Senior High School and Asawinso Senior High School. The area can also boast of a College of Education and two Nursing Training Colleges (EMIS, GES Sefwi Wiawso. Municipal Census, 2019/2020 academic year).

3.2. Research Paradigm

This study employed the mixed method approach of conducting research. According to Cresswell (2014), the mixed method involves combining or integration of qualitative and quantitative research data in a research study. The concept of using both qualitative and quantitative was derived from Campbell and Fiske (1959). Literature has proven that mixed method research is versatile tool often used in the behavioural, health, and social sciences as well as multidisciplinary settings (Swars & Crestnutt, 2016).

The approach usually employs a pragmatic approach as a system of philosophy (Johnson & Onwugbazie, 2004). Pragmatism as a system of philosophy extends the result of an oriented technique enquiry with the required logic of justification thus providing methodological fit amid different (or mixed) paradigms. Pragmatism, as a philosophical approach views knowledge as an indispensable reality or an intimate experience. Pragmatics believes that existing truth implication and the boundaries of knowledge are impermanent thus knowledge can be changed, modified or altered with or without research over time (Johnson & Onwugbazie, 2004). Supporters of this paradigm believe that true knowledge can be obtained by mixed- method approach. The qualitative research approach employs the use of non- numerical data while quantitative research approach involves the use of numerical data (Bryman, 2012). Wisdom and Cresswell (2013) indicated that using a mixed method study has several

advantages, which include comparing quantitative and qualitative data, reflecting participant's points of view, fostering scholarly interaction, providing methodological flexibility and collecting rich comprehensive data.

In this study, questionnaire was administered to the students in order to generate quantitative data for the purposes of answering the research questions. This was made possible with the use of the Likert scale that lends itself to quantitative analysis using the SPSS Software. On the side of the teachers, interview guide was issued to the teachers to solicit for their views. The aim was to generate qualitative data to answer the research questions. Both qualitative and quantitative were employed for complementary results and comprehensive analysis. Critics of mixed methods research believe the approach is labour-intensive (Borrego et al., 2009). Collecting, analyzing and synthesising two types of data into one research product demands a lot of time and effort, not to mention the cost involved (Abbott & McKinney, 2013; Allen, 2017). However, modern researchers recommend using a mixed method approach because it caters for the inefficiencies of the single approaches, qualitative and quantitative and maximizes the advantages (Zohrabi, 2013). Merging the two types of data makes the study more detailed, contextualize and can be generalize. The strengths of one type of data often mitigate the weakness of other (Kothari, 2017). The adopted mixed-method approach as observed by Tashakkori and Teddie (2003), increases the validity of results and provides a more in-depth understanding of the subject through the convergence of quantitative and qualitative findings. The triangulation of data also allows for identification of congruence in participants' attitude on littering in Sefwi Wiawso Municipality

3.3. Research Design

Burns and Grove (2003) define research design as “a blue print for conducting a study with maximum control over factors that may interfere with the validity of the findings”. According to Cresswell (2014), research designs are types of inquiry within quantitative, qualitative and mixed method approaches that provide specific direction and procedures in research.

There are various research designs, and examples are causal design, cohort design, cross-sectional design, descriptive design, experimental design and many others. There are several means of conducting mixed methods studies (Iddrisu et al; 2018) however this study adopted the convergent parallel mixed methods design. In this type of study quantitative and qualitative data collected simultaneously and analysed concurrently. After both analyses are complete, the researcher compares, the results to draw overall conclusions to answer the research question. The students were provided with questionnaire, while the teachers were issued with semi -structure interviews to enable the researcher obtain more detailed information on the littering situation on the school campus. According to Cresswell and Plano-Clark (2011), the convergent parallel design entails that a researcher concurrently conducts the quantitative and qualitative elements in the same phase of the research process, weighs the methods equally, analyses the two components independently and interpret the results together. With the purpose of corroboration and validation, the researcher aims to triangulate the methods by directly comparing the quantitative statistical results and qualitative findings. The research process in this study is given in figure 3.

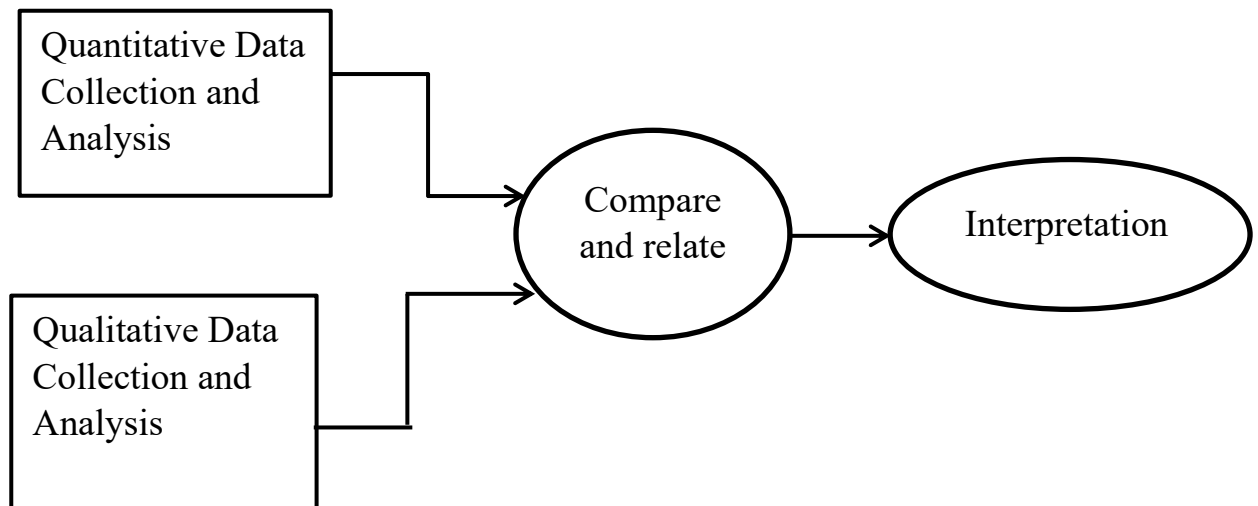


Figure 3. A Diagram showing the convergent mixed parallel design.

3.4. Target population

Polit and Hungler (1999) as cited in Amedahe (2002) defined population as the entire aggregation of cases that meet a designated set of criteria. This means a population comprises all the possible cases (persons, objects, events) that can be selected and used for a study”. The population for this study consisted of all teaching staff and students of Sefwi Wiawso Senior High Technical School and St. Joseph Catholic Senior High School. Sefwi Wiawso Senior High Technical School has a student population of Nine Hundred and Seventeen (917) and Forty- Five (45) teachers. On the other hand St. Joseph Catholic Senior High School has a student population of Nine Hundred and Twenty-One (921) and Fifty-Six (56) teachers .The enrolment was officially given by the heads of the schools.

