AN EVALUATION OF THE EFFECTIVENESS OF THE LANGUAGE USED TO CAMPAIGN AGAINST IMPROPER DISPOSAL OF WASTE: A CASE STUDY OF KAYOLE AREA.

BY

CHRISTINE KHAKASA WEKESA

C50/CE/11193/06

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JUNE 2010
DECLARATION

This dissertation is my original work and has not been presented for a degree in any other University.

Signature: _______________________________ Date: 6/08/10

Name: Christine Khakasa Wekesa

C50 / CE / 11193 /06

SUPERVISORS

This dissertation has been submitted with our approval as university supervisors.

Signature 1 _______________________________ Date: 11/8/2010

DR. PHYLIS MWANGI

Department of English and Linguistics

Signature 2 _______________________________ Date: 26/8/2010

MR. CHARLES GECAGA

Department of English and Linguistics
DEDICATION

This dissertation is dedicated to my daughter Hadassah and son Jeremy.
ACKNOWLEDGEMENTS

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DEFINITION OF TERMS

Biodegradable : Type of waste that can go back to earth and therefore cannot damage the environment

Communication : Flow of information from speaker to the recipient.

Non-biodegradable : Type of waste that can damage the environment because it cannot rot.

Semantics : A study of meaning.

Solid : Material that has adequate shape and form.

Waste : Material discarded as worthless, defective or of no value.
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>EMCA</td>
<td>Environmental Management and Co-ordination Act</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Authority</td>
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<tr>
<td>NCC</td>
<td>Nairobi City Council</td>
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<tr>
<td>NCBD</td>
<td>Nairobi Central Business District</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
</tr>
<tr>
<td>PA</td>
<td>Poster A</td>
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<tr>
<td>PB</td>
<td>Poster B</td>
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<tr>
<td>PB\text{\textsubscript{A}}</td>
<td>Public Baraza A</td>
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<tr>
<td>PL\text{\textsubscript{A}}</td>
<td>Pamphlet A</td>
</tr>
<tr>
<td>PL\text{\textsubscript{B}}</td>
<td>Pamphlet B</td>
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<tr>
<td>PRI</td>
<td>Primary</td>
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<td>SEC</td>
<td>Secondary</td>
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<tr>
<td>SP\text{\textsubscript{A}}</td>
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<td>Sign post B</td>
</tr>
<tr>
<td>TS\text{\textsubscript{A}}</td>
<td>Training session A</td>
</tr>
<tr>
<td>TS\text{\textsubscript{B}}</td>
<td>Training session B</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environmental Program</td>
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ABSTRACT

This study evaluated the effectiveness of the messages used to campaign against improper disposal of waste. The study used both secondary and primary data. Secondary data was from already existing message items while primary data was from the four originators of the messages and twenty eight respondents who were sampled on the basis of their age, educational level and sex. The latter interpreted the messages sampled. The total sample was therefore thirty two.

The study sampled both spoken and written messages. They appeared in the forms of pamphlets, posters and signposts for the written while the spoken included public baraza and training sessions. Out of these, half were in Kiswahili and the other half in English. Using chi-square, the variation between the meaning intended by the originators of the messages and the meaning given by the respondents was determined.

Austin’s Speech Act Theory and Grice’s Second Theory of Implicature were used. Austin’s theory was appropriate because it helped identify the meaning of an utterance, the intention of the speaker and the interpretation of the hearer. Grice’s Theory guided us in establishing whether the maxims were obeyed or flouted.

In presentation of data, we had a total number of respondents computed against the total number of the message items interpreted correctly. It was established that the social variables did not play a significant role when it came to the interpretation of the messages. Majority of the messages items were interpreted correctly by the respondents. However, written messages were preferred by the respondents as compared to the spoken ones. Similarly, messages in English performed better than those in Kiswahili.
Lastly, it is worth noting that in future, long messages should be avoided. They should also be worded accurately and be made specific to minimise guess work.
CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND TO THE STUDY
The population of the third world countries is growing at a very high rate. This is partly because of improved health care and general quality of life (Kimei 2006). According to WHO (1994), this has forced people to move from rural to urban centres to look for better life. As a result, this has increased the urban population, causing the mushrooming of informal settlements in most urban centres. The high population growth brings with it increased demands for goods and services. This has necessitated the use of alternative means to produce goods and render services. This is usually accompanied by increased waste generation and demand for appropriate disposal methods. According to WHO, without effective intervention, such changes can cause serious environmental problems.

Cointreau et al (1991) agree with WHO and adds that increased requirement of consumer products and services, coupled with expanding technological innovation to make these products and services affordable have placed the process of production in the hands of many, thus increasing the amount of waste generated. According to them, only 50% of the waste generated in the third world is collected and disposed of appropriately. NEMA (1999) avers that waste generation and pollution contributes to serious damage to the environment, affecting both humans and animals. WHO (1994) gives an
example of Bangkok where excessive exposure to lead causes 200,000 - 500,000 cases of hypertension, resulting in 400 deaths a year. In addition, rough estimates indicate that children with lead poisoning lose an average of 4 or more IQ Points at the age of seven with long term implications for their productivity as adults.

On the other hand, irresponsible dumping and poor handling of waste has also resulted in pollution of underground and surface water. NEMA (1999) agrees that almost all parts of the country are littered with waste, particularly the non-biodegradable kind which is an eyesore. Otieno et al (2006) state that people living in informal settlements dispose of their waste by mostly throwing it in open grounds or in water systems or in road reserves. In rural areas, guidelines for waste disposal are never followed and waste is disposed of haphazardly. According to NEMA (1999), 61% of the waste generated is industrial while 21% is domestic. Of this, only 40% of the waste generated in the country is collected and disposed of at designated sites. The remaining 60%, which is bulky and contains heavy metals, salts, detergents and medical waste, is dumped in unsuitable areas or disposed of in rivers that traverse settlements.

The situation in Nairobi is not very different. Being the capital city of Kenya, it is the most heavily populated. NEMA (1999) argues that 56% of Nairobi residents live in highly congested informal settlements with many located at the river banks. This has aggravated the challenge of waste management. The city is also faced with untreated industrial effluents, residential waste and
waste from commercial activities. NEMA (2007) states that a considerable amount of the waste generated is swept into Nairobi River during storms. This has led to health problems associated with water borne diseases, respiratory complications, reduction of the economic value of premises in the affected areas and the reduction of natural beauty of Nairobi area. Tackling pollution problems alone in Nairobi and the developing world in general do exceed 5% of GDP, suggesting a total crisis. This therefore means that conserving the urban environment is fast becoming a necessity rather than a luxury.

NEMA and the Nairobi City Council have embarked on aggressive campaigns to sensitize the people against improper disposal of waste. This can only be achieved by communicating appropriate information. Nelson et al (1994) note that language is very important. It is a means of communicating between humans. One can communicate his or her thoughts, emotions, ideas and feelings using language. Language gives shape to people’s thoughts and guides and controls all our activities.

However, this can only happen when the intended message is understood. Hybels et al (2004) state that in an ideal communication situation, the message is perceived in the way it was intended. When the messages don’t work, it is useful to ask what the problem is. They state that for the receiver of the message to understand what the sender intends, the sender should have something definite in mind. If the idea in the mind is vague, the resulting message will be confused and ambiguous.
According to them, understanding the meaning of an utterance is a two way process. The sender is responsible for presenting the idea clearly while the receiver of the message is responsible for trying to understand it accurately. They say that meaning is ultimately determined by people and not the words. They add that when you set out to communicate some information, you are more likely to be successful if you use words and ideas that have same meaning to the person with whom you are communicating to, as they do to you. Sometimes, although you think you are being clear, the other person might not perceive what you think you have communicated. One wonders, for example, how easy is it for one to perceive the intended meaning in the slogan “Gotta keep clean, use me? Has the originator of the message played his/her part by ensuring that the message is clear?

Hybels et al (2004) conclude by arguing that clarity is the property of style by means of which a thought presented is immediately understood. This will however depend on time, precision and simplicity of the language. They argue that clarity is particularly important when there is little opportunity for immediate feedback. When communicating our thoughts, Nelson et al (1994) say that it is not what you say but how you say it.

This study is relevant to language because the only way information can be passed on is through the appropriate use of language. There have been talks of “Jivunie Mazingira Safi”, “Do Not Litter”, “Do Not Dump”, and “Keep Kenya Klean (Keep Kenya clean) ”, best known as “3k”. One is left wondering
whether language has been effective in passing on the desired information. This is because despite the tireless efforts from the NCC and NEMA, Nairobi is still facing the challenge of improper disposal of waste.

1.1 STATEMENT OF THE PROBLEM

As the population of a country grows, so do the activities that release waste into the environment. In Kenya, and more so in Nairobi, this has resulted in heaps of garbage and consequently pollution. WHO (1994) notes that this waste has negatively affected the living organisms and other processes in the environment. Otieno et al (2006) say that the environment is the natural resource base that supports all forms of life on earth. There is need for all of us to conserve it.

