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**THE ROLE OF COMMUNICATION IN PROMOTING SOLID WASTE  
MANAGEMENT IN GHANA**

**SUPERVISOR: DR. LAWRENCIA AGYEPONG**

**BY**

**JEPHTHAH M. TETTEH**

**MADC19028**

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COMMUNICATION.**



**DECLARATION AND CERTIFICATION**

I, Jephthah M. Tetteh, hereby declare that this dissertation proposal is my own work and has not been presented for a degree in any other university, and all materials used in this thesis have been duly acknowledged.

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.....

JEPHTHAH M. TETTEH  
STUDENT

DATE

## **SUPERVISORS DECLARATION**

I hereby certify that this dissertation proposal was done under my supervision. I thereby approve that the work is adequate in scope and quality for the partial fulfilment of their requirements for the award of a Mater's of Art in Development Communication.

.....

DR. LAWRENCIA AGYEPONG

.....

DATE

## **DEDICATION**

I dedicate this academic work to God, first and foremost, without whom I would not have been able to accomplish this. The constant prayers for strength, resilience and courage to traverse this journey was answered and culminated in this dissertation.

I finally dedicate this work to myself to crown the many sleepless nights and the endless pressure to meet timelines and deadlines. It was a demanding but truly worthwhile experience.

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## ABSTRACT

Waste has become a major challenge for many cities across the world. Due to the movement of large numbers of people to many developed parts of the world, waste generation capacities have increased. There is therefore the need to effectively address the problem before it deteriorates into another problem. At the heart of addressing these challenges is the use of communication. Communication brings people together to fight for a common cause. It also ensures that people have valuable information that they can use to take major decisions that affect the management of waste in their communities. The study sought to establish how communication can be used to achieve these goals as well as examine the specific roles communication plays in the waste management process. The study recommends that waste management service providers must invest in communication and communication technologies in their bid to address the problem of waste in communities. They must be able to use creative means to bring people together in order to promote pro-environmental behaviour as well as make people owners and solutions to their local problems. This also means that people's capacities must be built in order to effectively tackle the problem.

***Keywords: waste, communication, waste management, participatory communication***

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Introduction**

This paper seeks to examine the role communication plays in solid waste management in Ghana. It examines various literature on the concepts of waste management and communication and draws conclusions based on the discussions advanced in the paper.

### **1.1 Background of the Study**

Solid waste management has become a major problem in Ghana, particularly Accra, which is home to a lot of people including migrants from all parts of the country. Out of the nearly 30 million population in Ghana, about four million of them live in Accra (Ghana statistical service, 2019). This figure is not surprising because a lot of migrants are settled all over the city in search of better jobs, school, and opportunities. As the capital city of the country, Accra is noted for some level of development in relation to other parts of the country.

The issue of solid waste is evidently a problem in Accra underscored by various media reports as a canker which must be dealt with. For instance, on Sunday, 21 January 2018, Ghana Web, an online news portal, published an article titled Disheartening State of Sanitation in Accra in which they detailed the state of sanitation issues in Accra. According to the story, “the state of sanitation in Accra is increasingly becoming disheartening by the day and continues to pose serious health threats to residents of the Capital and an embarrassment to the Country in general”. The story continued by referencing an annual phenomenon of flooding, which on June 3rd, 2015, claimed more than 150 lives in Circle, a suburb of Accra. The article also decried the amount of solid waste scattered around the city.

The article cited above and other complaints from the public evidence the issue of solid waste management as a serious problem which needs rapt attention. Of course, many scholars have worked extensively on some measures which can be used to combat solid waste. Notable works include the work of Zarri Minn et al. (2010), Subash (2002), Twumasi & Akwasi Kose (2014) and Kathmandu (2012).

Many people have called for waste recycling to be adopted as a way of controlling the indiscriminate disposal of waste, however, successful recycling rely on the quantity and quality of materials for recycling (Stavchuk, 2005). That is why it is also important, as a response to solid waste management, for enough information to be given to the public on separation methods in the waste management process. Stavchuk also notes that this information is very important because it will allow the public to be able to effectively separate waste into its different components that can be recycled easily

Murrey (2004) indicates that waste separation is very beneficial as materials are not contaminated with other waste and have a higher quality than could be achieved through material recovery facilities. However, he also argues that source waste separation can only be achieved when the people are willing to do so, and this is a big challenge in many countries.

This brings up the question ‘why do people separate waste and others do not’? Ossai (2004) suggest that this is due to a lack of information among the public. They add that, for the public to participate in source waste separation, they need environmental knowledge. Although when municipalities provide public with straightforward environmental information it leads to only small changes to actual behaviour (Gardner & Stern, 2002).

Stavchuk has suggested that some local authorities do not adequately promote and advertise waste minimization and recycling or do it in an inefficient way. Although

public information and promotion is considered to be fundamental to the success of source waste management programmes, it is often a last-minute consideration by municipal decision-makers (Read, 1999). It was also mentioned that many decision-makers do not know how to incorporate a communication strategy in their environmental project life cycles and, hence, are not willing to invest in this (Seadon 2006).

Research has shown that, where there are more people settled in an area, the waste per capita increases. According to Twumasi & Kosoe (2014), where there is economic growth, standard of living is likely to increase. With this increase in standard of living comes a demand for more goods and services, which leads to an increment in the per capita waste generated (Narayana 2008, Oteng-Ababio et al., 2012).

## **1.2 Problem Statement**

In the last few decades, populations have increased considerably, coupled with an increase in consumption levels in many countries around the world (Stavchuk, 2005). This has led to many social problems including environmental pollution and negative impacts on human health.

The Environmental Protection Agency (EPA) collection of waste minimisation practices in Europe and OECD publication on environmental communication conclude that in order to accomplish higher participation in waste management programs there is a need for intensive communication campaigns (Jakobsen & Kristoffersen, 2002; Seadon, 2006). Not many studies have been found that provide an overview and analysis of various communication tools relevant to the factors influencing behaviour of source waste separation. Several researchers that studied environmental behaviour

called for further investigation of most effective ways to develop pro-environmental behaviour and the best forms to carry out messages that are able to motivate citizens to participate in the waste separation programs (Kollmuss & Agyeman, 2002; Valle, Reis, Menezes, & Rebelo, 2004).

Thus, there seems to be a knowledge gap in the role communication plays in promoting waste management, particularly in Ghana. This paper seeks to fill that gap by examining the role of communication in promoting waste management in Accra based on earlier papers on the subject.

### **1.3 Research Questions**

This paper seeks to find answers to the following questions.