3.5. Sample and Sample Procedure

Sample is the portion of the population selected for a study. It is the selected subset of a whole which is used to represent the general population (Siedu, 2007). A sample size of one hundred and ninety eight (198) consisting of one hundred eighty-eight (188) students and ten (10) teachers were selected for the study. That number of

students was used as the sample because according to Nwana (1994), if the population is a few thousand, then 10% sample suggestion should be used. A sample size of 188 students was used because it represents approximately 10% of 1838 for the total student which is the target population. The Central Limit Theorem (CLT) guarantees that for a homogenous population, a sample size of thirty (30) or more is sufficient and considered normal (Sirignano & Spilopoulos, 2020). Since the target population shares similar characteristics in terms of age and behavior, any fair sample selected will bear the true characteristics of the entire population and therefore findings can be generalized (Yamane, 1967). Also, the selection of the figures for the sample size was based on Israel (2015). According to him, 10% could be picked for the sample size, which he gave a table of precision. According to Israel (2015), the level of precision is the range in which the true value of the population is estimated to be. The total population of the teachers was 101 and sample sizes of 10 teachers were selected for the interview. The figures for the sample are shown in the table below:

Table 2: Sample distribution from each school

Respondents	School	Population	Sample size
Students	Sefwi Wiawso Secondary	917	94
	Technical		
	St. Joseph Senior High School	921	94
	Total	1838	188
Teachers	Sefwi Wiawso Secondary	45	5
	Technical		
	St. Joseph Senior High School	56	5
	Total	101	10

Source: Field Survey (2021)

Sampling refers to the process used to select a portion of the population for a study (Adzahli-Mensa, et al 2017). Purposive sampling was used in selecting the target school for the study. According to Cresswel (2009), in purposive sampling, the researcher intentionally selects individuals or sites to study and understand a phenomenon. There are four second cycle schools in the Sefwi Wiawso Municipality, all the schools have boarding facilities. Sefwi Wiawso Senior High School and the Senior High Technical are located on the southern part whereas St. Joseph Senoir High School and Asawinso Senior High School are located on the Northen part of the Sefwi Wiawso Municipality. Using the purposive sampling, the researcher intentionally selected Sefwi Wiawso Senior High Technical School and St. Joseph Senior High School which means one school from the north and one school from the south. Another reason is that, all are public senior high schools and therefore have similar characteristics, so information from any of the schools can be generalized.

Simple random sampling was adopted in selecting the students for the study. This is a technique that ensures that each individual has equal probability of being selected (Graveter & Forzano, 2009). In view of this, word cards were used in the selection of students. The words 'Yes' and 'No' were used for the selection. The number of 'Yes' corresponds exactly to the number of students needed in class for the study. The 'No' and 'Yes' were all put in one closed box from which a single card was randomly picked by students. Eventually those who picked the 'Yes' were selected for the study.

The teaching staff was selected using convenience sampling. The researcher used convenience sampling because it was very difficult to get all the teaching staff to be present in the school during contact hours. That was why the researcher decided to select staff members who were available in the school as at the time of data collection.

This was as a result of the outbreak of the covid-19 pandemic, only teachers who had periods were present in school. The researcher interviewed the teachers who were available one after the other until the require number was obtained.

3.6. Instruments for Data Collection

The research instruments that were used for the study are questionnaire and interview guide. The questionnaire was used to collect data from students whereas the interview guide was used to solicit data from the teaching staff members selected. Amedehe (2002) opined that questionnaire is widely used for collection of data in educational research since if developed to answer research questions it is very effective for securing factual information about practices and enquiring into opinions and attitudes of the subjects. The questionnaire was designed by the researcher with five components divided into sections. The section A was socio-demographic characteristics of the students. The sections B to E were based on the objectives of the study. The section B was about the students' perception on waste, the section had 11 statements, the section C was an examination of the students' knowledge on the constituents of littering with nine (9) statements. Section D of the questionnaire centered on factors that contribute to littering behavior among students and it had ten (10) statements. The last section was section E, the questions explored the possibilities on schools' ability to shape up students' attitude towards littering with five (5) statements.

The interview guide, on the other hand was given to the teachers under the same component but different questions. It had only one section and it dealt with questions that focused on the research questions. The first part was teaching staff perception on waste. The second was based on staff's knowledge on the constituent of littering. The

third part was questions on factors that contribute to littering behavior among staff. The fourth part was on the possibilities on schools' ability shape up staff attitudes towards littering. The last component was on the way forward which sought suggestions and comments on the issue of littering in senior high schools.

3.7. Data Collection Procedure

3.7.1 Interview

At the beginning of the data collection process, a rapport was built between the participants and the researcher. Participants were given information in oral form in which the researcher explained the nature and the purpose of the study. The researcher encouraged the participants to answer completely, freely and relevantly after they expressed their willingness to participate in the study. After the interview, the interviewer thanked the participants and once again assured them about the worth of their answers and confidentiality of the same.

3.7.2 Questionnaire

The permission to administer the questionnaires was obtained from the heads of the schools through a letter explaining the purpose of the study and also assuring participants of anonymity after their consent had been sought the students were not left out, the researcher went to their various classrooms with the assistance of their teachers to seek their consent. The researcher established rapport with the respondents before given the questionnaires out. Again, the researcher clearly explained the components of the questionnaire items that posed some problems to the respondents. However, some of the students still ask for clarification which the researcher gave further explanation to them. The administration and completion of the questionnaires were supervised by the researcher. All completed questionnaire were retrieved from the respondents for analysis to be done.

3.8. Validity and Reliability

Validity in social science research refers to the process where a researcher in an attempt to ascertain whether the tools or instruments used for the study measure the intended research concept or construct (Kember & Leung, 2008). To ensure the validity of the instruments, the researcher discussed the questionnaire and interview guide with a senior colleague who is a PhD student in Social Studies Education at the University of Education, Winneba, who painstakingly went through and gave me the necessary suggestions and corrections to ensure its content and face validity. Further, to increase the reliability and validity of the instrument, it was given to my supervisor, who went through it together with me for it to be reviewed. The suggestions led to the modification of some of the items where others were removed.

3.9 Ensuring Trustworthiness

Trustworthiness is defined as a methodological accuracy and adequacy of the research inquiry (Holloway & Wheeler, 2002).

According to Bryman (2012), trustworthiness consists of four different components and these are credibility, transferability, dependability and conformability. The combination of these four terms constitutes the trustworthiness criteria, thus, forming conventional pillars for qualitative methodology (Phillimore & Goodson, 2004). The researcher achieved trustworthiness in the following ways.

3.9.1 Credibility

According to Kuranchie (2021), the credibility is the researcher's ability to show that research data are accurate and appropriate. It also has to do with the appropriateness of the data gathered in relation with the phenomena investigated. In this study, interviews of the participants were conducted to enable the researcher make better

interpretation of the situation. The researcher had one on one conversation with them to develop good interpersonal relationship with them before the data collection began. In this way, the researcher was able to build trust between him and each of the respondents. This trust made it possible for the respondents to readily open up for the discussion of all the relevant issues that were covered by the interview for the study.

3.9.2 Transferability

Transferability is the degree to which results of a research study or experiment can be generalized to other groups, settings or situations (Lincoln & Guba, 1985). The general methods and procedures of this study were vividly described so that anyone who would want to conduct the same research, using the same methodology will get the same results.

3.9.3 Dependability

Dependability of qualitative research findings corresponds to reliability of findings in quantitative research (Merriam & Associates, 2002 cited in Kusi, 2012 p.103). Dependability requires an audit trail of clear documentation of all research decisions and activities in a chain of evidence from the time of data collection to the conclusion of the research (Bryman, 2001). The researcher had a personal interaction with the respondents from whom the data was collected through clear and unambiguous questions.