Given the important role of the environment to all living organisms, NCC and NEMA have had rigorous campaigns to sensitize people against improper disposal of waste. Language is the major tool used in this campaign. Despite the campaigns by the two organizations, waste is still an eyesore, doting some of our city streets and estates. Although a lot has been achieved in NCBD, much more needs to be done in the city estates and elsewhere.

This study therefore sought to find out why Nairobi is still facing the challenge of waste disposal despite all the sensitization campaigns. Why don’t we have corresponding behaviour change? There is therefore an urgent need to investigate whether the campaigners use language effectively to pass on the
intended message. This study therefore set out to investigate the effectiveness of the language used in the campaigns against improper disposal of waste in Kayole area by factoring in social and language variables.

1.2 OBJECTIVES OF THE STUDY

The study had the following objectives:

1. To find out if the messages used to campaign against improper disposal of waste cut across age, sex and educational level.

2. To find out whether there is a difference in impact between the Kiswahili and English messages used to campaign against improper disposal of waste.

3. To determine whether spoken and written messages used to campaign against improper disposal of waste have the same impact.

1.3 RESEARCH QUESTIONS

The questions of the study include:

1. To what extent do the messages used to campaign against improper disposal of waste cut across age, sex and educational level?

2. What is the difference in impact between Kiswahili and English messages used to campaign against improper disposal of waste?
3. What is the difference in impact between spoken and written messages used to campaign against improper disposal of waste?

1.4 ASSUMPTIONS

The following assumptions were made:

1. That the messages used to campaign against improper disposal of waste cut across age, sex and education.

2. That the Kiswahili and English messages used to campaign against improper disposal of waste have the same impact on the recipients of the messages.

3. That the spoken and written messages used to campaign against improper disposal of waste have the same impact on the recipients of the messages.

1.5 JUSTIFICATION OF THE STUDY

Irresponsible dumping habits have become an issue of concern in Nairobi and Kenya in general. According to Nzioka (2006), this has caused respiratory and water borne diseases. One of the ways to slow down the trend is to pass information to the public about responsible dumping habits. Here, language plays a crucial role. However, only appropriate use of the language will yield the desired results. Hybel et al (2004) argue that new meanings are continually
created by all of us as we change our ideas, feelings and our activities. As we think, read, travel and make friends, the associations and connections words have for us are changed. Further, when you are involved in communication, you don’t always have a chance to clear up misunderstanding. Therefore, when you set out to pass a message, you must prepare your words carefully.

The findings of this research will benefit the Ministry of Environment, NEMA, NCC, and other bodies that are actively involved in the campaign against improper disposal of waste. They may know if their intended messages have reached the target recipients or not. If not, they will know where to adjust; for example, they will know whether to use Kiswahili or English, spoken or written messages or formulate different messages in order to address social variables like sex, education level or age. The general public will also benefit in that they will get to know the intended meanings of the messages. The study will also contribute to the pool of existing knowledge in linguistics.

1.6 SCOPE AND LIMITATION

While the study could be generalized to cover all forms of communication channels used to campaign against improper disposal of waste, only signposts, pamphlets and posters were sampled to represent the written messages while training sessions and public barazas represented the spoken messages. These were sampled because of their affordability, availability and ease in collection and presentation. Other items like the booklets and
brochures are also used. These were not sampled because they are expensive to produce and are therefore not widely used.

The study also limited itself to Kayole area because it is one of the estates found in low income areas. It is also one of the most densely populated estates. However, the results can be generalized to other similar estates in Kenya. The choice of respondents with regard to social factors such as sex, age and education level was meant to accommodate the diverse world views of individuals. This is because different groups process language differently. The variables are also more likely to have greater bearing on language and interpretation. The study also limited itself to solid waste. This is because it is what most people handle and is the most visible.

Lastly, the study limited itself to English and Kiswahili message items. This is because they are the languages widely used and understood by Nairobi residents. The two languages are also used by the campaigners against improper disposal of waste.

1.7 CHAPTER SUMMARY

In summary, this chapter has given the background of the study and stated the research problem. We came up with three objectives which were followed by the corresponding research questions and assumptions. The chapter was concluded by justifying the study and indicating its scope. Next we turn to chapter two of the study.
CHAPTER TWO

LITERATURE AND THEORETICAL FRAMEWORK

2.0 INTRODUCTION

This section covers the literature review and theoretical framework. The literature review looks at language and communication, general literature on waste, literature on solid waste and the literature on the language used to campaign against improper disposal of waste. Regarding the theoretical framework, two theories were used. The first is Speech Act Theory (SAT) advanced by Austin (1962) and the second is that advanced by Grice (1975a), best known as Conversational Implicature.

2.1 GENERAL STUDIES ON LANGUAGE AND COMMUNICATION

Many scholars have tried to define semantics. One such scholar is Palmer (1981) who states that it is the study of meaning. He adds that since meaning is part of language, then semantics is part of language. Akmajian (1984) argues that there are two types of meaning: the linguistic meaning and the speaker's meaning. The speaker's meaning is non-literal while the linguistic meaning is the literal. He further argues that when we speak literally, we mean what our words mean but when we speak non-literally, we mean something different from what our words mean.
Condon (1975) says that in general semantics, one does not only look at words and things but at the human behaviour that results from using symbols in a particular way. This brings us to the slogans used to campaign against improper disposal of waste. Is the correct meaning of the message communicated to the consumer of the message?

Lumwamu (1991) looks at language as a tool for communication. According to him, it is a tool by which a communicator sends information to the receiver to fulfil a certain goal. Nelson et al (1994) support him and argue that communication is the process of understanding and sharing meaning. Further, they add that understanding or grasping the meaning of a message does not occur unless the two can elicit common meaning for the words or phrases used.

They argue that communication also involves others in the sense that the competent communicator considers the other person’s needs and expectations as she /he selects appropriate and effective message to share. This means that those who are given responsibility to come up with messages used to campaign against improper disposal of waste should put in mind the expectations and needs of the audience before constructing the message. They should also try to make sure that their intended meaning is what reaches the recipients of the messages.
Nelson et al (1994) add that for the correct meaning to be elicited, the language should be clear and to the point. According to them, the worth of a text is judged by its ability to communicate. But why should we have different interpretations of the same message? Condon (1975) tries to explain this by arguing that language is personal and is learned through imitating sounds that are associated with things. He adds that our language is determined by training, whims and historical accidents in our culture, community and family. He gives this as the reason why each person’s language is different. According to him, object referent may be similar for many persons but experiences determining the meaning can never be quite the same for any two speakers.

On the other hand, Brown (1994) says that what we learn to call things of this world is largely a result of our social and educational background. According to him, whether we “eat dinner” or “take dinner” says something about social values one’s family has placed on this word. This now becomes a concern to the campaigners. Do they bear in mind the meaning attached to the object referents in question? For example, does the slogan like “gotta keep Klean, use me” (written on bins) mean the same thing to different people?

The object referent may be similar for many people, but to a scrap metal dealer, this may mean using the bin to make something else and not dumping. Trudgill (1983) says that the varieties of languages people speak reflect such matters as their origins, social background, ethnicity and sexuality. According to him, not only does language vary according to social class, but also
according to the social context one finds himself in. This study investigated the variables of age, sex and education level and tried to establish how they influence the interpretation of messages.

Nelson et al (1994) concur with Trudgill (1983) and say that you see the world from your own unique perspective. Your perceptions are shaped by your family, neighbourhood/ethnicity and many other factors. Further, they state that past experiences affect us to see the world in a way that is difficult to change. He gives an example of how parents treat young children. After these children have become adults, they are still treated as children.

In Nairobi area, we have residents with different past experiences, which have made people to have different perceptions about particular issues. Do the campaigners against improper disposal of waste consider that Nairobi is a capital city and has people who have different backgrounds, past experiences and probably some perceptions that do not change simply because these people live in the city? For example, waste paper to a street boy could mean money and to an office worker, something worthless. Likewise, Dandora dumpsite is a health hazard to some residents but to others, it is a source of livelihood (see appendix A13/A14).

Nelson et al (1994) further add that our perceptions are largely learned and the greater the experiential differences among the people, the greater the disparity in their perceptions. Conversely, the more similar their background, the more
similar the way they perceive the world. They add that what complicates the perceptions is the issue of co-culture which affects the perceptions of the world (male, female, and gay, Christians or Jews). For example, women and men see the world differently and thus practice and perceive communication differently. This explains why we set to investigate how the social variables age, educational level and sex influence the perceptions of an individual.

However, Hayes (1998) says that words have great impact upon listeners for they provoke a reaction in them and if they are effectively chosen, they can remain in one’s consciousness for a long time and influence our attitude. But words can also be an obstacle to communication. This is because sometimes people use language in an unusual way and clear communication is almost impossible when language conventions are not followed. Hayes (1998) says that people sometimes use semantic and syntactic rules unconventionally and sometimes replace cultural language rules with those of a co-culture. This can hinder communication and therefore campaigners should make sure that the words used to communicate the messages are carefully chosen so as to communicate the intended meaning.