1. What role does communication play in promoting solid waste management?
2. What type of communication is suitable in promoting solid waste management?

### **1.4 Research Objectives**

This paper seeks to pursue the following objectives

1. Examine the role communication plays in promoting solid waste management
2. Assess the most suitable communication channel to promote solid waste management.

### **1.5 Significance of the Paper**

This paper is important in interrogating and establishing the role communication plays in the solid waste management process. The study will serve as a source of new knowledge that throws light on how communication can help the process of solid waste management as well as provide valuable information to those in charge of waste

management on how to effectively communicate waste management solutions. The study will also serve as a primary research foundation on which future studies can be conducted.

### **1.6 Scope of the Paper**

This paper reflects on the concept of communication and waste management and considers the role communication plays in promoting solid waste management. It critically examines literature on the various concepts and concludes with an assessment of the various roles communication plays in the delivery of solid waste services. The paper will critically assess previous literature on the topic based on a structured literature search in Ghana as well as similar studies outside Ghana that are relevant to the discussion. This is considered primarily due to the scarcity of local literature on the topic.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter of the paper reviews previous literature on the subject. It looks at related literature on the role of communication in solid waste management as well as some theories that are relevant to the study. Two theories are discussed namely the Theory of Reasoned Action and the Participatory Communication Theory.

The aim of this section is to provide a foundational bedrock for the analysis, basing findings and conclusions on literature.

#### **2.2 Theoretical Framework**

This section of the discussion presents related theories as a framework for the current analysis. The theory of reasoned action and the participatory communication model will be considered, as it provides a valuable points of reference for explaining how communication can affect people's perception and attitudes as well as how community members can be effectively engaged in order to communicate waste management solutions successfully.

#### **2.3 Theory of Reasoned Action**

The theory of Reasoned Action was developed by Martin Fishbein and Icek Ajzen as an improvement over Information Integration theory (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). According to Benoit (n.d), important changes such as behavioural intentions occur in the process of persuasion. For example, reasoned Actions adds another element in the process of persuasion, behavioural intention. Rather than attempt to predict attitudes, reasoned action is suggested to be explicitly concerned with

behaviour. However, this theory also recognizes that there are situations (or factors) that limit the influence of attitude on behaviour. From the ongoing discussion, we get the idea that if our attitude leads us to want to change bad situations for example, but we have no power or adequate essentials to do so, the lack of 'essentials' will prevent us from engaging in that positive behaviour. Essentials here can refer to relevant waste management information or resources that can help engage in environmentally positive behaviour. Reasoned Action also discusses the factors that limit the influence of attitudes (or behavioural intention) on behaviour (Benoit, n.d).

According to Staats (2004), the theory of reasoned action shows the extent to which people believe in themselves, that they can perform tasks and have the necessary skills and abilities to do so. This, Staats adds, is because different tasks require different degrees of skills. For example, recycling is virtually impossible if no collection system is available

Also, individuals will decide to engage in an activity after positively evaluating the implications of such actions. Thus, before an individual decides to engage in an action, he or she carefully considers the implication of such an action before taking the decision (Staats, 2004). This means that the type of action taken by individuals is influenced by the amount of information or what type of information they have as Fishbein & Cappella (2006) have argued.

According to Fishbein & Capella (2006), our attitudes are shaped by our beliefs and knowledge of the consequences of our behaviour. Thus, when people want to engage in any action, they first determine whether the outcome of their actions will be positive or negative (Fishbein & Cappella, 2006; Fishbein, 2008) Staats (2004) also adds that, as a persuasive model, communicators are reminded of the several options available for trying to persuade people for them to change their attitudes. Scholars have suggested

the following as identified by the information integration theory which can be used by communicators in their persuasive communication campaigns. Firstly, Staats suggests that communication campaigns should strengthen the belief strength of an attitude that supports the persuasive goal. Thus, information that is positive, promotes and strengthens perception and attitudinal change must be highlighted in the communication (Staats 2004, Fishbein Capella, 2006).

In addition, Fishbein and Capella add that communicators should strengthen the evaluation of an attitude that supports the persuasive goal. This means that if the overall goal of the communication is to change the attitude of the public to adopt specific positive attitudes towards waste management strategies to promote waste management, there must be an evaluation of the current attitudes of the people, so that a more elaborate and comprehensive tailor-made communication can be developed to respond to the special cases identified. That is not all, Staats makes the point that belief strength of an attitude that opposes the persuasive goal must also be weakened. This means that attitudes that are likely to oppose the overall communication goal must be overcome through strategic messages that highlight the negative implications of existing behaviour and projects the benefits of the new attitude (Staats 2004, Fishbein Capella, 2006, Benoit, no date).

Sheppard et al. (1988) also contends that for persuasive communication to be successful, there must be the creation of a new attitude with a belief strength and evaluation that supports the persuasive goal. This means that information must not only seek to persuade the public to discourage negative attitudes, but they must also encourage the adoption of new attitudes that are positive and seek to achieve positive results. Finally, audiences must be reminded frequently of the new attitude so that they do not forget it.

The relevance of discussing the theory of reasoned action in this present analysis is that it provides valuable information on how people decide to take certain actions. It is worthwhile to note that people take actions based on available information, having carefully considered the implication or consequences of the action. Thus, for stakeholders in the waste management to be able to effectively influence the actions of the public to adopt positive waste management practices to improve the sanitary conditions of the environment, messages must be carefully crafted to highlight the negative impacts of the peoples' action on the environment while highlighting the positive implications of adopting the new behaviour.

### **2.3 Participatory Communication**

Participatory communication is “a dynamic, interactional, and transformative process of dialogue between people, groups, and institutions that enables people, both individually and collectively, to realize their full potential and be engaged in their own welfare” (Singhal & Devi, 2003, p. 2, citing Singhal, 2001). Regardless of the context, channel, or function, the core of communication activities are the meanings that parties create and co-create.

According to Beierle and Cayford (2002), public participation is any of the several mechanisms intentionally instituted to involve the public in decision making. They go on to identify town meetings and public hearings as public participation models that stakeholders can consider when they truly want results. Adding to the discussion, Tuler and Webler (2006) highlight a “deliberative turn” in public participation theory and practice. They point out that the view of public participation as deliberative has become “hot” among agency personnel, academics, and practitioners alike. This view places dialogue under the deliberation umbrella.

According to Walker (2007), pluralistic public participation process promotes negotiation of shared meanings and interpretation which leads to a generation of shared understanding. This goal of shared understanding overlays the functions of communication that Ramirez and Quarry identify as critical for sustainable development of natural resources: (1) making policies known and relevant, (2) sharing knowledge, and (3) participation.