3.9.4 Conformability

Conformability is the “extent to which the data and interpretation of the study are grounded in events” rather than the researcher’s personal construction (Lincoln & Guba, 1985, p.324). The researcher was also aware of personal assumptions, biases and subjectivity that could easily affect the outcome of the study. As a result, the

researcher placed herself on an emphatically neutral ground, seeing the respondents as autonomous beings in order to obtain accurate data void of biases. The conformability of this study was ensured by the thick description and reporting of the research process. Thick descriptions were used to substantiate and illustrate assertions made by respondents to illuminate the context. Respondents' statements during the interviews were quoted verbatim to ensure that their true emotions and opinions were conveyed. During the interview, respondents were probed further when the need arose for clearer explanations and deep understanding of the issues.

3.10 Ethical Consideration

In connection with the rules and regulations of the university with regard to conducting research using human subjects, the following ethical consideration were adhered to during the course of the research.

With an introductory letter from the Department of Social Studies Education, University of Education Winneba, I obtained permission from the heads of the selected schools to conduct this research. The application letters were sent to the schools on the 6th of September, 2021 and had gone through for the necessary approval.

Confidentiality refers to handling the information concerning the participants in a confidential manner. The participants were assured that the information was strictly for academic work and they would be dealt with in the strictest confidence. The participants were assured that their trust would not be exploited for personal gain; rather the outcome is solely for the improvement of environmental sanitation on the campuses of the various senior high schools.

The participants were given guidance before the administration of the instruments. The researcher explained to them that participation was voluntary and not compulsory. Participants were also made aware that they can pull out of the study at any stage, if there were the need to do so.

3.11. Data Analysis

The responses obtained from the questionnaire were coded with numerical value and keyed into the data view of the SPSS version 23. The qualitative data was analysed through content analysis and was further transcribed into themes for analysis with a side-by-side comparison with the quantitative data. Patton (2002), validated this process by saying that content analysis is the process of discovering themes, patterns and categories in a collected data. The qualitative data gathered and presented, were organised and analysed manually using emerging themes.

3.12. Summary

This chapter of the study outlined the general methods which were used in carrying out the research. A short description was made, in order to help readers, appreciate the context within which the study was done. Because the study collected and analysed both quantitative and qualitative data, it was driven by the pragmatic philosophy. Ethical issues were considered to ensure participants' anonymity and confidentiality.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the analysis of the data collected both quantitatively and qualitatively. The quantitative data was analyzed through descriptive statistics using the SPSS, version 23.0 and was presented based on the set research objectives whereas the qualitative data was thematically analysed.

4.1. Results of Study

4.1.1 Socio-Demographic Characteristics of Students

The researcher considered the demographic information of respondents as important to the study. Hence, respondents were required to indicate their sex, age, and form or class. The results gathered on the demographic information of teachers are summarized and presented in Table 3. The table shows that there were 188 respondents in all, out of this, there was an equal representation (94) from each school (thus, Sefwi Wiawso Sec/Tech and St. Joseph Senior High Schools).

Table 3: Socio-Demographic characteristics of the students

Variables	Schools		Total
	Sec/ Tech	St. Joseph	
Sex			
Male	48 (51.1%)	51 (54.3%)	99 (52.7%)
Female	46 (49.9%)	43 (45.7%)	89 (47.3%)
Total	94(100%)	94(100%)	188(100%)
Age			
13 – 15	2 (2.1%)	19 (20.2%)	21 (11.2%)
16 – 18	85 (90.4%)	68 (72.3%)	153 (81.4%)
19 and above	7 (7.5%)	7 (7.5%)	14 (7.4%)
Total	94 (100%)	94(100%)	188 (100%)
Form			
Form 2	94 (100%)	94 (100%)	188 (100%)
Total	94 (100%)	94 (100%)	188 (100%)

Source: Field Survey (2021)

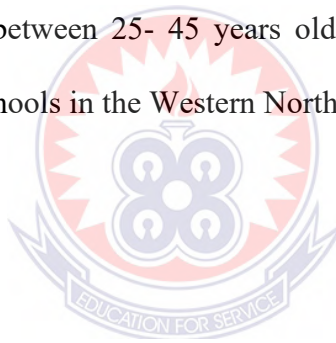
The total number of student participants comprised 188, 94 from Sefwi Wiawso Secondary Technical and another 94 from St Joseph Senior High School. It is important to note that all participants were selected through the lottery method. The majority of respondents were males (99) and females (89). On age, Table 2 shows that the majority of the respondents (81.4%) were found between 16-18 years while few (11.2%) were found below 16 years. Nevertheless, 7 (7.4%) respondents were either 19 years or above.

Regarding the form of the respondents, the table shows that all (188, 100%) of the respondents were found in form two. Due to the double track system and the Covid -

19 restrictions, only the form two (2) classes were available in the various senior high schools during the period of data collection.

4.1.2 Socio-demographic characteristics of teachers

With regard to the staff of Sefwi Wiawso Secondary/Technical and St. Joseph Senior High School, a total of 10 teachers were interviewed. Five 5 teachers from Sefwi Wiawso Secondary Technical and another five 5 from St Joseph Senior High School. It is also important to note here that the teacher participants were selected through the convenience sampling technique. With the socio-demographic information such as gender and age, out of a total of 10 teachers, there were 4 females representing forty percent while the remaining 6 representing sixty percent were males. Their age range were dominantly found between 25- 45 years old. They were all teaching staff in these two senior high schools in the Western North Region of Ghana.



4.2. Presentation of Results and Discussion of Findings from Students

4.2.1 Students' Perceptions on Waste

Table 4. Analysis of students' perception on waste

Statement	Mean	SD
Wastes are unwanted or unusual materials.	3.97	0.40
Waste is any substance /material which is discarded after primary use or is worthless, defective and of no use.	3.83	0.36
Once something is considered waste, it remains so forever.	2.43	0.45
Waste can never be useful for other persons	2.51	0.00
A waste to someone may be useful for other persons	4.02	0.50
Waste can pose danger to our environment.	3.77	0.20
Any human activity generates waste	3.65	0.47
Males generate waste more than females	2.76	0.00
There could be economic value of waste	3.67	0.48
Poor management of waste is always an environmental problem.	4.29	0.50
Grand Total	3.49	0.30

Source: Field Survey (2021)

The perception of students on waste were examined and the result is presented in table 4 above. The results show that a dominant part of the respondents (M: 4.29, SD: 0.50) accepted that poor management of waste is always an environmental problem. Equally, the results shows that most of the students (M: 4.02, SD: 0.50) affirmed that a waste to someone may be useful for other persons. Moreover, students were in agreement that waste are unwanted or unusable materials (M: 3.97, SD: 0.40), followed by students who accepted that waste is any substance/material which is discarded after primary use or is worthless, defective and of no use was the perception of students (M: 3.83, SD: 0.36). In addition, students accepted that waste can pose danger to our environment (M: 3.77, SD: 0.20), there could be economic value of waste (M: 3.67, SD: 0.48). Also, students were of the view that any human activity

generate waste (M: 3.65, SD: 0.47). On sex, it was realized that males generate more waste than females (M:3.05, SD: 0.00). However, this respondent could be bias since majority of them were males

A dominant part of the respondents accepted that poor management of waste is always an environmental problem and a waste to someone may be useful for other persons. This finding agrees with Benson, et al., (2018) when they said that the term waste is often subjective because waste to one person is not necessary a waste to another person. Moreover, students affirmed that waste is an unwanted or unusable material. Waste is any substance /material which is discarded after primary use, or is worthless, defective and of no use. This agrees with Mugambwa, (2009), in the literature review those wastes are materials or substances that are considered as useless, and for that matter they are unwanted. It is also in conformity with Kolekra et al., (2016). Kolekra et al., (2016) defined waste as any product or substance that has no further use or value for the person or organization that owns it, and which is or will be discarded. It further agrees with Orhorhoro and Oghoghore's (2019) definition that solid waste is useless and unwanted substance in solid state discarded by members of the society. Waste can pose danger to our environment and there could be economic value to waste. This is in line with Ellis et al., (2005) with their assertion that the manufacturing use and immediate disposal of plastic bags which are waste have environmental impact on society

Students from both senior high schools disagreed on the notion that once something is considered as waste, it remains so forever, waste can never be useful. This finding confirms the definition by Kolekra et al., (2016) that waste is any product or substance that has no further use or value for the person or organization that owns it, and which is or will be discarded.