Effective communication brings out the change the speaker requires. Condon (1975) contends that a man can express his experience in symbols and through these symbols he can share his experience with his fellow man. He says that sharing of meaningful experience results in change we call learning. He argues that as man learns, he advances or at least changes from generation to
generation. Barnes (1975) adds by saying that speech is not only a tool which each of us makes sense of the world but also a means of imposing our version of the world on others. This therefore means that if the campaigners use language effectively, they will get the change desired, thus a clean Nairobi city.

Lastly on language use, Gregory (1978) says that the message can occur in written or spoken form. According to him, the pieces of written and spoken English are the same language embodied in different media. He states that it is impossible for the same language to be conveyed by different media because the language itself lies in the patterns which the media form and not in the physical objects or events. He argues that the same language has the possibility of variations in the patterns according to which media it is embodied in. This brings variations within the same language, meaning that the composers of the messages used to campaign against improper disposal of waste should use the appropriate medium to communicate the intended meaning. This is why the study endeavoured to investigate the difference in impact between spoken and written media on the recipients of the message.

2.2 DEFINITION OF WASTE

Many scholars have tried to define waste. NEMA (2008:34) defines waste as any substance or objects the holder discards, intends to discard or is required to discard. They argue that it is often derived from manufacturing or production processes or other human activities. Gourlay (2002:21) also defines
waste. According to him, waste includes any material we do not want or we fail to use.

Eisa (2002) argues that the rise in population worldwide accompanied by the ever increasing demand for manufactured goods leads to increase in the production of waste. Waste has been classified into several categories. Otieno et al (2006) classify waste according to physical states. According to them, there are liquid, solid and gaseous. Omwoyo et al (2006) agree with this classification and note that the pollutants may be any liquid, solid or gaseous material that is disposed of into the environment by human beings.

NEMA (2005) classifies it according to its source. There is municipal, industrial, agricultural, mining and transport waste. NEMA states that industrial waste comes from industrial sector. This is because the industries convert raw materials into high rate goods. Industrial processes are however, associated with exploitation of natural resources, destruction of habitats, generation of waste and discharge of pollutants into the environment.

NEMA (2005) also looks at municipal waste and states that this waste is produced in urban centres. This waste comes from residential areas as well as industrial ones. These include heavy metals, salts, household waste, solvents, plastics, paints, sludge, and medical waste. This is dumped in unsuitable areas or disposed of in rivers that transverse urban settlement and other wetlands.
For the purpose of this study, we adopted the classification of waste based on physical states because it is broader than the one based on their sources. This study also confined itself to solid waste since it is what most people handle.

2.2.1 STUDIES ON SOLID WASTE: GENERATION AND DISPOSAL.
According to Otieno et al (2006), solid waste refers to waste materials which have adequate shape and form. They give examples of garbage or refuse and any other material resulting from industrial, commercial, mining operations, agricultural and community activities. Solid waste consists of both biodegradable and non-biodegradable substances. Non-biodegradable substances are plastics, glass, waste tins, some kitchen refuse and cans. These waste products are generated almost daily. Omwoyo et al (2006) say that almost everything bought nowadays has to be broken out of its box, packet or carton or tin before it is used. They add that non returnable wrappings impose serious strains on those whose responsibility is to collect and dispose of rubbish.

They argue that industries and selling agents have continued to introduce more and more packaging every week. This also introduces litter which in turn interferes with the environment we all share. Solid waste is generally produced in the course of every type of activity. Korea (1995) states that the most common activities that generate waste are transport, industry and agriculture. In Kenya, Korea says that unplanned development of small scale enterprises (jua kali) has increased the discharge of pollutants into the environment.
According to the Standard newspaper of April 15th 2009, most towns in the country are also affected. For instance, Nakuru, which was once the cleanest town in East Africa and a reputed model in garbage collection, is reeling in filth. Hundreds of tonnes of solid waste at the council’s Giato dumpsite on the foot of Menengai hills are washed away by floods during rains to Lake Nakuru.

In the same article, the Standard observes that the environmentalists have raised alarm over the deaths of flamingos, a key tourist attraction. This is not to mention Eldoret town which wallows in waste. The paper further states that proper waste management remains a pipe dream in the densely populated town of Eldoret. It is solely served by the municipal council, which elicits services of the street children. The street children rummage through the potentially toxic heaps of industrial waste without protective gear, risking chemical burns and poisoning. The street children hurl mounds of dirt with bare and greasy hands into municipal trucks and board them to the dumpsite. The dumpsite is located on the banks of Sosian River, which means that the festering refuse ends up in the water. This same river sustains livelihoods at Eldoret’s growing informal settlement as it runs miles downstream.

The same scenario is replicated in Mombasa, a city best known for leisure and tourism. The daily says that the municipality generates 900 metric tones of waste daily while the local council only collects 300 metric tones. This means that Mombasa faces severe waste management challenges.
While much has been achieved in the NCBD, a lot needs to be done in the estates of Nairobi. The daily Nation of April 24th 2009 states that Nairobi rivers are a reflection of how polluted the city of Nairobi is (see appendix 13). They are polluted by liquid affluent, agro chemicals, garbage, human waste from informal settlements and industries. NEMA (2006) avers that uncollected solid waste is one of the Nairobi’s visible environmental problems. This is because on average, each household generates 253kg per year. This is a problem which needs urgent attention.

Omwoyo et al (2006) say that the solid waste has led to the deterioration of the state of land through the addition of harmful and poisonous waste. This has occurred when solid waste matter like polythene paper, glass, metal, plastics and food remains which are carelessly dumped on the ground. The presence of garbage heaps makes the environment ugly and dirty. They argue that after some time, the garbage may rot, giving off odours. Dumping sites become breeding grounds for disease, thus causing germs, diseases spreading rats, cockroaches, flies, mosquitoes and snails that transmit diseases.

UNEP (1997) agrees that many reported cases of the outbreak of diseases are primarily due to poor sanitary conditions, poor waste handling and poor disposal. According to UNEP, in 1994 about 61,960 cases of cholera outbreaks which resulted in 43,839 deaths were reported in Angola, Malawi, Mozambique and Tanzania.
Omwoyo et al (2006) state that in Kenya, some of the local authorities have contracted garbage collection services to ease congestion and garbage heaps. According to them, NCC has contracted garbage collection from central business district to private firms. Other private firms have also been allowed to collect garbage from residential areas. However, even these private firms hardly follow the laid down regulations by NEMA and are not available in every estate. NEMA says that the western side of Nairobi is highly favoured where the garbage collection services are offered. However, the eastern side is hardly serviced.

Equally, the core low income areas, where 55- 60% of Nairobi residents live receive no waste collection service, save for localized intervention by community based organizations. Coincidentally, the low income areas are also the most populated parts of the city. A study carried out by NEMA (2006) indicated that no service is received by 26% of the households in high income areas, and 75% of those in low income areas.

2.3 LANGUAGE USED TO CAMPAIGN AGAINST IMPROPER DISPOSAL OF WASTE

In the campaign against improper disposal of waste, language plays a pivotal role in sensitizing people against improper dumping habits. However, unless the appropriate language is used to communicate, little can be achieved from these campaigns. This means that the language used in campaigning against improper disposal of waste should be clear and precise.
NEMA and the NCC have come up with numerous slogans to fight improper disposal habits. Some of these slogans include: "keep Kenya klean" better known as "3K", "Gotta keep the city clean, use me" (normally written on dustbins), "do not dump" and "Jivunie mazingira safi". Do they communicate the intended meaning to the recipients of the messages? This is important if the desired behaviour has to be achieved.

According to NEMA (2006), one of the legal regulations on waste disposal reads "No person shall dispose or discharge of any waste whether generated within or outside Kenya in such a manner as cause pollution to the environment or ill health to any person". The regulations and policies all require language as the main tool. This means that if these regulations and policies are not well worded, they will not pass on the information required and therefore desired behaviour will not be achieved.

Despite these regulations and policies, NEMA (2005) notes that currently there is very limited waste reduction activity. This is due to factors such as increased demand for imported packaged food and lack of knowledge of proper waste disposal. Consequently, NEMA has launched an on going public education effort that addresses waste issues in schools through health extension services, but the impact is too small to produce a significant attitude change needed to increase public participation.
According to UNEP (1999), broad based education campaigners require that local media and professional organisations educate the public about waste management. NEMA (2005) states that the main objective of targeting schools is to make children and students more aware of waste and environmental issues so that their behaviour and the habits of their families are changed in a way that benefits their environment. The primary and secondary school curriculum generally includes topics related to the environment and hygiene. Such topics may provide opportunities for imaginative thinking and participation. This participation helps in sensitizing people on waste management issues.

The school children are targeted because they are receptive to ideas about environmental protection and are able to influence the behaviour of their family members in relation to waste management. This is why this study sought to find out if the messages used to campaign against improper disposal of waste cut across age, education level and sex.

UNEP (1999) suggests that the general public has been also targeted. The main objective is to reduce negative effects on public health, the environment and the cost of management that results from unacceptable behaviour of the general public related to waste management. A further objective is to encourage positive habits especially in the fields of waste minimization. However public awareness campaigns require proper use of language and concerted efforts, using a range of methods and imaginative approaches. Here,
different organisations have been used including children’s clubs, women and religious groups and other organized groups.