Accordingly, Walker (2004) points out that making policies known and relevant is a function of communication interaction that is part of policy making, rather than the traditional 'inform and educate' or 'command and control' approaches. Thus, participatory communication makes the people part of the policy process, so that the people are part of critical decisions that affect them and the results of the policy. The second function of participatory communication emphasis engaging scientific information with the aim of creating new knowledge and perspectives instead of just transferring already prepared solution to the people (Ramirez & Quarry, 2004).

The third function of participatory communication embraces the first two. It proposes "giving a voice to different stakeholders to engage in platforms where negotiation among different parties can take place with regard to natural resources" (Ramirez & Quarry, 2004, p. 13, citing Ro"ling, 1994). Public participation that values dialogue, deliberation, and learning is pluralistic. It is civic engagement that embodies the principles of FAAITH, that is, fairness, accountability, access, inclusiveness, transparency, and honesty (adapted from Walker et al., 2005). According to Anderson, et al. (1998), pluralism in participatory communication recognizes the existence of different and conflicting positions on matters, hence communications managers should be aware of this as they engage the public in the waste management process for more effective results.

Cox, Morse, Anderson & Marzen also suggests that public participation is the ability of the community or individuals to influence decisions directly or indirectly by having access to important and timely information (Cox et al 2006). In his view, true participatory communication is when the public can have relevant and adequate information regarding any public initiative and are able to make inputs based on this information.

According to Cox et. al. (2006), the public, in the participatory communication model have three rights. These are the right to know, the right to comment and the right of standing. The right to know simply implies that the public have a right to adequate and relevant information that will enable them to make informed decisions about whatever initiatives that will be rolled out. They need information on why there is a need for such a program, the effects of their old behaviour and the implication of the new one. Having gotten access to relevant information, the public must be able to have their views aired, and this must be facilitated by a provision of a medium to do so.

This goes to support the point made by Beierle and Cayford (2002) when they pointed out that public hearings and town meetings are relevant mediums that promote public participation. Finally, the public need to be able to hold stakeholders accountable for any future occurrences relating to the success or failure of the programs or initiative. Cox illustrates that the most common public-participation activities associated with these rights are written requests for information, public-hearings testimony, written-comment letters, and legal action (Cox et. al.2006).

The participatory communication model is important because it explains the success and failure of community initiatives. It has shown us that when programs designed to promote and encourage community development is done without the inclusion of the people the program is made for, the program is likely to fail. This is because the

participatory model is a deliberative process that includes the views of the public into the policy and decision-making process.

## **Understanding the concept of Waste**

### **Waste**

Waste is commonly associated with a negative connotation which points one to a toxic or dangerous material that is not needed (Dijkema, Reuter, & Verhoef, 2000). It is also called rubbish or garbage. This has come as a result of continues mass media reportage pointing people to the dangers of living close to waste disposal land sites and their implications.

As a result of the negative connotations associated with the concept, Kernel 2005 reveals that many municipalities began taking action to control waste in their various societies because of the sanitary conditions and environmental problems it is associated with.

There is a second meaning of waste in which Gosar & Miler (2004) claims represents the imperfect utilisation of raw materials, fuel, water, trees, and other natural resources. Thus, the concept of waste is considered a resource in this regard instead of a liability to the environment. In his argument, Miler suggests that waste is a resource to society, but society's inability to make good use of it is the reason why it becomes harmful.

This thinking has been considered as the first step in changing the discussions about waste in the minds of people (Byström, 2005). For example, many products have been produced out of recycled materials (Homann, 2005) and this has received a lot of media attention and commendation in the past. It has also been suggested that changing the media conversation from waste as a liability to waste as a resource will attract the media and present the concept in an interesting way.

For example, the United Kingdom has been cited for launching a media campaign dubbed 'Rethink your Rubbish' aimed at changing the conversation and perception of the public concerning waste. Also, a number of designers joined the campaign on changing the narrative about waste by creating different items out of waste products (examples are on [www.rethinkrubbish.com](http://www.rethinkrubbish.com), [www.tomdixon.net](http://www.tomdixon.net), [www.inspirerecycle.org](http://www.inspirerecycle.org)).

Stavchuk (2005) suggests that, the way to help people understand how much waste they produce, in order to motivate and educate them on how to effectively manage and dispose waste is to present information in a comparative manner, not with direct numbers but with images. In his view, presenting this information will help them more since it will be easier for them to relate with imaginative pictures than with numbers.

Studies from New Zealand, such as the Christ Church Council church studies (2004), have suggested that messages about waste management to the public in the future should refer to 'rubbish' instead of 'waste'. This is based on previous studies such as the national 203 'reduce your rubbish' campaign which found that 'waste' was perceived as being related to industrial and toxic, while 'rubbish' was something that is just generated for collection and disposal (Christ Church City Council, 2004). This suggests a mental activity that is associated with the communication of waste related information that must be carefully considered by relevant stakeholders in the design and implementation of waste related information.

The relevance of the discussion thus far is that it shows the importance of information in changing attitudes of people in the management of solid waste in the country. Many researchers from different fields have tried to understand the role of communications in the waste management process. Notable among them are the studies of Gardner and Stern (2002) who tried to find out how municipalities can enhance public participation

in waste management and separation. They found in their analysis that many different factors influence people's behaviour in the waste management process. In their studies, they also find that communication was an important role in the waste management process, and they note that information and material incentives were important factors in the promotion of pro-environmental behaviours (Stern, 1999). This suggests that communication and a lack of information could be possible barriers to effective waste management as pointed out by Gardner and Stern (2002).

In similar studies conducted by environmental researchers, they found that environment knowledge, which serves as basis for attitudes and intention to activity and perceived behavioural control are factors that influence people's behaviour, which is defined as the person's belief about how difficult or easy it will be to carry out the behaviour (Ajzen, 1988, Kollmuss & Agyeman, 2002; Valle et al., 2004). This means that when people have knowledge, they will be able to take valuable actions that will promote effective waste management. This also means that, when there is clear and effective communication of waste management practices and strategies from municipal assemblies and waste management companies, peoples' attitude toward solid waste will be improved.

Rogers (1983) and Gardner & Stern (2002) also suggest that, overcoming old habits as well as providing sufficient feedback plays an important role in the success of waste management solutions offered by waste management service providers.

Thus, for people to overcome their old habits of disposing waste, or viewing waste, they need new information that informs them about positive attitudes in properly handling waste.