Table 5: Analysis of students' knowledge on the constituents of littering

Statement	Descriptive Statistics	
	Mean	S.D
Littering is a dangerous activity and should not be taken lightly because it impacts the school's environment.	2.59	0.967
Littering can also result from construction projects on campus.	2.51	0.963
Littering is a crime on school campuses.	2.49	0.96
Littering can affect the quality of life on campus.	2.35	0.95
Female students litter more than male students	2.15	0.93
The students are the only ones who litter on school campuses.	2.01	0.918
Littering is knowingly depositing any form of waste indiscriminately at either public or private spaces	1.95	0.901
The unconscious acts of depositing materials constitute littering.	1.77	0.878
Male students litter more than female students.	1.64	0.864
Grand Total	2.16	0.92

Source: Field Survey (2021)

4.2.2 Students Knowledge on the Constituents of Littering

Table 5 above shows the analysis of students' knowledge on the constituent of littering. Littering is a dangerous activity and should not be taken lightly because it has an impact on the school's environment was ranked first with (SD: 2.59, M .967). In the analysis, 53 disagreed while 89 agreed. Forty-two respondents were undecided whether littering is a dangerous activity and should not be taken lightly because it impacts the school environment. Littering can also result from construction projects on campus were ranked second with (SD: 2.51 M .963). Littering is a crime on school campuses was ranked third (SD: 2.49: M.960). Besides a total of 45 student respondents disagreed that littering can affect the quality of life on campus.

Meanwhile 107 of them affirmed that littering can affect the quality of life on campus. The issue of littering being able to affect the quality of life on campus was ranked fourth (SD: 2.35: M.95) Female students' litter more than male students was ranked fifth (SD: 2.15 M.93). The students are the only ones who litter on school campuses was ranked sixth with (SD: 2.01: M: .918). Littering is knowingly depositing any form of waste indiscriminately at either a public or a private space was ranked fifth with (SD: 1.95, M.901). to the utter dismay of the researcher 68 of senior high school respondents disagreed that littering is knowingly depositing any form of waste indiscriminately at either a public or a private space, meanwhile 75 of them agreed and a whopping number of 45 indicated that they are undecided. The unconscious acts of depositing materials constitute littering was ranked eighth (SD: 1.77, M:.878) and lastly Male students' litter more than female students was ranked ninth with (SD: 1.64 M .86)

Students affirmed that littering is a dangerous activity and should not be taken lightly because it impacts the schools' environment. These findings contradict the assertion by Bonnet and William (1998) that litter is not an important environmental concern. The current findings however support Environmental Protection Agency (2000) assertion that, litter is a major environmental problem today and therefore deserves special attention. It also supports a study conducted in Botswana by Chanda (1999) which outcome considered littering as a serious environmental problem. Others agreed that littering can affect the quality of life on campus. Littering can also result from construction projects on campus. Some of the students also agreed that, the unconscious acts of depositing materials constitute littering. This finding supports the definition of Ojedokun (2011). In his definition, waste is an individual's intentional or unintentional act of throwing away waste on the ground as a daily routine. There were

other students who again agreed that littering is knowingly depositing any form of waste indiscriminately at either public or private spaces, and littering is a crime on school campus. The students were indecisive on the factor that stipulates that male student's litter more than female students. This finding is consistent with the conclusion by Chanda (1999), who found gender as a poor predictor of environmental concern, but it also contradicts that of Trall (1996) who in a study of middle and high school students showed that gender and age of students had effects on the formation of positive attitudes about the environment.

Students disagreed with the statement "Students are the only ones who litter on campuses." Thus, staff and non-staff also litter around. It came to bare that littering involves the unconscious acts of depositing materials.



4.2.3 Factors that contribute to littering behavior among students

Table 6: Analysis of factors that contributes to littering behavior among students

Statement	Mean	SD
Littering is a result of one's attitude on campus	5.28	6.72
I drop pieces of paper unconsciously.	4.57	5.60
I drop litter anywhere because no one will punish me.	4.45	4.69
I do not feel bad throwing litter any place where some refuse exists already.	4.38	3.87
Wastes is dirt, so I drop them so that I do not have to keep them on me.	4.34	2.81
I drop litter anywhere because I think is fun.	4.17	1.10
I drop litter anywhere because I do not care	4.15	1.01
In most cases, littering in school is either accidental or intentional.	3.45	1.30
Students do litter around because of laziness.	3.34	1.10
I drop litter anywhere because I cannot find a waste bin.	3.09	0.95

Table 6 above seeks to analysis factors that contribute to littering behaviour among students. Littering is a result of one's attitude on campus was ranked first with (SD: 5.286, M: 6.729). I drop pieces of paper unconsciously was ranked second with (SD: 4.571, M: 5.603). I drop litter anywhere because no one will punish me was ranked third with (SD: 4.4571, M: 4.695). While I do not feel bad throwing litter at any place where some refuse exist already was ranked fourth with (SD: 4.386, M: 3.873). Waste is dirt, so I drop them so that I do not have to keep them on me was ranked fifth with (SD: 4.342 M: 2.814). I drop litter anywhere because I think it is fun was ranked sixth with (SD: 4.171 M: 1.103). I drop litter anywhere because I do not care was ranked

seventh (SD: 4.157, M: 1.016). In most cases, littering in school is either accidental or intentional was ranked eighth with (SD: 3.452, M: 1.304). Students do litter around because of laziness was ranked ninth (SD: 3.345, M: 1.109) and lastly I drop litter anywhere because I cannot find a waste bin was ranked tenth with (SD: 3.098 M.954)

Students strongly agreed that students do litter around because of laziness, this current finding confirm that of Bonnet and Williams (1998), who posit that laziness is indeed a contributing factor for littering. Littering in school is either accidental or intentional, this is in line with Ojedokun's (2011), definition of littering as individuals' intentional or unintentional act of throwing away of waste on the ground as a daily routine. Concerning the statement, I drop litter anywhere because I cannot find a waste bin; the current finding contradicts EPA (2000) observation that lack of waste bins is not a major factor in littering, because most littering occurs within five meters of a bin. Ocansey (2006) disagrees, he asserts that student's litter anywhere indiscriminately due to unavailability of bins on vantage points in school compound. Littering around is a result of one's attitude on campus. This finding is not surprising since it agrees with Lucas (1981). Lucas (1981) in his research found out that the attitudes of secondary school students to the environment tended to be positive. "I drop pieces of paper unconsciously", "I do not feel bad throwing litter anywhere because some refuse exists already." And students agreed that students drop litter anyway because they do not care. Cingolane et al (2016) assert that public littering can be reduced by putting in place measures such as bunds, stricter laws and nudging. Lotz-Sisitka (2002), in stating guidelines for effective environmental education programs that may lead to behavioral change on the part of learners, also suggested awareness and sensitization as a measure to reduce littering behaviour.