Further, proactive use of press releases and broadcasting opportunities is effective and cost free. This is used to inform the public on the progress that has been made as a result of their initiatives. Successful initiatives have also been widely publicized. UNEP (1999) justifies this by saying that repeated projects that lack the co-operation of the public make waste collection and drain cleaning significantly more expensive and degrades public health.

According to UNEP(1999), where communities have been involved in decision making and feel some ownership of waste facilities, there has been significant improvement in cleanliness of the public spaces and reduction of waste costs.

In addition, the value of recyclable material can command higher prices if they have not been mixed with wet biodegradable wastes. UNEP notes that such segregation of waste requires co-operative residents, office workers and others. To obtain this co-operation, public awareness campaigns are usually necessary. Although UNEP (1999) claims that assessment of the impact of the public awareness campaigns is not simple, any analysis of the number of times waste management issues are mentioned in local media is an indication of public concern regarding waste management.
It is important to note that when creating public awareness, language is the tool that is used to convey information. However, for the information to be passed on, the language must be varied to deal with the social variables such as age, education level and sex. UNEP (1999) states that the most important thing to do is to identify the objectives and messages of any campaign in a precise way and to ensure that services are well provided that allow and encourage the public to participate as they are requested.

This means that there is no need of encouraging the public to put waste in communal containers if there are no containers available or if they are overflowing because they are not satisfactorily emptied. Eisa (2002) supports UNEP and argues that effective participation creates a sense of ownership and hence develops the interest to bear responsibility. According to him, public participation enables the public to understand and acknowledge constraints and challenges faced by the municipal authorities for municipal solid waste management.

In Kenya, NEMA has been and is still sensitizing the public through the use of brochures, booklets, manuals, posters, and signposts for the written media while the spoken has trainings, public baraza, sports and target groups. It has also worked closely with schools to advise and establish environmental clubs. In all these, language is pivotal in passing on the message to the recipients, hence our study.
THEORETICAL FRAMEWORK

2.4.0 SPEECH ACT THEORY

Austin (1962) says that language comes into existence only because someone performs an act of speaking or writing. Austin argues that in every utterance, a speaker performs an act such as stating a fact, an opinion, confirming or denying something, making a prediction or a request. Austin further notes that an utterance, in addition to meaning, performs action by having specific forces, as outlined below.

(a) Locutionary act:
This is the conventional meaning associated with the words in an utterances without context. For example, an utterance like "The prime minister is an old woman" has two senses; it means that the chief minister is a woman of advanced years or a person who complains about trivia. This tells us that two speakers can perform identical locutionary acts yet their denotation acts will be different in their locution. Similarly the slogan "our environment, our life, preserve it" used to campaign against improper disposal of waste can have more than one meaning. It may mean planting trees or dumping waste responsibly.

(b) Illocutionary act
This is the speaker's intention in his utterance by virtue of the conventional sense or meaning associated with it. Austin suggests that this is absolutely
essential in any discussion of speech act. Keith (1986:175) gives an example of a linguistic professor who asks his students if they agree that the utterance “can you pass salt” is a request. The professor intends them to do nothing more than recognize that it expresses a request. It is however certain that if the speaker utters the above sentence at a lunch table, he intends or expects more than that, thus a request for salt. In the slogan “Do not litter,” the speaker intends that the intention of the utterance is known. Thus waste should only be disposed of appropriately at designated places.

c) Perlocutionary act

This is the effect on the listener of an illocutionary act. In an utterance like “There is a spider on your lap,” the speaker could be making a statement on the location of the spider or wants to frighten the listener. When a speaker causes an effect on the listener by means of an utterance, he or she has performed a perlocutionary act. Thus do they get warned, alerted or advised. In the slogan, “Do not litter” the recipient of the message is cautioned by the slogan. He or she can respond by dumping waste appropriately.

Austin also came up with what he called felicity conditions according to which the speaker’s intention may be sincere or not. For example, when a speaker says, “I promise to take Max to a movie tomorrow” he might mean it, in which case his utterance would be felicitous but if he secretly intends not to carry out the promise, his utterance would be infelicitous.
The question of the speaker’s sincerity is not the only felicity condition. Another one is preparatory condition. This establishes whether or not the circumstances of speech act and the participants in it are appropriate for the act to be performed successfully. This means that there must exist an accepted conventional procedure having a certain conventional effect. That procedure should include the uttering of certain words by certain persons in certain circumstances. Further, the participants and circumstances in a given case must be appropriate for the invocation of the particular procedure invoked. Consider:

\[ I\text{ baptize you Euphemia and} \]

\[ I\text{ pronounce you husband and wife} \]

Typically, there are only certain conventional conditions under which baptism and the effecting of a marriage can occur. Thus, although anyone can utter the above locution under any circumstances, the illocution act will however be invalid unless certain conventional circumstances prevail. For example, only legally defined members of the community can function as a marriage celebrant and only they may felicitously effect a marriage rite by uttering. This brings us to the messages used to campaign against improper waste disposal. Can anyone say “Do not litter”. Are the participants and the circumstances appropriate? Can this be obeyed?
Austin makes a distinction between performative and constative utterances. Constative utterances are statements whose function is to describe an event or a process, while performative utterances have no truth value. They are used to do something rather than say something is or is not the case. In the utterance: "I promise to take Max to a movie tomorrow". The above is a performative clause because it contains a performative verb, 'promise'. Keith (1986) gives other examples of performative verbs as advise, order and write.

He further argues that sometimes an illocutionary force is spelled out explicitly in the utterance. This happens when performative verbs are used in an utterance. Sometimes however, we have cases like: "I'll take Max to a movie tomorrow". This is now an indirect performative left to be inferred.

The above theory touches on the meaning of the utterances, the originators intended message and the responses to the messages. However the theory has not shown why some messages could be misinterpreted. This explains why Grice's theory is relevant in this study.

2.4.1 GRICE THEORY OF IMPLICATURE

The second theory to the study will be that advanced by Grice in 1975. Grice's theory of implicature, referred to as the conversational implicature, states that in any conversation, the speaker and hearer are cooperatively contributing to a conversation. According to Grice, such conversations are governed by a
cooperative principle which says that it is imperative to make your contribution such as it is required, at the stage which it occurs, by the accepted purpose of direction of talk exchange in which one is engaged in. He suggests that for stretches of conversation involving mainly transfer of information, cooperating amounts to obeying (if only implicitly) certain conversational maxims such as:

(a) Quantity: This maxim states that make your contribution as informative as required. Also do not make your contributions more informative than it is required. For example in the slogan “Do not dump,” In this message, information is lacking. This is because people must dump, but the problem occurs when dumping is done irresponsibly. There is thus some information lacking in the above slogan. The slogan therefore needs more information for correct interpretation. This violates the maxim of quantity.

(b) Quality: This is the second maxim. This maxim requires that we should not say what we believe is false. Further, we should not say that which we believe lacks adequate evidence. The slogan “Gotta keep clean, use me” is normally written on bins. There is no sufficient evidence as to why “me” in the slogan should be the bin. To a cleaner, “me” could refer to him or her. This slogan violates the maxim of quality.

(c) Relevance: This directs us to organize our utterances in such a way as to ensure their relevance in a conversational exchange. In the slogan
"usiyachafue mazingira yako," the message is very relevant because every human being requires a clean environment. However, most people are seen littering all over as if this is not true.

(d) Manner: This maxim states that we should avoid obscurity of expressions and ambiguity, but instead we should aim at being brief and orderly. The slogan "Mazingira Safi ni Haki yako" could also mean that other people should make sure that your environment is clean and not necessarily the recipient of the message. It therefore fails to communicate because it is ambiguous.

Grice further suggests that there is a set of over- circling assumptions guiding the conduct of conversation. This arises from basic ritual considerations and can be formulated as guidelines for efficient and effective use of language.

2.5 CHAPTER SUMMARY.

In the previous chapter, we looked at literature in language and communication, studies on waste and on the language used to campaign against improper disposal of waste. We also looked at the theoretical framework where two theories were covered. The first was Austin’s Speech Act Theory which touched on the meaning of the utterances, the intention of the messages and the responses of the hearers to the messages. Grice’s Theory
of Conversational Implicature explained how the messages were obeyed or flouted leading to correct or incorrect interpretations.

Next we turn to methodology
CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTIONS

This chapter looks at the methodological procedures undertaken to carry out the study. This includes information about the research design, the location of research, data sampling, the study population, tools used in collecting data and finally data analysis, interpretation and presentation.

3.1 THE RESEARCH DESIGN

This study adopted a qualitative research. Mugenda et al (1999) state that it includes designs, techniques and measurements that do not produce discrete numerical data. They argue that more often, the data is grouped in the form of words rather than numbers and these words are grouped into categories. The design is also best suited in explaining human behaviour. This design suits the current study because it aims at evaluating the effectiveness of the language used to campaign against improper disposal of waste. Thus, the study deals with human behaviour in relation to language.