However, in the information process, there exists some barriers that can interfere with the smooth delivery and reception of waste management information. These barriers

need to be properly understood in order to adequately influence the attitude of the people.

Studies such as Evison & Read (2001), Mee & Clewes (2004) and Smallbone (2005) found several barriers that exist in communicating waste management solutions. According to them, these barriers explain why the problem of solid waste continues to persist. Thus, overcoming these challenges is a step towards achieving the aim of promoting a waste free environment.

Barriers such as a lack of environmental knowledge and awareness, responsibility and perceived ability to contribute to solving the waste problem, lack of knowledge on waste separation techniques, lack of personal incentives, weak social norms, old habits as well as perceived barriers about situational factors have been highlighted as barriers that can affect the smooth delivery of information that seeks to influence the behaviour of the community to adopt positive habits that will promote waste management (Smallbone 2005, Evison & Read, 2001, Mee & Clewews,2004). However, when people are able to overcome these barriers, it will promote the effective of solid waste management.

## **2.5 Understanding Communication Barriers to effective Waste Management**

Environmental awareness, according to Aberg (2000) is defined as “understanding the impact of human behaviour on the environment” (cited in Stavchuk, 2005, pp.16). Thus, providing information on environmental impacts and threats related to waste management can influence awareness because of the threat of environmental problems and serve as stimuli for behavioural change (Aberg 2000). What this means is, when the public are given information on the threat of their behaviour, they are likely to change for the better. For example, in Japan, after the Ministry of Health and Welfare released the data on dioxin concentration in emission gases of incinerators, the issue of dioxin

became a topic of environmental concern, giving rise to a number of articles in newspapers (over 1500 in one year). As a consequence, to a repeated reporting on the issues, the public has become deeply concerned about not only dioxin issues but about waste disposal facilities as a whole (Ishizaka & Tanaka, 2003).

This means that people can change for the better when they are made aware of the consequences of their actions and the benefits of changing bad behaviour (Ishizaka & Tanaka (2003) indicated. However, some other scholars have argued that providing straightforward information does not lead to action and could have effect only with easy and low-cost activities (Gardner & Stern, 2002). In a number of experiments, researchers have found that most environmental problems are complex, and connection of many factors is not always clear (Preuss, 1991, as cited by Kollmuss & Agyeman, 2002). For example, people usually will relate waste landfilling to the space taken for dumping, but not as soil and groundwater pollution, water and air pollution, fires, explosions, diseases etc. The results of the focus groups in different research showed that people have misconceptions about what happens at a landfill (Christ Church City Council, 2004).

In addition, research has found that most environmental degradation is not immediately tangible (Preuss, 1991, as cited by Kollmuss & Agyeman, 2002). As such, people are not able to perceive many environmental degradation factors directly. It has been found that effects of pollution for example are realised only when experienced personally. Thus, the reliance on secondary information about environmental destruction relates us emotionally from the issue and often leads to non-involvement (Kollmuss & Agyeman, 2002).

To understand how to raise awareness on environmental issues and over some of these barriers, Do Valle et al. (2004) suggest the following methods. In their study, the

researchers surveyed some environmental activities that shape people's values in a community and found that when it came to attitudinal change regarding waste disposal, education and socialization play a very important role (Valle et al., 2004). Thus, when it comes to environmental concern among the public, the territory of environmental consciousness seems to be localized and dependent on personal observation and experience (Gooch, 1996).

In a 2000 study, Pooley and O'Connor point out that environmental educators in a bid to communicate waste management practices to the public, should focus on emotions and beliefs rather than just knowledge. According to them, changing people's beliefs and emotions about their actions is very important to changing their attitudes.

Other studies like the study by Borgstede & Biel (2002) which focused on identifying the primary information sources for waste management practices in adults found that personal experience is the problem, interpersonal communication and level of trust of information sources have more substantial effects on changing attitudes than information communicated through the press.

This finding is revealing and important because it may point to an important reason why waste management strategies have failed in the past. This may be due to the mode of communication, as the research has suggested that personal communication may be more effective than using the press.

## **2.6 Participation in Decision Making**

The waste management process is made of different actors whose contribution results in the success or failure of the waste management techniques that are communicated. The main reason for communication is to get people to act, and subsequently influence their behaviour in a positive way. To be able to do this therefore, waste management

communications must be able to convince people to participate in all the activities that are communicated as waste management solutions.

Tacis (2003) has argued for public participation in the decision-making process of waste management as it has very high benefits for both citizens and stakeholders. Tacis also found that waste management projects developed together with public, do not only get massive public support in its implementation, but it also prevents possible conflicts in the future (Tacis 2003). However, Eden (1996) cited in Fench (2002) suggests that, although public participation is important in ensuring a successful solid waste management process, not so many examples of its successful use is available.

In a study conducted by Stavchuk in 2005 in Sweden, the researcher found that participation of the public in waste management process was very successful. In the study, households were encouraged to contribute to the planning process by using “the work-book” method of participation ( Stavchuk, 2005)

On the first stage all households in one of the districts received a workbook asking for recommendations on how residents want the provided services to be customised. Afterwards the best ideas derived from the workbooks were compiled into an action plan and delivered with the second workbook which was again distributed to residents in the area. In parallel, the same procedure was done with employees working in municipal services (Stavchuk, 2005 ). Thus, through participation, ideas were generated as to the best way to tackle the problem of waste disposal.

Organising public participation events also comes in the form of surveys, where the public are asked to identify, based on their opinion, their preferred waste treatment options (Stavchuk, 2005). Stavchuk also suggests that, people usually participate in surveys when they are accompanied with balanced information, adequately

communicated on the issue. Thus, the community members do not only become aware of the waste problem but also indirectly respond to solving it in the process.

Furthermore, research has found that a lack of information in the public domain is a main factor when it came to peoples unwillingness to participate in the waste management process (Åberg, 2000). For example, studies such as those conducted by Smallbone found that non-recyclers, that is, people who do not support the idea of recycling, did not have information on how it was done (Smallbone, 2005). In relation to this point, Berg and Peterson add that the quality of materials delivered to the recycling plants is dependent on the quality of information given to the people (Berg & Petersen, 1994). This also suggests that in designing communication materials to promote solid waste management programs, attention should be given to the type of information given, as it has effects on the final behaviour of the people.