4.2.4 The possibilities on schools' ability to shape up students' attitudes towards littering.

Table 7: The possibilities on schools' ability to shape up staff and students attitudes towards littering

STATEMENTS	Mean	SD
	Putting in place strict litter laws.	4.22
Incentives must be given to students with good waste management behaviours on campus.	4.24	0.50
Putting up signs is a very creative way of putting a stop to littering.	4.18	0.47
Students should be educated on the importance of not littering.	4.13	0.39
Bins must be provided at vantage points on campus to help collect waste	4.26	0.20
Grand Total	4.20	0.40

Source: Field Survey (2021)

The respondents were given some possibilities on schools ability to shape up staff and students' attitude towards littering. They were allowed to rate the statements stipulated using SD= Strongly Disagree, D= Disagree, U= Undecided, and SA = Strongly Agree. The results of these data are presented in Table 6 below .The Table 6 shows that all the interventions or possibilities were highly or strongly endorsed by the students as appropriate ways to shape up staff and students attitudes towards littering. It shows that students strongly agreed that bins must be provided at vantage points on school compounds to help collect waste (M=4.26), incentives must be given to students with good waste management behaviours on school compounds (M=4.25),

putting in place strict litter laws ($M=4.22$) as well as putting up signs is a very creative way of putting a stop to littering ($M=4.18$). Thus, all the senior high school students were in favour of these possibilities to enhance the attitudes of students and staff of littering on campuses.

However, in St. Joseph Senior High School, students preferred bins to be provided at vantage points on campus to help collect waste as major possibility while in Sefwi Wiawso, students preferred incentives to be given to students with good waste management behaviours on campus.

Nevertheless, students from both senior high schools least considered educating students on importance of not littering as a key possibility to enhance the attitude of staff and students on littering.

Possibilities of schools' ability to shape up students Attitude towards Littering.

Students strongly agreed that bins must be provided at vantage points on campus to help collect waste, this confirms the study by Aduku (2014) which reviews that students litter anywhere due to the unavailability of waste bins on school compounds and public places. It however contradicts Colman (2000) who observes that lack of dust bins is not a major factor in littering. Incentives must be given to students with good waste management behaviours on campus; This is not different from Amankwa-Poku and Ofori's (2020), finding that there is the need to rightly reward individuals who demonstrate good litter disposal habits such as dropping litter in bins. Putting in place strict litter laws; this current finding adds up to the findings of Amankwa-Poku and Ofori (2020) that participants had knowledge of basic conventions about littering but could not make any specific laws in Ghana. Their finding suggested the need for education to make individuals aware of laws related to littering and improper disposal

of waste disposal and thereby curb the menace and avoid its negative consequences, as well as putting up signs is a very creative way of putting a stop to littering.

In St. Joseph Senior High School, students preferred bins to be provided at vantage points on campus to help collect waste as major possibility while in Sefwi Wiawso Secondary Technical, students preferred incentives to be given to students with good waste management behaviours on campus. Nevertheless, students from both senior high schools least considered educating students on importance of not littering as a key possibility to enhance the attitude of staff and students on littering.

Moreover, students and staff should be punished when found as culprits for littering. According to Asmui, et al. (2017) when individuals are punished for littering or observed others been punished for littering, they will be less likely to litter or imitate littering behaviours. Equally, according to the Social Learning Theory, for observational learning to be effective, you must be motivated to mimic the modeled activity. The Social Learning Theory again posits that, motivation is heavily influenced by reinforcement and punishment. The Theory continue to say that observing others receiving reinforcement or punishment can be just as beneficial as experiencing these stimuli [Lamorte,2019].

4.3. Findings from the Teachers' Interview

The researcher did not leave the teachers out in this research; hence their views were sought concerning this environmental issue, littering.

4.3.1 Perception of Teachers on Waste

The interview guide for the teachers started with their perception on waste. Some of the responses are:

*Waste is unwanted or unusable material.
Waste is anything that no longer has a use or purpose and
needs to be disposed off.*

From their responses, it could be concluded that waste is any material that cannot be used for any other purpose. Others also described waste as spoilt and unwanted material. Hence, the term waste is relative. Thus, what one will term as waste will be a resource for the other to do something. It was gathered from the interview that waste is created and some are created by nature and some also by human activities. It was also gathered that, waste is not worthless because there is always a chance for recycling, hence with proper innovations and inventions, waste will have an economic value.

4.3.2 Teachers' knowledge on the constituents of littering

The researcher also sought for the view of the teachers on what constitutes littering. It was revealed that; papers, plastics, cans and sachet water plastics form a greater part of waste in their schools. On what constitutes littering, one teacher from Sefwi Wiawso Secondary Technical School, said:

“Dropping litters on the ground any how constitute littering”

Another teacher from ST. Joseph Senior High School stated that

Littering is intentionally depositing litter at any public or private place

The teachers made it clear that littering is preventable and it can be done by putting waste bins around the school premises and also punishing those who will be found littering around. It was also made clear from the interview that some teachers and students' litter not because of ignorance but because of the absence of waste bins on campus.

4.3.3 Factors that contribute to littering among teachers

The researcher also wanted to find out from the teachers the factors that contributes to littering among the teaching staff. The absence of waste bins on campus and also laziness on part of some teachers and students were found to be a major factor. Some teachers also exhibited good littering culture because they are often sensitized on littering.

A teacher from St. Joseph had this to say concerning contributory factors of littering:

“Inadequate waste bins, laziness among students, teaching and non- teaching staff”

4.3.4 The possibilities on schools ability to shape up staff attitude towards littering

It was realized that, some of the measures that can be put in place to change this bad littering culture of the staff is constant and regular sensitization and education on the need to keep the environment clean and exhibit good littering culture especially as teachers. The teachers as well as the school authorities have a pivotal role to play in the quest to eradicate littering on the school premises, hence they are to make sure that adequate waste bins are made available on the school premises, educate the students not to litter around, and punish those who will flout the directives. They were also of the view that both staff and students with good waste management behaviour should be rewarded.

Thus, the teachers were in favour of these possibilities to enhance the attitudes of students and staff of littering on campuses. However, in St. Joseph Senior High School, teachers preferred waste bins to be provided at vantage points on campus to

help collect waste a major possibility while in Sefwi Wiawso, teachers preferred incentives to be given to students with good waste management behaviors on campus. Nevertheless, teachers from both senior high schools least considered educating students on importance of not littering as a key possibility to enhance the attitude of staff and students on littering.

Regarding the views of the staff on the factors influencing littering behaviour among staff, it was revealed that inadequate waste bins on the school compound, laziness on the side of some teachers, bad attitude, ignorance, as well as indiscipline attitudes of some teachers influence their littering behaviour. These were confirmed in an interview with a teacher from Sefwi Wiawso Secondary Technical. He said;

“Mostly, some staff are ignorant about their act of littering while others have poor attitude and mentality that some people or cleaners are paid to do that job so they do not care about their littering. Also, sometimes, some staff feel so lazy to walk a distance to drop even a sachet rubber after drinking a water. Moreover, there are inadequate waste bins on school compound which makes it difficult for some teachers to walk for a little distance to drop a waste than to drop it anywhere closer to them” (one teacher from, Sefwi Wiawso Secondary Technical, 2021).

Furthermore, some staff indicated that they were not sensitized on littering in the school and that goes a long way to affect their behaviour regarding littering. Therefore, there is inadequate education on littering during school hours since even the staff are not well abreast or informed about littering in their various schools.