3.2 LOCATION OF RESEARCH

The data of this study was collected in Nairobi area. KNBS (2008) divides Nairobi into three sections. These sections are the high income areas, the middle income areas and finally the low income areas. KNBS (2008) lists
some of the estates found in low income areas as Kawangware, Kangemi, Dandora, Kayole, Kariobangi, Kibera and Githurai. The study purposively sampled the low income area for two reasons:

1. High population level which means high amount of waste generated.
2. Low income level and cannot therefore afford the services of the companies contracted to collect garbage.

Out of the eight estates classified as the low income regions, simple random sampling was used to arrive at one estate. The names of the estates were written on eight identical pieces of papers. The pieces of paper were folded and then put in a container with a lid. The container was shaken and one piece of paper picked at random. The piece of paper had Kayole on it. Kayole is an estate in Embakasi Division (A_{15}).

3.3 DATA SAMPLING

This study used both secondary and primary data. The secondary data was sampled from already existing items used to campaign against improper disposal of waste. These were both written and spoken. The messages appeared in English and Kiswahili. The primary data on the other hand came from the answers the originators of the sampled messages gave as their intended meaning and the answers of the sampled respondents.
3.3.1 SAMPLING OF SECONDARY DATA

Secondary data was in two forms, thus spoken and written discourse. Starting with spoken discourse, we had two recorded public baraza sessions and two training sessions. We sampled two items per category to ensure that the two languages are catered for, thus Kiswahili and English. All the messages sampled came from NEMA. This is because the organization has recorded tapes unlike NCC. Only recorded spoken sessions held in Nairobi, targeting Nairobi residents were sampled. Nairobi was sampled because Kayole is one of the low income estates in Nairobi. Purposive sampling was used to ensure the content of the messages in each session was different.

3.3.1.1 SPOKEN DISCOURSE

Starting with the tapes recorded during the public baraza sessions, the sampling steps were as follows:

From several recorded tapes, stratified sampling was used to sample six tapes, three in English and three in Kiswahili. In each category, the tapes were labelled 1-3. The same numbers were written on similar small pieces of paper, each number representing the tape in each category. To arrive at one recorded tape in English, the small pieces of paper labelled 1-3 were put in a bottle with a lid. The bottle was rocked and then one piece of paper picked at random. The tape which had a similar number to the paper picked was included in the sample. The tape was labelled A. The same procedure was repeated to arrive
at the tape in Kiswahili. It was labelled B. This means that the public baraza sessions had two tapes, A and B.

To arrive at the tapes recorded during the training sessions, the same steps were repeated, thus stratified sampling then simple random sampling. The tapes were labelled A and B. A for English and B for Kiswahili.

3.3.1.2 WRITTEN DISCOURSE

The written data was in three categories; sign posts, posters and pamphlets. In each, we sampled two items, one in English and the other was in Kiswahili. Beginning with the posters, stratified sampling was used to obtain 5 posters written in English and 5 written in Kiswahili. To arrive at one poster written in English, the numbers 1-5 were written on similar small pieces of paper. The same numbers were written on the five posters written in English. The 5 pieces of paper were put in a bottle with a lid and then rocked. One piece of paper was then picked at random. The poster with a similar number was included in the sample and labelled A. The same procedure was repeated for the posters in Kiswahili and labelled B.

The same steps were repeated for the pamphlets. The sampled pamphlets were labelled A and B. When it came to the signposts, the procedure was similar to the above two message items except for the fact that after stratified sampling, the sampled signposts were photographed and the pictures developed. This was because it was not practical to carry them as the case may be required.
The pictures were labelled 1-5 and then random sampling was carried out as was the case with the posters and pamphlets. The selected pictures were labelled A for English and B for Kiswahili.

3.3.2 SAMPLING OF PRIMARY DATA

All respondents were sampled from Kayole estate. We factored the social variables of age, sex and educational level of the respondents. This was to determine how the variables influence the language interpretation of the respondents. See table 3.1 below.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age(Yrs)</th>
<th>Education level</th>
<th>Number per category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10-20</td>
<td>Pri- Sec</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>35-45</td>
<td>Post sec</td>
<td>6</td>
</tr>
<tr>
<td>Female</td>
<td>10-20</td>
<td>Pri-- Sec</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>35-45</td>
<td>Post Sec</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

The first variable to be factored in the study was the sex of respondents. This was factored in the study by making sure that half of the respondents were female and the remaining half were male. The females were further divided into the youth (10-20) years and the middle aged (35-45) years. Ten years was chosen as the lowest limit because this is the age a school going child can
successfully grant an interview. Twenty years was on the other side favourable because this is the time most school going children complete their secondary education. The second category had the lower limit of thirty five years. This is the period when middle age sets in. The upper limit was settled on so that we can a ten year’s gap.

The education level was taken care by ensuring that some of the females who were between (10-20) years had also primary and some secondary education. Those between (35-45) years also had post secondary education. Six respondents were sampled from each category yielding 12 females. The same procedure was used yielding 12 males. This gave us a total of 24 respondents.

Two extra males and two extra females were sampled just in case some of the sampled respondents failed to turn up. This gave the required number of 28 respondents. To arrive at the actual respondents, the researcher first stratified the respondents according to the social variables of age, sex and education level. Using a friend of a friend approach, the respondents were sampled.

Finally, the originators of the messages were sampled. The employees from NEMA and NCC were purposively sampled. This is because most of the messages came from them. This gave us a total number of 32 respondents.
3.4 RESEARCH INSTRUMENTS

The data collection instruments included interview schedules for both the originators of the messages and for the respondents to the messages (Appendix 1/2). The interview schedules were used because the respondents were few and we wanted to make sure that no question was skipped.

3.5 DATA COLLECTION

Data was collected in two stages. The first stage involved the secondary data while the second was the primary data. The secondary data took the form of spoken and written information designed and disseminated to sensitize people against improper disposal of waste.

3.5.1 SPOKEN DISCOURSE

The spoken discourse involved two tape-recorded training sessions and two recorded public baraza sessions. The respondents listened to the tapes (see appendix A9, A10 A11, A12) and answered the interview questions. The tapes were played one after the other and as many times as the respondents wished. The officials from NEMA were interviewed to give their intended message.

3.5.2 WRITTEN DATA

The written messages included posters, pamphlets and signposts. We presented the labelled posters, pamphlets and the developed photographs of signposts to the respondents as we interviewed them on the messages in each
of them. The originators of the messages from NEMA and NCC gave the intended messages.

3.6 DATA ANALYSIS

In our data analysis, we evaluated the interpretation(s) by the respondents against the intention(s) of the originators of the messages. The meaning of the messages is what we called locution. The intention of the messages was regarded as illocutionary act while the hearer’s reaction was considered the perlocutionary act. The mismatches were regarded as wrong interpretations. Grice theory of implicature was used to identify which maxim was violated, leading to misinterpretations.

Our analysis used the chi-square test to show the level of significance and degree of freedom. We used a 5% level of significance and a degree of freedom of 1. Mugenda et al (1999) states that this technique compares what is observed in each category with what would be expected.

In our data presentation, we computed the total number of responses against the total number of message items interpreted correctly. We then contrasted the effectiveness of written discourse with spoken discourse, and finally contrasted the effectiveness of Kiswahili and English message items.

3.7 CHAPTER SUMMARY

This chapter looked at the methodological procedures undertaken to carry out the study. We started with looking at the research design which was followed
by indicating the location of the study. The data sampled appeared in two forms, thus spoken and written discourse. Thirty two respondents were sampled; four of them being the originators of the sampled message items while twenty eight were respondents to the messages. Chi-square was used to analyse data.

The next chapter looks at the data analysis and presentation.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.0 INTRODUCTION

This chapter presents secondary and analyzes primary data. The secondary data is the already existing messages. Primary data, on the other hand, is the respondents’ interpretation of the messages. The respondents’ interpretations were then compared to the originators’ intended meaning. Basing on the respondents’ interpretations, we went a step further and, using Grice’s theory of conversational implicature, explained how maxims were violated or obeyed. In our data analysis, we used the chi-square ($\chi^2$). Hinkle (1998) states that Chi-square is used in nominal data. Here the observed and what Hinkle calls theoretical or expected frequencies are compared. He gives the formula as:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where

- $O =$ Observed frequency
- $E =$ Expected frequency
- $\sum =$ Sum of

In using $\chi^2$, one has to determine the degree of freedom and the level of significance. In this study, we employed 5% or 0.05 level of significance and
degree of freedom of 1. In general, determining the degree of freedom (df) associated with $x^2$ is calculated by $(\text{number of Rows}-1)(\text{number of columns}-1)$. Thus, $(R-1)(C-1)$. Since we have two rows and two columns, we end up with df of $(2-1)(2-1)=1$. Hinkle states that at the level of significance of 5% and degree of freedom of 1, our critical value for $X^2$ is 3.841. In the table of two rows and two columns, he argues that the computation formula can be simplified as,

$$X^2 = \frac{N (AD-BC)^2}{(A+B)(C+D)(A+C)(B+D)}$$

Where $A$, $B$, $C$ and $D$ are the cell frequency of a 2x2 table.