## **2.7 Communication in Waste Management**

Several scholars have underscored the need for effective communication in the waste management process. The literature available on the concept suggests that there are many factors that come into play when it comes to the designing and delivering of waste management information. For example, Evison and Read (2001) point out that informational materials aimed at communicating waste disposal and management strategies to the public need to be easy to understand. It must also be user friendly so that the public will be able to easily interact with them.

In addition, Evison and Read (2001) suggest that public knowledge and awareness of waste reduction publicity materials should be maintained on a regular basis with high quality promotional materials. In their view, waste management promotion should take

the form of marketing strategy where promotional materials are aimed at changing people's attitudes positively.

Windahl et al. (2006) also argue that waste management information must be given at the right time and right place, and this must reflect the waste management strategies already in place. Christensen (2005) suggests that as a rule, waste management communication and information should contain less text and more visual. This is because texts are sometimes difficult to read, and where the person cannot read, it becomes a barrier. However, he notes that when more use is made of visuals, people easily relate with the information being given and this promotes better understanding and retention which can lead to perception and attitudinal change.

From the perspective of communication in general, scholars have argued that media communication also plays a pivotal role in the public's perception of environmental risks of waste and this can magnify their risk perception. Examining the impact of media on the highlighting of these environmental risk perception, Wahlberg and Sjoberg (Wahlberg & Sjoberg, 2000) suggest that media has a lot of impact on risk perception but not as interpersonal communication. In general, it is confirmed that media exposure does affect pro-environmental behaviour through influencing people's risk perception. For example, Holbert et al. (2003) pointed out that watching television will increase environmental concern and affect pro-environmental behaviour. Trivedi (2018) discovered that media affects people's green purchasing behaviour by positively affecting their environmental concern and negatively affecting their internal environmental attitude.

## **2.8 Interpersonal Communication**

According to Windall et al. (2006) interpersonal communication involves face to face exchange between two or more individuals and plays an important role in persuading individuals, decision, and implementation of waste strategies. Regarding change of attitude that favours environmentally friendly behaviours, Sadachar et al. found in their research that interpersonal communication plays a very important role (Sadachar et al., 2016).

This, information transmission through interpersonal communication is seen to have a direct effect or influence on the public. For example, Dunlop, et al. in 2008 found that interpersonal discussions on health issues can affect their risk perception and related behaviours. This also means that if there is more concentration of waste management strategy information on the interpersonal level, it can change people's normative perceptions (DeGroot & Steg, 2007; Kahlor, 2007).

Research from Canada for example has shown that the use of interpersonal communication to promote environmentally responsible behaviour in homes was more successful than other forms of communications used (McKenzie-Mohr & Smith, 1999). Similarly, Herbolzheimer & Colom (1999) discovered in their research that, during the introduction of waste separation in Spain, personal communication was used as the main communication channel to raise factor awareness and assure participation. A number of educators were sent to homes and they explained why and how to practice composting for example, including other valuable information related to waste management (Herbolzheimer & Colom, 1999).

According to Stavchuk (2005), the main advantage of interpersonal communication is that the team is trained on the benefits and issues of recycling and can thus provide the necessary supportive evidence and arguments often required by unsure residents (Read,

1999). Also, it is beneficial for local authorities and stakeholders as they will be able to get feedback from residents on the various problems they face in the process. This helps to improve the various strategies that are already in place and promote effective waste management process.

Stavchuk (2005) writes that residents are more likely to change behaviour after conversation with an officer so that they will be able to better understand the strategies and clarify confusing concepts and ask questions where necessary.

Research by Nixon and Saphores (2009) discovered that people who receive three recycling messages from family and friends are more likely to take this action, and this method of information dissemination initiates a far greater influence than the other methods. Wahlberg and Sjoberg (2000) confirm that interpersonal communication holds greater influence than media communication on risk perception. These studies show that interpersonal influence does affect pro-environmental behaviours. Based on the discussions and results of this mode of communication in achieving excellent results in changing people's behaviour, we can say that interpersonal communication plays a more important role than other sources of information.

## **2.9 Conclusion**

The discussion thus far has been centred on the role of communication on waste management. It was discovered that communication is an important agent in the waste management process. Significantly, the discussion has also shed light on the type of communication that is relevant or needed for the effective implementation of waste management strategies. Basing our analysis on the two theories discussed in this paper, we find that the theory of reasoned action for example determines how and why people take certain actions and what influences their actions.

We find that before people take change their behaviour, they first think about the action and its implication. This process of thinking is usually based on available information. Thus, what we get from this is that if waste management stakeholders want to positively influence the behaviour of the public to promote waste management strategies, they first have to give the public relevant information so that, when the public want to take any action that will affect the environment, they will base their actions on the information that they receive.

We also found that the implications of peoples' actions also affect the kind of decision or behaviour they exhibit. Thus, if the consequence of the action is positive, people are encouraged to take that action. However, if the consequence is negative, then the individual is likely to shun that action or behaviour.

Similarly, the participatory model of communication, as a development communication strategy has shown that deliberation is an important aspect of the communication process. Thus, to influence people's behaviour and encourage participation in any project for positive and effective results, the public need to be given relevant information and a platform or opportunity to express their ideas. This will diversify the various perspectives that will enhance the strategy of the initiative. The participatory communication model stresses the need to carefully consider the publics' views, thorough consultations such as organising town hall meetings or through other public engagements to effectively address waste management or disposal problems.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Methodology for Present Study**

The method that will be used for the present analysis will be use of qualitative literature analysis to carefully examine the various roles communication plays in the waste management process. This will be done using relevant studies conducted by different scholars on the topic and carefully examining the relevant lessons in these works. At least, 5 works of scholars will be analysed in this paper and their findings will be discussed, with a focus on how these findings are relevant to the Ghanaian context.

#### **3.2 Design**

A qualitative literature review design was used for the present discussion. Literature review is a way of examining the work of previous researchers on the topic, gleaning relevant lessons as well as finding where there is inadequate documentation (Smart, 2003). Previous literature can also serve as secondary data that can be used to examine concepts. According to Webster & Watson, a good review of literature helps to generate new knowledge that can be beneficial to stakeholders in the area of study (Webster & Watson, 2002).

In this study, we analysed the works of six scholars who worked on communication in waste management. Base on their studies, we discuss the most relevant points that relate to our present discussion in an attempt to harmonise the arguments of these scholars in order to generate new knowledge that can help us better understand the concepts in this research.