With the attitude of staff on how to curb littering on campus, it was revealed that most of the respondents said that there should be provision of enough waste bins on the campuses of the school. Also, they indicated that there should be sensitization or more education on littering. Moreover, students and staff should be punished when found as culprits for littering. This is what a teacher had to say:

“There are not enough waste bins on the various campus, even in the staff common room, there is no waste bin. You hardly find a waste bin on the school compound and we find it difficult in dropping waste. Therefore, there should be provision of enough waste bins to be placed on vantage points on campuses including staff common rooms. Also, both students and staff who litter around should be punished in one way or the other to deter others from doing same. Moreover, people need to be educated and sensitize on littering around since it is becoming a behavioural issues on campus” (A teacher from Sefwi Wiawso, Secondary Technical School).

4.4 Discussion of the Findings

The staff of the two senior high schools perceived that waste is spoilt and unwanted material. This finding from the teachers coincides with the assertion from Orhorhoro and Oghoghore (2019) that waste is the useless and unwanted substances. Also, most of the teachers indicated that waste is created through human activities, this outcome of the research corresponds with Muzenda (2014) who posits that waste can be defined as an unavoidable by-product of human activity. It is also in conformity with Adeolu et al., (2014) who say that every school generates waste arising from routine activities by the students. However, most of the teachers believed that waste can be transformed or recycled into useful material; this finding gives credence to Johnson (1990), who said that waste becomes a resource when it is recycled but it becomes a problem when it is not. This is also not different from Cunningham and Saigo (1997) who said that recycling reduces the volume of waste and pressure on disposal systems.

It came to bare that littering involves the unconscious acts of depositing materials. This finding supports the definition of Ojedokun (2011), in his definition littering is an individual’s intentional or unintentional act of throwing away waste on the ground as a daily routine. It was revealed through the study that teachers who suppose to be

the role model also litter. This current finding confirms the Social Learning Theory which says that most human behavior is acquired through observation and modeling. (Bandura, 1977). Most of the teachers from St. Joseph Senior High School indicated that littering is not preventable in schools as a result of the poor attitude towards littering.

Most of the staff indicated that as a result of inadequate dust bins on the school compound, laziness, bad attitude, ignorance, as well as in discipline acts of some teachers. Also, most of the staff indicated that there is inadequate and less sensitization on littering in the various senior high schools. This finding is congruent with Okeoma and Nkwocha (2009). Their finding suggested that strategic and tactical measures can help in reducing littering. Strategic measure can be environmental education and creation of awareness on the dangers of littering and its impacts on the society (Okeoma & Nkwocha 2009). Lotz-Sisitka (2002), in stating guidelines for effective environmental education programs that may lead to behavioral change on the part of learners, also suggested awareness and sensitization as a measure to reduce littering behaviour.

It was brought to light that most of the staff said that there should be provision of enough waste bins on the campuses of the various senior high schools. Also, they indicated that there should be sensitization or more education on littering. Moreover, students and staff should be punished when found as culprits for littering. This current finding is in line with the Social Learning Theory which posits that motivation is heavily influenced by reinforcement and punishment in that observing other receiving reinforcement or punishment can be just as beneficial as experiencing these stimuli (Lamorte, 2019). Equally, Asmui, et al., (2017) opine that when individuals are punished for littering or observed others been punished for littering, they will be less

likely to litter or imitate littering behaviours. As part of the finding, teachers suggested reward for staff and students with good waste management behaviours on campus. This confirms the Social Learning Theory which states that all humans acquire behavior through reward and imitation (McRae & Gross, 2020).

Theory states that reinforcement as a reward consists of pride, happiness and a sense of success. Therefore, as one is rewarded, he sees it as a success and will continue to practice good waste management behaviour.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

In this chapter, the significant findings and the valuable information obtained or achieved by this study have been carefully summarized. The chapter is made up of the summary of the research and the conclusion drawn from this research study. Also, important recommendations for further studies were given from the analysis of the available data in this study.

5.1 Summary

The purpose of this study is to document the attitudes of staff and students towards littering in second cycle schools in Sefwi Wiawso Municipality. Specifically, the study sought to;

1. explore staff and students' perception on waste.
2. examine staff and students' knowledge on the constituents of littering.
3. examine factors that contributes to littering among staff and students.
4. explore the possibilities on schools' ability to shape up staff and students' attitudes towards littering.

The study was conducted in the Sefwi Wiawso Municipality. The study used a case study design of the mixed approach. The study targeted teachers and students of Sefwi Wiawso Senior High Technical School and St. Joseph Catholic Senior High School. However, 188 students and 10 teachers were selected through simple random and convenience sampling respectively. Questionnaire was administered to the students while interview guide was meant for the teachers. The data gathered via the

questionnaires were analysed using frequencies, percentages, means and standard deviations while the recordings from the interviews were transcribed verbatim and analysed thematically based on the research objectives.

Based on the objectives, these findings were made:

- Respondents perceived waste as unwanted or unusable materials or any substance/material which is discarded after primary use. They are normally created by human activities, though; it can be transformed or recycled into useful materials.
- Both students and teachers were aware of the devastating effect of littering especially on their health and the environment but they still litter as result of their poor attitude towards littering.
- Respondents agreed that Littering is knowingly depositing any form of waste indiscriminately at any public or private space
- The study identified inadequate waste bins on the school compound and both students and teachers requested for additional waste bins on their school compounds. The study revealed that student's litter anyhow because they do not care.
- The study found that school management and staff do not organize environmental education as a form of sensitization for both students and staff.
- The study also found out that Senior High Schools in Sefwi Wiawso do not have enough school labourers to ensure the tiding of the school compound. These schools reserve such activities for students as morning duties.

- It was also discovered that educational sensitization for both the students and staff to enhance good sanitation practices were completely absent and if even done, poorly organized.

5.2 Conclusions

Based on the key findings, the following conclusions are made:

The researcher concludes from the findings that both staff and students perceived waste as unwanted or unusable materials or any substance/material which is discarded after primary use. They are normally created by human activities, though staff and students have some level of knowledge about waste, poor management of waste always pose problem on environment.

- The researcher concludes that both students and teachers were aware of the devastating effect of littering especially on their health and the environment but they still litter as a result of their poor attitude towards environmental issues.

It is also concluded that littering involves the unconscious acts of depositing materials indiscriminately at either public or private spaces.

- Another conclusion drawn is that littering is caused due to irresponsible behaviour among staff and students coupled with other factors such as laziness, inadequate waste bins on campus, carelessness of the environment, bad attitude of students and staff and less sensitization on littering on the various senior high schools.
- Provisions of adequate waste bins at vantage point in the various campuses, giving of incentives to students with good waste management behaviours on campus, enacting laws and rules on littering, as well sensitizing and educating

students and staff on littering on campuses formed the possibilities on how schools can shape up staff and student's attitudes towards littering.

5.3 Recommendations

Based on the findings and outcomes drawn, the following suggestions are put forward for consideration:

- School Management of the Senior High Schools should provide enough waste bins at vantage points to collect waste on compounds.
- The school management should form waste clubs to educate and sensitize both staff and students on littering and waste on school compounds.
- The School Management of the Senior High Schools should enforce rules and regulations concerning littering on campuses.
- Students with good waste management practices should be rewarded while students with poor littering attitude punished severely to deter others in Senior High Schools.
- The Senior High Schools should make it a point to hire enough school labourers to ensure tidying of the school compound all the time.