### 4.1.0 WRITTEN MESSAGES

The study considered six message items. Half of the six messages were written in English while the remaining half were written in Kiswahili. The messages were in the form of signposts, pamphlets and posters. Posters were from the City Council of Nairobi while pamphlets and signposts were from NEMA. These message items were given to the respondents for interpretation. The findings have been presented in the table below according to the social variables of age, education level and sex of the respondents. C.I stands for correct interpretation while W.I stands for wrong interpretation. For each
variable, the first table shows the interpretation of the English messages while the second shows that of Kiswahili messages.

4.1.1 SIGNPOSTS

The study looked at two signposts. One was written in Kiswahili and the other one in English. The one written in English was labelled SPA while the one written in Kiswahili was labelled SPB. Signpost SPA had the words “PLEASE KEEP YOUR ENVIRONMENT CLEAN, NEVER DUMP HERE” . The designers of the signpost were NEMA through the Ministry of Environment and Mineral Resources (see appendix A6). This signpost was erected in Kayole along the Nairobi River. NEMA set out to inform the public and especially those living along the river not to use the river as dumping ground since it had been cleaned.

The signpost was erected at the time when the river was being cleaned. This was an initiative of the Ministry of Environment following a directive from the minister concerned. Signpost SPB was also designed by NEMA. It read “Huduma Bora ni Haki Yako, Mazingira Safi ni Haki Yako”. The words “Kenya Public Service Week” appeared at the top of the signpost (see appendix A5). NEMA aimed to inform the public that staying in a clean environment is a right of every Kenyan . The institution was ready to work closely with Kenyans to achieve a clean environment. However, achieving the above mentioned goal cannot be done by NEMA alone. This means that while NEMA has a duty of ensuring that the citizens stay in a clean environment, the
public has to play its part by dumping responsibly. The respondents' interpretations are presented in the table below.

Table 4.1 Age variable in the interpretation of SPA

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(0-0)^2}{24 \times 0 \times 12 \times 12} = 0 \]

At the level of 5% significance, and degree of freedom of 1, age is not significant in the interpretation of signpost SPA.

Table 4.2 Age variable in the interpretation of SPB

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>7</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(36-24)^2}{17 \times 7 \times 12 \times 12} = 0.0168 \]
Since the critical value for $X^2$ is 3.841 and the computed value for signpost $SP_B$ is 0.0168, age is not significant in the interpretation of the signpost.

Table 4.3 Education variable in the interpretation of $SP_A$

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Pri-Sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

$X^2 = \frac{24(0-0)^2}{24 \times 0 \times 12 \times 12} = 0$

From the above table, it is evident that the education level of the respondents is not significant in the interpretation of signpost $SP_A$.

Table 4.4 Education variable in the interpretation $SP_B$

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Pri-Sec</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

$X^2 = \frac{24(22-10)^2}{21 \times 3 \times 12 \times 12} = 0.3809$
Given the above results, it is evident that education level is not significant in the interpretation of signpost $SP_B$.

Table 4.5 Sex variable in the interpretation of $SP_A$

<table>
<thead>
<tr>
<th>Social variables</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

$X^2 = \frac{24(0-0)^2}{24 \times 0 \times 12 \times 12} = 0$

This shows that the sex of the respondent was not significant in the interpretation of signpost $SP_A$.

Table 4.6 Sex variable in the interpretation of signpost $SP_B$

<table>
<thead>
<tr>
<th>Social variables</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

$X^2 = \frac{24(24-48)^2}{14 \times 10 \times 12 \times 12} = 0.02857$
From the above results, it is evident that the education level of the respondent was not significant in the interpretation of signpost $S_{P_B}$.

### 4.1.1.1 EVALUATION OF THE EFFECTIVENESS OF MESSAGES IN SIGNPOSTS

Signposts had an average of 86.11% accuracy. Signpost $S_{P_A}$ had an average of 100% accuracy. Context could have played a crucial role when it came to the interpretation of the message. The signpost was erected in Kayole area along the Nairobi River to caution people against dumping in it. Since the respondents were from Kayole, the context played an important role. Condon (1975) says that it is difficult to interpret any given statement unless one knows the context in which it occurs. He adds that there are contexts of time and that of setting. The two contexts were very important because of the location and the time when the erection of signpost was made. This made the interpretation of the messages easy.

The message was also simple and straight forward. Slobin (1979) states that when one is writing, it is important that the writer is concrete and straight forward. He adds that brevity and economy are important to avoid boring the reader. Coming to Grice’s Theory of implicature, we find that the maxim of quantity was obeyed. This is because the information was sufficient despite the small number of words used. Secondly, the maxim of quality was obeyed. The evidence of truthfulness was in the form of cleaning of the hitherto filthy river
Since many residents living along the river banks were using the river as dumping ground, the message could have made sense to them.

The message was brief and clear as dictated by the maxim of manner, thus making the interpretation simple. Lastly, the maxim of relevance was also obeyed. This is because the river was being cleaned by the government. It was not difficult for the people living along the river bank to relate the message with the cleaning that was going on at that time. This contributed to the overwhelming success of signpost $SP_A$.

$SP_B$, on the other hand, had the accuracy of 72%. This means that 28% of the respondents got the intention of the writer wrong. One explanation for the overwhelming success is that the designer obeyed most of the maxims as required by Grice. Starting with the maxim of quantity, the designer obeyed this maxim by ensuring that the message is short but adequate. This means that little time was required to read the message, something that could have been appealing to the respondents. Coffin (1975) supports this and states that taking five minutes to cover a one minute point sends some people up the wall. Further, he states that crowded words turn off the reader. This means that short messages are preferred.

The maxim of quality was obeyed. The respondents could have appreciated the truth of the fact that a clean environment needs a concerted effort. While they have a part to play in making sure that waste is disposed appropriately,
institutions like NEMA and NCC have to ensure that the waste is managed in a way that people are not harmed. This is one reality that the respondents could have identified with. Coffin (1975) argues that if the audience feels that the speaker is unaware of the realities facing them, even the greatest writer will not be condoned.

The maxim of relevance was obeyed. Most of the waste collected in Nairobi is dumped in Dandora dumpsite. Kayole is one of the estates neighbouring Dandora. More so, Nairobi River passes through Kayole from Dandora. Many people have been taken ill by strange diseases (see appendix A13). The word "haki" translated as a right is not new to Kenyans. Most residents could have related the message with the uncollected waste in their estate and poorly managed dumpsite leading to correct interpretation (see appendix A14).

However, the maxim of manner was violated. The designer was not clear about the intention of the message. The designer wanted to inform the public that while NEMA has a role in ensuring that waste is managed appropriately, the public has to dump appropriately. He however relied a lot on the context, which unfortunately a few of the respondents saw. This explains why 28% of the respondents got the message wrong. They thought that they had to sit back and demand for a clean environment.

Coffin (1975) states that when one communicates in writing, one has no way of knowing how people will react, so one has to take extra care to avoid being
misunderstood. He argues that the writer has to be specific so that the reader
does not have to guess the meaning of written messages. He adds that any
written message is a one way communication, so it is important to cover your
entire story and state clearly and completely what you expect.

4.1.2 PAMPHLETS

The study had two pamphlets. One in English and another one in Kiswahili. The
English pamphlet was labelled PL_A while the Kiswahili one was labelled PL_B.
Both pamphlets were from NEMA. Pamphlet PL_A was about the environment
and coordination (Waste management) regulations act. It was meant for the
waste transporters. The pamphlet contained the conditions which should be
adhered to by licensed waste transporters.

NEMA required that those with the responsibility of collecting waste should
not cause any further littering. Further, no stench should be emitted by the
waste during transportation and the vehicles transporting waste should only
follow the routes approved by the government from the point of collection to
the point of disposal. The pamphlet also sought to inform the transporters to
collect waste from a designated area of operation and deliver such waste to the
designated sites. The same pamphlet had the picture of a truck carrying waste
and yet another picture of the same truck off loading waste in an open site (see
appendix A3).
Pamphlet $P_L$ was in Kiswahili. This aimed at enlightening the public about the roles of NEMA. NEMA seeks to make sure that any organisation which engages in activities that directly or indirectly destroy the environment should make sure that such activities affect the environment minimally. An alert should also be given out to the public in advance of such effects. NEMA also seeks to liaise with other organizations to sensitize the public on the importance of a clean environment. Further the organisation encourages public participation on matters concerning the environment.

Finally, NEMA gives an annual report on the state of environment and allows any organisation that concerns itself with the environment to do the same. In all, NEMA has been given authority to take care of the environment in all aspects and advise the government appropriately if need be (see appendix A4). Below is a presentation of the respondents' interpretation of the messages in pamphlets.

Table 4.7 Age variable in the interpretation of $P_L$

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(18-30)^2}{19 \times 5 \times 12 \times 12} = 0.2526 \]
Given that the computed value of chi-square does not exceed the critical value (3.841), age is not significant in the interpretation of pamphlet PL_A.