### **3.3 Data Collection Criteria**

The qualitative literature review process used a purposive sampling technique to select relevant works used in this study. According to Saunders (2012), purposive sampling is a sampling technique in which the researcher relies on his or her personal judgement and selection criteria in choosing data in a research. Thus, the researcher purposely selected articles and works that were deemed more relevant to the present discussion than others. The purposive sampling technique was adopted because the researcher wanted to control the kind of literature that will be used in the discussion. In order not to waste time on irrelevant material, the researcher decided to use keywords to search for literature and select the ones that best align with the present study to be used.

### **3.4 Sampling Process**

The sampling process begun with an electronic search for relevant literature on the subject using keywords such as ‘communication and waste management’, ‘communication strategies that promote waste management’ and ‘waste and communication’. The researcher used google scholar in this search. By putting in these keywords, several materials on the subject came up. The researcher then carefully scrolled through the results of the search and downloaded six of the most relevant results that came up from the search to be used in this study.

### **3.5 Introduction**

This part of the study presents a methodological proposal that will be used for the studies. It explores the research design, data collection tools as well as research population and sampling technique that will be used for the research.

### **3.6 Research Design**

The research design describes the techniques and the nature of the study. It can be referred to as the overall strategy that is chosen to integrate the different components of the study in a coherent and logical way, thereby, ensuring an effective address for the research problem and it constitutes the blueprint for the collection, measurement and analysis for data (De Vaus, 2001; Trochim & William, 2006).

For the purpose of this research, the mixed method approach is going to be adopted for the collection of data. This method includes the adoption of both quantitative and qualitative research methods. Creswell (1994) explained quantitative research as the phenomena of collecting numerical data that are analysed using mathematically based method. This method was selected due to its flexibility in both collecting and analysing data.

Qualitative research on the other hand is a type of social research that collects and works with non-numerical data and that seeks to interpret meaning from these data that help us understand social life through the study of targeted population or places (Crossman, 2019).

The mixed method is considered due to the quality of information we will derive from adopting this method. The quantitative method of data collection for instance will provide us with accurate statistics and figures which will in return give us a vivid and understandable interpretation of results. The qualitative method on the other hand will provide us with in-depth information on our topic since this method will enable us probe for more information from respondents. Upon the above reasons, the mixed method approach is considered the best method for this research.

### **3.7 Research Population**

Polit and Hungler (2007, p.37) refer to the population as an aggregate of totality of all the objects, subjects or members that conform to a set of specifications. The population of this study will be Nima, a suburb of Accra. According to the 2020 population census, the population of Nima is 2,909,643 residents.

### **3.8 Sample and Sampling Procedure**

The process of selecting a portion of the population to represent the entire population is known as sampling (LoBiondo-Wood & Haber 1998, p.250; Polit & Hungler 1999, p.95)

A sample is the subset of a population selected to participate in a study (Brink 1996, p.133; Polit & Hungler 1999,p.227). It is the fraction of the whole selected to participate in the research project When dealing with people, it can be defined as a set of respondents (people) selected from a large population for the purpose of a survey. In this survey, a subset of 200 students was selected out of the entire population to take part in the research. This process of selecting a portion of the population to represent the entire population is known as sampling (LoBiondo-Wood & Haber 1998:250, Polit & Hungler 1999; 95)

Sampling helps because it is more economical to choose only a section of the population instead of using the entire population in the study. In addition, the sample helps to save time as the sample will provide a sizeable amount of information that the researcher can be able to deal with. It is unnecessary to collect data from the entire population since not all of them will be ready to participate in the study, hence only those who will be interested in responding to questions from the researcher will be sampled to participate in the study.

For this study, a simple random sampling will be considered for this study. According to Gravette & Forzano (2011), simple random sampling is the type of sampling that ensures that each member of the population is equally likely to be chosen as part of the sample. Gravette & Forzano also suggest that simple random sampling removes bias from the selection procedure and ensures that the results of the sampling process is representative.

### **3.9 Instrument for Data Collection**

According to Kabir (2018), data collection is the process of gathering and measuring information on targeted variables in an established systematic fashion, which then enables one to answer relevant questions and evaluate outcomes. He adds that the goal for all the data collection is to capture quality evidence that allows analysis to lead to the formulation of convincing and credible answers to the questions that have been posted.

Kabir (2018) makes the point that accurate data collection is essential to maintaining the integrity of the research, thus, selecting the most appropriate data collection instrument is very important. Also, a formal data process is required to ensure that the findings of the research are valid.

The questions will be aimed at identifying the relevant issues and objectives of the study and structured in a way to ensure that objectives stated would be fulfilled through the response provided. The questionnaires will be divided into two sections. The first section will deal with respondents' demographic data such as gender and age. The second section will be made up of both open-ended and closed-ended questions. Open-ended questions are questions that ask respondents to provide unstructured or spontaneous answers or to discuss an identified topic (Merrigan & Huston 2004, p.96).

The open-ended questions will enable respondents to give reasons for their choices of answers. While, closed-ended questions (sometimes called forced choice) ask respondents to “choose from a fixed set of alternatives or to give a single numerical value”. The combination of both type of questions will enable us solicit adequate information from the respondents.

The use of simple random sampling means that all persons in the population will have a chance of being selected. With regards the interview that falls under qualitative method, a purposive sampling is considered.

### **3.10 Data Analysis**

Data analysis, as defined by Yin (2003) cited in Jacelon & O’Dell (2005), involves examining, categorizing, tabulating, or otherwise recombining the data. Thus, findings from this research can be analysed using tabulations as well as graphical representations to create meaningful insights from the results.

## CHAPTER FOUR

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 4.1 Summary

The study sought to examine the role communication plays in the waste management process. As a qualitative literature discussion, previous works of scholars on the topic was critically examined. Having carefully considered the literature on the topic, it was found that communication plays a very important role in the success of waste management process.

The theory of Reasoned Action as well as the Participatory Theory of communication were used to explain how communication can be used to get people involved in the waste management process, as they play important sub roles in the delivery and execution of waste management solutions. It was found, for example, that information is the most important variable needed in the process of managing solid waste. Fishbein and Capella (2006) make the point clearer in their study where they indicated that without information, the waste management will fail. This is because information is the key that drives people to make informed decisions that will ensure that the waste strategies that have been developed are properly understood and executed successfully. Staats (2007) builds on this point in his argument that with the provision of information, receivers must be made aware of the consequences of their actions on the environment and not only valuable waste solution information. This is because the theory of reasoned action has shown that when people are made aware of the negative consequences of their actions they are more likely to change their behaviour, thus, with the provision of information, waste management providers and communicators must make it a point to highlight implications of not adopting positive behaviour, or consequences of the

peoples current actions in order to speed up the attitudinal and behavioural practices of the people.