5.4 Suggestions for Further Research

The study found that both students and staff litter around on the campuses, though, females generate more waste. The researcher therefore makes the following suggestions:

1. Further studies could be carried out on littering in other second cycle schools outside the current study area in other parts of the country.
2. Other researchers could also conduct study on the effects of socio-demographic characteristics on littering behavior.

3. Further research into attitudes of tertiary students towards littering could also be carried on.



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APPENDIX A

QUESTIONNAIRES FOR STUDENTS OF SELECTED SENIOR HIGH SCHOOLS IN THE SEFWI WIAWSO MUNICIPALITY

Due to the lifestyle, environmental issues such as littering have become part of our everyday living, including those in learning environments. It is a common practice for students of learners, as well as other school workers to buy pre-packed items like takeaways, calculators and other disposable items, and intentionally and /or unintentionally dispose them on bare grounds on their classrooms, offices, school compound, etc., thereby, littering the environment. Schools, especially second cycle ones in the Sefwi Wiawso Municipality have over the years kept pace in trying to ensure environmental sanitation on school campuses to curb littering.

This study therefore seeks the reasons for the littering behavioral pattern in some selected second cycle schools in Sefwi Wiawso Municipality, by taking into consideration the views of students as well as the perspectives of staff.

The results of this survey and the subsequent discussions at any follow-up meeting will be kept confidential. Meanwhile, there are no “correct” or “wrong” answers, so please feel free to give me credible information to ensure the success of this research. Your contribution is of much relevance for this study and all persons or institutions interested in the environmental management development in Ghana.

Please make a **tick** [] in the box against your response. Thank you for your cooperation.

Section A: Socio-Demographic Characteristics of Students from Selected Senior High School in the Municipality.

1. Gender: Male [] Female []
2. Age: (a) 13 to 15 [] (b) 16 to 18 [] (c) 19 and above []
3. Religion (a) Christian [] (b) Muslim [] (c) Traditional []
- (d) Other [] Specify
-

4. Class: Form 1 [] Form 2 [] (c) Form 3 []

Section B: Students perception on waste and littering

Please indicate the extent of your agreement on the scale where 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D) and 5 = Strongly Disagree (SD).

STATEMENTS	SA	A	U	D	SD
OBJECTIVE 1: Explore students perception on waste is.					
1	Waste are unwanted or unusual materials.				
2	Waste is any substance/material which is discarded after primary use, on is worthless, defective and of no use.				
3	Once something is considered waste, it remains so forever.				
4	Waste can never be useful				
5	A waste to someone may be useful for other persons.				
6	Waste can pose danger to our environment.				
7	Any human activity generate waste.				

8	Males generate waste more than females.					
9	There should be economic value.					
10	Poor management of waste is always an environmental problem.					
STATEMENTS		SA	A	U	D	SD
SECTION C: OBJECTIVE 2: Examine students' knowledge on the constituents of littering.						
11	Littering is knowingly depositing any form of waste indiscriminately at either public or private spaces.					
12	Littering is a crime on school campuses.					
13	The students are the only ones who litter on school campuses.					
14	The unconscious acts of depositing materials constitute littering.					
15	Male students litter more than female students.					
16	Female students litter more than male students					
17	Littering can also results from construction projects on campus.					
18	Littering can affect the quality of life on campus.					
19	Littering is a dangerous activity and should not be taken lightly because it impacts the schools environment.					
STATEMENTS		SA	A	U	D	SD
SECTION D: OBJECTIVE 3: Examine factors that contribute to littering behavior among students.						
21	In most cases, littering in school is either accidental or intentional.					
22	Students do litter around because of laziness.					

23	Littering is a result of one's attitude on campus					
24	I drop litter anywhere because I cannot find a waste bin.					
25	I drop litter anywhere because I do not care					
26	Waste are dirt, so I drop them so that I do not have to keep them on me.					
27	I drop litter anywhere because I think is fun.					
28	I drop litter anywhere because no one will punish me.					
29	I do not feel bad throwing litter any place where some refuse exist already.					
30	I drop pieces of paper unconsciously					
STATEMENTS		SA	A	U	D	SD
SECTION E: OBJECTIVE 4: Explore the possibilities on schools ability to shape up students attitudes towards littering.						
31	Putting in place strict litter laws.					
32	Incentives must be given to students with good waste management behaviors on campus.					
33	Putting up signs is a very creative way of putting					
34	Students be educated on the importance of not littering					
35	Bins must be provided at vantage points on campus to help collect waste.					

APPENDIX B

INTERVIEW GUIDE FOR TEACHING STAFF OF SELECTED SECOND CYCLE SCHOOLS IN SEFWI WIAWSO MUNICIPALITY.

Date of Interview:

Place of Interview:

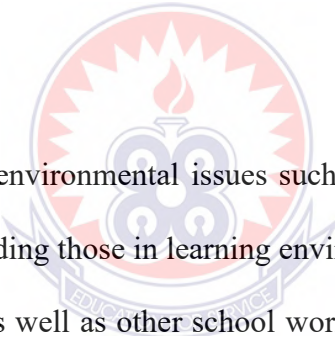
Gender of Interviewee:

Age of Interviewee:

Name of School:

Position/ Title of Interviewee:

Introduction



Due to modern lifestyle, environmental issues such as littering have become part of our everyday living, including those in learning environments. It is a common practice for students of learners, as well as other school workers to buy pre-packed items like takeaways, calculators and other disposable items, and intentionally and/or unintentionally dispose them on bare grounds on their classrooms, offices, school compound, etc., thereby, littering the environment. Schools, especially second cycle ones in the Sefwi Wiawso Municipality have over the years kept pace in trying to ensure environmental sanitation on school campuses to curb littering.

This study therefore seeks the reasons for the littering behavior in some selected second cycle schools in the Sefwi Wiawso Municipality, by taking into consideration the views of students as well as the perspectives of staff.

A. Teaching staffs perception on what waste .

i. In your own opinion, what do you consider as waste?.....

.....

.....

ii. Is waste created? Yes or No

How.....

iii. What constitutes waste depends on the eye of the beholder. Yes or No.

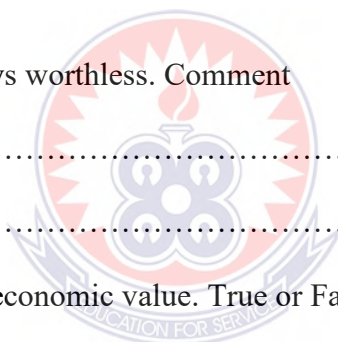
Why?.....

iv. Waste is always worthless. Comment

.....

.....

v. Waste has no economic value. True or False.



B. Staffs knowledge on the constituents of littering

i. What in your opinion constitutes littering?

.....

.....

ii. Littering is not preventable in schools? Yes or No .

Why?.....

.....

iii. Students and Teachers litter because they are ignorant? Yes or No

Explain?

iv. Why your answer to (iii)?

Are the students the only people likely to litter on the school compounds?

.....

.....

C. Factors that contribute to littering behavior among staff?

i. Why do you think people litter on campus?

.....

.....

ii. Are there available bins on campus to collect the rubbish? Yes or No

Explain.....

iii. How often are staff sensitized on littering around?

.....

.....

iv. Could littering be the cause of individual behaviors developed at homes? Yes

or No.

v. Is there enough education on littering during school hours? Yes or No.

Why?.....

.....



D. The possibilities on schools ability to shape up staff attitudes towards littering.

.....
.....

- i. Are the staffs cooperative when it comes to fighting littering on campus? Yes or No

Explain?