### Table 4.8 Age variable in the interpretation of PL_B

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{(48-36)^2}{14 \times 10 \times 12 \times 12} = 0.01904
\]

At 5% level of significance and degree of freedom of 1, age is not significant in the interpretation of signpost PL_B.

### Table 4.9 Education level variable in the interpretation of PL_A

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Pri-Sec</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>7</td>
<td>24</td>
</tr>
</tbody>
</table>
The level of education of the respondents was not significant in the interpretation of pamphlet $PL_A$.

### Table 4.10 Education variable in the interpretation of $PL_B$

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Pri - Sec</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>90</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(24-36)^2}{17 \times 7 \times 12 \times 12} = 0.20168
\]

The value of $X^2$ at 5% level of significance and degree of freedom of 1 is 3.841. This means that educational level is not significant in the interpretation of the message.

\[
X^2 = \frac{24(18-54)^2}{15 \times 9 \times 12 \times 12} = 1.6
\]
Table 4.11 Sex variables in the interpretation of PL_A

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(22-10)^2}{21 \times 3 \times 12 \times 12} = 0.3809 \]

The critical value for the study was 3.841. Since the computed value is below the value, sex of the respondent was not significant in the interpretation of pamphlet PL_A.

Table 4.12 Sex variable in the interpretation of PL_B

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>9</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(18-54)^2}{15 \times 9 \times 12 \times 12} = 1.6 \]

The value of \( x^2 \) at 5% level of significance and degree of freedom of 1 is 3.841. Sex is not significant in the interpretation of pamphlet PL_B.
4.1.2.1 EVALUATION OF THE EFFECTIVENESS OF MESSAGES IN PAMPHLETS.

The interpretation of pamphlets was 70.13% accurate. This is not as good as the signposts. Most people who got the message wrong were those with low education, both males and females. There were also some misinterpretations across the two age brackets, regardless of the gender. Watts (1989) looks at barriers to communication and states that effective communication is a matter of economy. The fewer the words, the better, provided the information has been passed on. He states that an overload of information leads to confusion. Slobin (1979) moreover states that to assist the reader in processing the message, the writer should avoid densely packed and complicated structures. Pamphlet PL_A (Appendix A3) was written in English. Part11 of 7(1-2) runs in part:

1. No person shall be granted a license under the act to transport waste unless such a person operates a transportation vehicle approved by the authority upon the recommendation of the relevant lead agency.

2. Any vehicle used for transportation of waste or any other means of conveyance shall be labelled in such a manner as may be directed by the authority.
The above represents just two of the many regulations contained in pamphlet PL\textsubscript{A}. The language used was simple and clear, obeying the maxim of manner. The maxim of relevance was also obeyed because many people who claim to transport waste do not even own any vehicle, and if they do, the vehicle is not approved due to unroadworthiness. Most people who claim to transport waste do that because of money and not because they are equipped to transport the waste. The respondents were able to contextualise the message, accounting for a high number of correct interpretations. This message was therefore very relevant.

Lastly the maxim of quality was obeyed. Many trucks which transport waste end up littering the waste other than transporting it to the designated areas. More so, there is a lot of stench that comes out of such vehicles during transportation. Since the above experience is common to most Nairobi residents, most of them did not find any problem relating the message to their daily experiences. However, the message item was very detailed, violating the maxim of quantity. Most of the respondents who got the interpretation wrong were probably put off by the detailed pamphlets. Most of them were seen answering the questions even before attempting to read the pamphlets. Some looked at the picture of the lorry and stated that NEMA was showing the public how waste is transported.

Pamphlet PL\textsubscript{B} on the other hand was not only detailed but the language used was also difficult to understand because of the language used. It runs in part;
Pamphlet PL_B was 61.67% accurate. This means that close to half of the respondents got the message wrong. A number of things could have worked against the message. The level of language did not favour the respondents with low education. The vocabulary used required one to have some reference material in order to get the meaning of some of the key words used like the ones underlined above. This means that the maxim of manner was violated. The maxim of quantity was also violated. Like the pamphlet written in English, the Kiswahili pamphlet was very detailed. This may have put off the readers leading to misinterpretations. Watts (1989) says that the writer who uses a lot of details to pass a point across risks of losing the reader. The pamphlets were very detailed and that could have reduced their communicative ability.

However, the maxim of quality was obeyed. This is because NEMA has been given the mandate by the government to conserve the environment on its behalf. This was evident during the cleaning of Nairobi River where NEMA was on the forefront during campaigns and during the actual cleaning. The respondents could have contextualised the message leading to correct interpretation.
Lastly the maxim of relevance was obeyed. This is because the pamphlet talks about NEMA joining hands with other organisations that have the same goal to educate the public on the importance of a clean environment. This was relevant because as the saying goes, two hands are better than one. It is easier to achieve a clean environment if all of us take part.

Hayes (1998) says that words can build or destroy. He says that words can be used to convey a strong message to the audience like inspiring them to action. This means that the words should not be handled casually as they can have important consequences to the audience. The detailed information reduced the communicative ability of pamphlets. Trudgill (1983) says that the level of education of an individual is reflected in the language one uses. The learned person does speak a different variety from the one who is not learned. The designers of the pamphlets did not take this into account.

4.1.3 POSTERS
The study had two posters. The two posters were from NCC. The poster written in English was labelled P_A and had the words “our environment our life, preserve it”. Several pictures accompanied the words. Empty packets, tins and boxes could he seen littered all over. There were pictures of rats, possibly as a result of an unclean environment. A sad looking lady could be seen lying down. She has fallen sick because of the dirty environment. The designer of the poster set to inform the public that our life depends on the environment
and if we destroy our environment, we destroy our life too. This was illustrated by the picture (see appendix A7).

Poster P_B was written in Kiswahili. It had the words “usitupe takataka ovyo”. Accompanying the words were pictures of waste littered all over. A picture of a person could be seen emptying the dustbin in an open field as well as another picture of a person pouring waste in the dustbin. The last picture was of a person sweeping the dirty floor and fire could be seen burning (see appendix A8). The designers of the poster set out to communicate to the public to throw waste only in designated places for easier management. The two posters were given to the respondents for interpretation. The findings have been presented below.

Table 4.13 Age variable in the interpretation of P_A

<table>
<thead>
<tr>
<th>Social Variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(22-10)^2}{21 \times 3 \times 12 \times 12} \]

\[ = 0.3809 \]
Since the critical value exceeds the computed value, age is not significant in interpretation of poster P_A.

Table 4.14 Age variable in the interpretation of P_B.

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(9-3)^2}{20 \times 12 \times 12} = 0.4083
\]

At the level of significance of 5% and degree of freedom 1, education was not significant in the interpretation of poster P_B.

Table 4.15 Education variable in the interpretation of P_A

<table>
<thead>
<tr>
<th>Social Variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Pri-Sec</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{20(24-14)^2}{16 \times 10 \times 10} = 0.2526
\]
From the table above, it is obvious that education level of the respondents was not significant in interpretation of poster $P_A$.

**Table 4.16 Education variable in the interpretation of $P_B$**

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Pri -Sec</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
</tbody>
</table>

$$X^2 = \frac{24(33-9)^2}{20 \times 4 \times 12 \times 12} = 0.4083$$

The results from the table show that education is not significant in the interpretation of poster $P_B$.

**Table 4.17 Sex variable in the interpretation of $P_A$**

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>

$$X^2 = \frac{24(33-9)^2}{20 \times 4 \times 12 \times 12} = 0.4083$$
Since the critical value for $X^2$ is 3.841 and the computed value for poster $P_A$ is 0.4082, sex is not significant in the interpretation of poster $P_A$.

**Table 4.18 Sex variable in the interpretation of $P_B$**

<table>
<thead>
<tr>
<th>Social Variable</th>
<th>C.I</th>
<th>W.I</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>

$$X^2 = \frac{24(30-18)^2}{19 \times 5 \times 12 \times 12} = 0.2526$$

At the level of 5% significance, and degree of freedom of 1, sex is not significant in the interpretation of poster $P_B$.

**4.1.3.1 EVALUATION OF THE EFFECTIVENESS OF THE MESSAGES IN POSTERS.**

On average, the posters had a communicative ability of 82.63%. The poster in English had the words “Our Environment, Our Life, preserve it”. This message obeyed the maxim of quantity. The message was brief and to the point. The picture summarised the message well. The maxim of relevance was also obeyed probably because many respondents who got the interpretation right were able to link the picture of a sad looking girl with the litter around her. The maxim of manner was also obeyed. The vocabulary used was simple
enough and to the point. Lastly, the maxim of quality was obeyed. This is because we depend on the environment for survival. A dirty environment could lead to diseases like Cholera which could in turn lead to death.

Those who missed the mark could not see the connection between the environment and life. They were also unable to relate the message to the disposal of waste but instead they talked about conserving the environment in a general sense. Doughty (1973) states that communication takes place in a context or setting. Sometimes the context is so natural that we hardly notice it. At other times, the context makes such an impression on us that it exerts considerable control over our behaviour. This means that not everyone was able to associate the sad looking girl with the words in order to get the message right.