As far as participation in waste management solutions are concerned, Cox (2006) make the point that people need adequate information that is relevant in order to be able to make decisions that drive or promote environmentally positive behaviour.

It was also found from the discussions that for people to be able to fully appreciate the environmental impact of our activities, there must first be an elaborate environmental awareness the promotes understanding of behavioural impacts on the environment. This suggests that environmentalist and waste management companies must make environmental awareness top of their communication strategies when developing communication strategies to promote solid waste management in communities.

The use of focus group discussions also came up in the discussion as a way of getting people informed on environmental behaviours that promote waste management as well as keep people adequately informed on waste management solutions, consequences of waste in our communities as well as what we can do to address the problem. The use of focus groups means the engagement of community members in a discussion where ideas are generated. In this mode of interaction, community members are brought together to discuss the waste problem as well as proffer solutions that best address the problem. Thus, indigenous, or local ideas that address the waste problem can be generated to address the peculiar challenges in the community.

Tacis (2003) also provides a support of this view in his analysis by arguing that public participation in waste management is essential to the success of programs designed to address challenges. Public participation promotes a sense of belonging as well as makes people to take waste management personal. This ensures that waste management

solutions become personalised or are taken personally by the people and leads to the success of the programmes.

According to Valle et. al., (2004), education and socialization is also closely associated with the information process that promote waste management. Education in this context is the process where communities are taken through a series of behavioural trainings by offering educative materials and information that builds the capacity of community members.

In addition to these points, Reed (1999) suggests the information that is intended to promote positive environmental behaviour must be easy to understand. This is because information is meant to be used to act. In other words, information given is meant to lead to action that drive the goal of the one giving the information. Thus, information given in the waste management process must be easy to understand so that it can lead people to action.

Christensen (2005) adds to this by suggesting that waste information should contain less text that is easily relatable. In other words, information provided in the waste management process should be able to be easily understood by receivers of the message. Windahl et al. also suggest that information must come at the right place and, right time in order to ensure full utilization of the message that is given out.

Promoting waste management using communication can also come in the form of using the media to affect or influence people's behaviour (Trivedi, 2016). Media images can be powerful sources of influence that have the potential of changing people's attitudes by highlighting consequences and benefits of actions, thus, resulting in positive results that shape people's attitudes for the better. For example, people can be shown implications of not taking action to solve solid waste problems in their communities as well as highlight the positive implications of taking action. Through positive reasoning,

people gradually will become active participants of waste management solutions that will help the environment positively.

In addition, the use of interpersonal communication strategies has been found to be one of the most effective ways of addressing solid waste problems in a community. For example, door to door conversations with community members were found to be very effective in keeping people informed and up to date, with relevant information regarding solid waste solutions. In addition, people who had had encounters with waste communication experts were found to be more literate and skilled, as well as better informed on waste solutions than those who did not have an encounter personally with waste experts. (Sadachar et. al.,2016). This places interpersonal communication on very high pedestal on the communication ladder. This view is also supported by Dunlop et al. (2008) when they argued that interpersonal communication can affect people's perceptions and lead to positive environmental behaviour.

#### **4.2 Recommendations for Future Studies**

The current discussion has underscored the importance of communication in the waste management process. This study found that different communication strategies can be adopted to increase the likelihood of the success of waste management programs in communities. More importantly, it was also found that changing attitudes solely relies on the amount of information that is available to communities. As a result of the discussions, the researcher makes the following recommendation to future researchers. In the first place, the researcher recommends that future researchers should consider assessing how local communication strategies can used to promote indigenous waste management.

Secondly, future researchers should consider assessing the extent to which current communication strategies are being used to address solid waste management problems in our local communities.

Future research should also consider researching on how emerging communication technologies can be used to address waste problems in our communities.

### **4.3 Conclusion**

In this present paper, the importance of communication to the waste management process has been shown. Essentially, three important roles communication plays in ensuring that waste management solutions are effectively communicated as well as executed successfully have also been determined. First discovered was the fact that communication plays an informative role by continually giving communities and individuals valuable information about waste and waste management solutions to be able to take important decisions regarding waste in their communities. Information also helps people stay informed about current trends, mould their behaviour and perception as well as keeps people in check so that they engage in pro-environmental behaviours. Secondly, communication plays a socialization role by forming positive attitudes that become social values generally accepted by community members. By continually giving positive information, as well as highlighting consequences of negative actions and behaviours, people become environmentally alert.

Finally, communication plays an educative role in the waste management process by teaching people about new waste management practices as well as unknown behaviours that can promote positive environmental behaviour. By engaging community in focus group discussions, interpersonal discussions and other public engagement activities,

waste management service providers can modify peoples' behaviour in order to achieve positive results in addressing waste problems.

## REFERENCES

- Åberg, H. (2000). Sustainable waste management in households—from international policy to everyday practise. Experiences from two Swedish field studies.
- Anderson, J., Clément, J., & Crowder, L. V. (1998). Accommodating conflicting interests in forestry-concepts emerging from pluralism. *UNASYLVA-FAO*.
- Beierle, T. C., & Cayford, J. (2002). Democracy in Practice: Public Participation in.
- Cox, C., Morse, W., Anderson, C., & Marzen, L. (2014). Applying public participation geographic information systems to wildlife management. *Human Dimensions of Wildlife, 19*(2), 200-214.
- Council, A. C. (2004). Christchurch City Council. *Manukau City Council, North Shore City Council, Waitakere City Council and Wellington City Council, (various years) Quality of Life in New Zealand's Largest Cities, Quality of Life Project, New Zealand*.
- Christensen, T. H., Cossu, R., & Stegmann, R. (Eds.). (2005). *Landfilling of waste: leachate*. CRC Press.
- Creswell, J. W. (1999). Mixed-method research: Introduction and application. In *Handbook of educational policy*. Academic Press.
- Crossman, A. (2019). An overview of qualitative research methods: Direct observation, interviews, participation, immersion, focus groups.
- De Vaus, D. (2001). *Research design in social research*. Sage.
- De Groot, J. I., & Steg, L. (2007). Value orientations and environmental beliefs in five countries: Validity of an instrument to measure egoistic, altruistic and biospheric value orientations. *Journal of Cross-Cultural Psychology*.
- Do Valle, P. O., Reis, E., Menezes, J., & Rebelo, E. (2004). Behavioral determinants of household recycling participation: the Portuguese case. *Environment and behaviour*.
- Dijkema, G. P. J., Reuter, M. A., & Verhoef, E. V. (2000). A new paradigm for waste management. *Waste management*.
- Dunlop, R. A., Cato, D. H., & Noad, M. J. (2008). Non-song acoustic communication in migrating humpback whales (*Megaptera novaeangliae*). *Marine Mammal Science*.
- Evison, T., & Read, A. D. (2001). Local Authority recycling and waste—awareness publicity/promotion. *Resources, Conservation and recycling, 32*(3-4), 275-291.
- Jacobsen, H., Kristoffersen, M., & Tsotsos, D. (2002). *Case studies on waste minimisation practices in Europe* (Vol. 2). Copenhagen: European Environment Agency.
- Fishbein, M., & Ajzen, I. (1975).. Belief, attitude, intention, and behavior. Reading, MA: Addison-Wesley.