- ii. What could be done to assist the staff in ensuring that littering decrease on campus?

.....
.....

- iii. What are some of the measures put in place by the school to curb littering?

.....
.....

- iv. Are there rules and regulations on littering in this school already? Yes or No

.....

- v. How can the teaching staff be involved in the fight against littering?

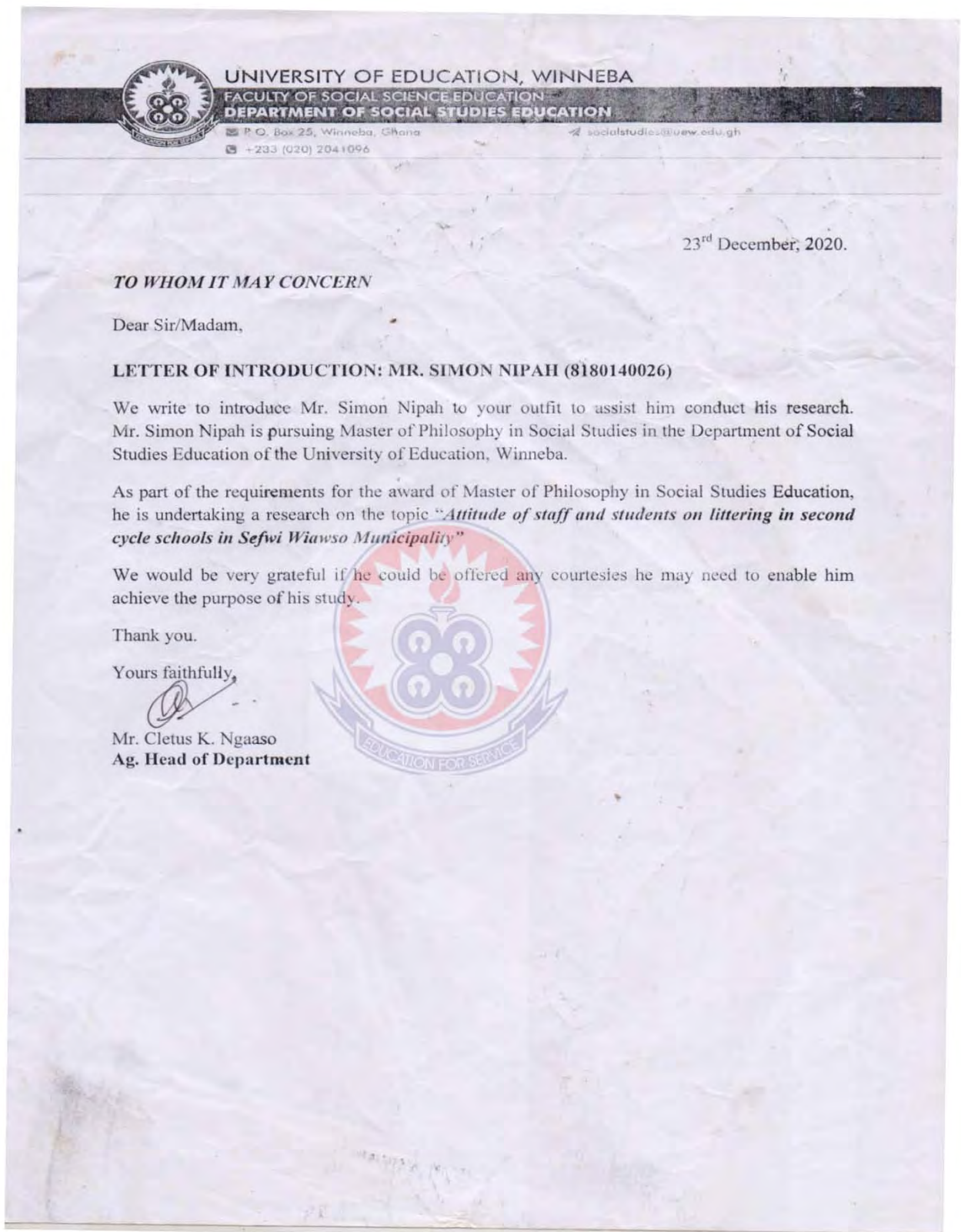
.....

E. Way Forward

What suggestions will be given in other to handle the case of littering among schools in your municipality?

.....
.....

APPENDIX C



APPENDIX D

A map showing the study areas

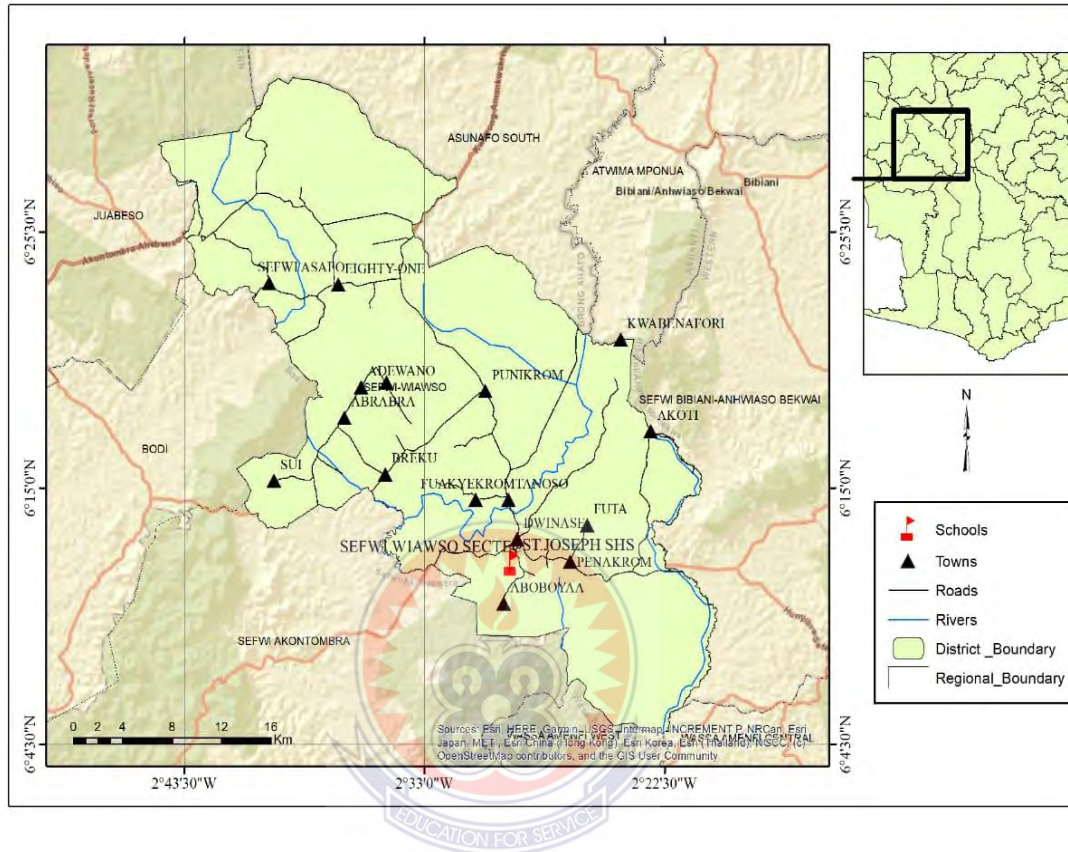


Fig. 2. Map of Sefwi Wiawso Municipal

Source: **Ghana Statistical Service.**