- Fishbein, M. & Cappella, J.N. The role of theory in developing effective health communications. *J. Commun.* 2006, 56, 1–17
- Fishbein, M. (2008) A reasoned action approach to health promotion. *Med. Decis. Mak. Int. J. Soc. Med.*
- Gosar, M., & Miler, M. (2011). Anthropogenic metal loads and their sources in stream sediments of the Meža River catchment area (NE Slovenia). *Applied geochemistry*.
- Herbolzheimer, K., & Colom, G. (1999). Source separating MSW in Spain: Targeting residential organics. *BioCycle*.
- Homann, T., Schneider, F. H., & Weber, D. (1977). *U.S. Patent No. 4,024,168*. Washington, DC: U.S. Patent and Trademark Office.
- Holbert, R. L., Kwak, N., & Shah, D. V. (2003). Environmental concern, patterns of television viewing, and pro-environmental behaviors: Integrating models of media consumption and effects. *Journal of Broadcasting & Electronic Media*.
- Ishizaka, K., & Tanaka, M. (2003). Resolving public conflict in site selection process—a risk communication approach. *Waste Management*.
- Jacelon, C. S., & O'Dell, K. K. (2005). Case and grounded theory as qualitative research methods. *Urologic nursing*.
- Kabir, S., M. (2016). methods of data collection.
- Kahlor, L. A. (2007). An augmented risk information seeking model: The case of global warming. *Media Psychology*.
- Kathmandu. Department of Geography, University of Bergen, Norway.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental education research*.
- McDonald S., & Ball, R. (1998). Public Participation in plastics recycling scheme. *Resour. conserv. recycl.*
- LoBiondo-Wood, G., & Haber, J. (1998). Nursing Research: Methods. *Critical appraisal and Utilization., Mosby, St Louis*.
- Mee, N., & Clewes, D. (2004). The influence of corporate communications on recycling behaviour. *Corporate Communications: An International Journal*.
- McKenzie-Mohr, D., & Smith, W. (1999). Fostering sustainable behavior: An introduction to community-based social marketing. Gabriola Island. *British Columbia, Canada: New Society*.
- Merrigan, G., & Huston, C. L. (2004). *Communication research methods*. Wadsworth Publishing Company.

Minn Z., S.Srisontisuk and W.Laohasiriwong (2010).Promoting peoples participation in solid waste management in Myanmar.Research Journal of Environmental Science.

Murrey, R. (2004). Zero Waste. London, Greenpeace Environmental Trust Canonbury Villas, 2002. 213 p. *Russ. Ed.: Murrey R. Tsel–Zero Waste. Moscow, Sovet Grinpis Publ.*

Narayana, T. (2008). Municipal Solid Waste Management in India: From Waste Disposal to Recovery of Resources. *Waste Management* Vol. 29, No.3.

Oteng-Ababio, M., et al. (2012). Solid waste management in African cities: Sorting the facts from the fads in Accra, Ghana, Habitat International.

Ossai, M. R. (2004). Development strategy for waste management industry in developing country.

Ramirez, R., & Quarry, W. (2004). Communication for development: A medium for innovation in natural resource management.

Röling, N. G. (1994). Platforms for decision making about eco-systems. In *The future of the land: mobilising and integrating knowledge for land use options*, LO Fresco et al.(eds.). John Wiley and Sons, Chicester, UK.

Sadachar, A., Khare, A., & Manchiraju, S. (2016). The role of consumer susceptibility to interpersonal influence in predicting green apparel consumption behavior of American youth. *Atlantic Marketing Journal*.

Saphores, J. D. M., Nixon, H., Ogunseitan, O. A., & Shapiro, A. A. (2009). How much e-waste is there in US basements and attics? Results from a national survey. *Journal of Environmental Management*.

Smallbone, T. (2005). How can domestic households become part of the solution to England's recycling problems?. *Business Strategy and the Environment*.

Stavchuk, I. (2005). Communication in Waste Management Promotion of Waste Separation in Households.

Saunders, M. N. (2012). Choosing research participants. *Qualitative organizational research: Core methods and current challenges*.

Seadon, J. K. (2006). Integrated waste management–Looking beyond the solid waste horizon. *Waste management*.

Singhal, A., & Devi, K. (2003). Visual voices in participatory communication.

Singhal, A. (2001). Facilitating community participation through communication. *New York: UNICEF*.

Staats, J. L. (2004). Habermas and democratic theory: The threat to democracy of unchecked corporate power. *Political Research Quarterly*.

- Subash A. (2002). Community participation in solid waste management.
- Tacis, E. (2003). Environmental financing strategies on urban water supply & sanitation services in Eastern Kazakhstan. *Oblast, May*.
- Trochim, W. M. (2006). Qualitative validity.
- Trivedi, R. H., Patel, J. D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. *Journal of cleaner production*.
- Thomas T., & Paulo M. (2009). Participatory communication-A practical guide, Washington DC.
- Twumasi S.A., Kosoe E.A., (2014). Solid Waste management in urban areas of Ghana; issues of experiences from Wa. *Journal environment pollution and human health*. Science and education publishing.
- von Borgstede, C., & Biel, A. (2002). *Pro-environmental behaviour: Situational barriers and concern for the good at stake*. Univ.
- Walker, G. B. (2007). Public participation as participatory communication in environmental policy decision-making: From concepts to structured conversations. *Environmental Communication*.
- Wahlberg, A. A., & Sjoberg, L. (2000). Risk perception and the media. *Journal of risk research*.
- Webler, T., & Tuler, S. (2006). Four perspectives on public participation process in environmental assessment and decision making: Combined results from 10 case studies. *Policy Studies Journal*.
- Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS quarterly*.
- Windahl, C., & Lakemond, N. (2006). Developing integrated solutions: The importance of relationships within the network. *Industrial Marketing Management*.