Poster P_B had the words “Usitupe takataka ovyo”. The poster was accompanied by pictures. Here the maxim of quantity was obeyed because the posters had very few words and yet the message was very clear. Watts (1989) says that when we communicate, we have to consider how much the audience will understand the message. If things are very complicated, a person will perceive what he subconsciously wants to perceive. Hayes (1998) says that our messages should be to the benefit of our readers and not for our own satisfaction. This means that if one designs any message, one should try to satisfy the reader and not himself.
In this case, the writer of the message simplified it and yet managed to communicate without any ambiguity, thus obeying the maxim of manner. The maxim of quality was also obeyed. Careless throwing of waste can endanger the lives of human beings. It is also a common habit in Kenya, where people throw waste anywhere even through the windows of their houses, without minding others. This is the case especially in the low income areas in Nairobi. This could also explain why one can argue that the maxim of relevance was also obeyed. The study was carried out in Kayole, one of the low income areas in the city. The respondents could have related the message to some common experience in the low income estates.

4.2.0 SPOKEN MESSAGES

The spoken messages were in the form of two public barazas and two training sessions. Half of these were in Kiswahili and the other half in English.

4.2.1 PUBLIC BARAZA

Of the two public baraza sessions, one was labelled PB\textsubscript{A}, while the second one was PB\textsubscript{B}. The English session sought to sensitise people on the dangers of improper disposal of plastic bags. Some of the mentioned dangers were that plastic bags fill with water, becoming the breeding ground for mosquitoes. Further, the bags block drainage systems, causing the overflowing of the sewer. Lastly, they can be eaten by animals thus causing death (see appendix A\textsubscript{9}). The Kiswahili session aimed at educating the people on recycling of waste materials. Some of the waste mentioned was plastic containers, broken
bottles and paper (see appendix A). The speakers in both used simple language that was easily understood, as the results below indicate:

### Table 4.19 Age variable in the interpretation of session PB_A

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(12-0)^2}{23 \times 1 \times 12 \times 12} = 1.0437
\]

At the level of significance of 5% and degree of freedom of 1, age is not significant in the interpretation of public baraza PB_A.

### Table 4.20 Age variable in the interpretation of session PB_B

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(0-0)^2}{24 \times 0 \times 12 \times 12} = 0
\]
From the above, it is clear that the computed value is below the critical value, this means that age was not significant in the interpretation of the message PB_B.

**Table 4.21 Education variable in the interpretation of session PB_A**

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Post-Sec</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(11-0)^2}{23 \times 1 \times 12 \times 12} = 1.0437
\]

Since the critical value for chi-square exceeds the computed value, education is not significant in the interpretation of public baraza PB_A.

**Table 4.22 Education variable in the interpretation of session PB_B**

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Pri -Sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{24(0-0)^2}{24 \times 0 \times 12 \times 12} = 0
\]
At the level of significance of 5% and degree of freedom of 1, education is not significant in the interpretation of public baraza PB.

Table 4.23 Sex variable in the interpretation of session PB

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(22-10)^2}{21\times3\times12\times12} = 0.3809 \]

The value 0.3809 shows that the interpretation of the public baraza message for both male and female respondents was not significantly different.

Table 4.24 Sex variable in the interpretation of session PB

<table>
<thead>
<tr>
<th>Sex</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{24(0-0)^2}{24\times0\times12\times12} = 0 \]
The sex of the respondent was not significant in the interpretation of public baraza PB

4.2.2 TRAINING SESSIONS

The study had two training sessions, labelled TS_A and TS_B. Both sessions were organized by NEMA in a bid to sensitize people against improper disposal of waste. The sessions were developed by NEMA in the form of curricula. Session TS_A was on how to make a compost heap. The session was aimed at showing the public how they can turn waste into something of value.

Session TS_B talked about how young people can come together to form groups which can be contracted by the city council or NEMA. The two recorded training sessions were played to the respondents. We present their responses in the table below.

Table 4.25 Age variable in the interpretation of session TS_A

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
x^2 = \frac{24 (12 - 0)^2}{23 \times 1 \times 12 \times 12} = 1.0434
\]
At the level of significance of 5% and degree of freedom of 1, sex was not significant in the interpretation of training session $T_{SA}$.

Table 4.26 Age variable in the interpretation of session $T_{SB}$

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Middle age</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>

$$X^2 = \frac{24(30-18)^2}{19 \times 5 \times 12 \times 12} = 0.2526$$

From the table above, it is evident that age was not significant in the interpretation of training session $T_{SB}$.

Table 4.27 Education variable in the interpretation of session $T_{SA}$

<table>
<thead>
<tr>
<th>social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Pri-Sec</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

$$X^2 = \frac{24(10-22)^2}{21 \times 3 \times 12 \times 12} = 0.3809$$
The table above shows that the education level of an individual was not significant in the interpretation of training session TS_A.

Table 4.28 Education variable in the interpretation of session TS_B.

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post sec</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Pri –Sec</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>2</td>
<td>24</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{(O-E)^2}{E} = \frac{24(O-24)}{24} = 0.01199
\]

\[
22 \times 2 \times 12 \times 12
\]

Since the critical value for \(x^2\) is 3.841 and our computed value is 0.0119, it means that education level was not significant in the interpretation of training session TS_B.

Table 4.29 Sex variable in the interpretation of session TS_A.

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W. I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>
Given that the critical value is above our computed value, it means that the sex of the respondent is not significant in the interpretation of training session TS_A.

Table 4.30 Sex variable in the interpretation of session TS_B.

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{240(0-0)^2}{24 \times 0 \times 12 \times 12} = 0 \]

At the level of significance of 5% and degree of freedom of 1, sex is not significant in the interpretation of training session TS_B.

4.2.2.1 EVALUATION OF THE EFFECTIVENESS OF THE SPOKEN MESSAGES

Watts (1989) states that if language communication was such an easy matter, then any time a speaker wished to express an idea, the message would be passed on to the listener in an error-free process and very often, the message sent and that received would be identical. However, this is not always the case.
as is evident in the above numbers. 8.75% of the responses were not accurate. Hayes (1998) states that although it is not possible to predict with accuracy what listeners will recall, it is important for the speakers to be clear about what they want the people to remember. This will go a long way in obeying the maxim of manner. This explains why the message performed well.

Starting with session PB\textsubscript{A}, the maxim of quantity was obeyed. The message was short and the points were spelt out clearly. The speaker managed to achieve this by highlighting the main points in the message while avoiding unnecessary details which could confuse the listeners (see appendix A\textsubscript{9}). The maxim of relevance was also obeyed because the problem of improper disposal of plastic bags is rampant. This means a good number of them have experienced the blockage of the drainage systems because of plastics. The message was therefore relevant to the respondents.

Besides, the maxim of manner was obeyed. This is because the writer of the message used simple language. The arrangement of the message was well done, where the speaker spelt out clearly the numbered dangers of improperly disposal of plastic bags. Lastly, the maxim of quality was also obeyed. This is because plastic cannot rot and can store water for a long time, thus becoming the breeding grounds for mosquitoes. Given that most residents have fallen sick because of the bites from the insect, accepting the message was easy. However, a few respondents got the interpretation wrong. While the message
was clearly about plastic bags and their dangers, some talked about waste in general thus missing the point.

Session PB_B was about recycling waste materials (see appendix A_{10}). In this message, the maxim of quantity was obeyed. The speaker avoided unnecessary details and passed on the message in a very clear and straightforward way. The speaker also used the least amount of time, something that could have made the message appealing to the respondents.

Secondly, the maxim of quality was obeyed since the message talked about recycling of waste materials. This is not a new idea to anyone. Broken bottles are used in our walls for security purposes. According to the Nation newspaper of 24.10.2009, ornaments can be made from recycled material. The paper claims that ornaments that are made from biodegradable waste are a hot sell in the export market. Also, most products bought from the shops come in containers. Most of these containers are used to store water, sugar and salt in our homes. The respondents related the message to their experiences leading to a better understanding.

Lastly the maxim of manner was obeyed. The language used was very simple and clear. This means that the respondents required little effort to understand what the message was all about. However, some of the respondents got the message wrong. They talked about ways of keeping the environment clean without talking about recycling.
Session TS\textsubscript{A} was about making of manure from the waste generated in our homes by making compost heaps (see appendix A\textsubscript{11}). The speaker of the message used the language that could be understood by all respondents. To add on that, the speaker went through steps, one by one, that should be followed in making compost heaps. The ideas in this message were well ordered, thus obeying the maxim of manner.

Secondly, the maxim of relevance was obeyed. This is because the message came at a time when Kenyans are experiencing hard economic times. Any way of making an extra coin is highly welcome. The message was very relevant in the prevailing economic times. Thirdly, the message was also believable. The materials required for making the compost are easily available; in addition the idea is not new. The maxim of quality was obeyed because the idea was trustworthy. In addition, people are eager to try out anything new because of hard economic times.

Lastly, the maxim of quantity was violated. The message was so long that many respondents switched off long before the speaker was through with the message. Those who got the message wrong just talked of managing waste, others argued that the message was about making of an extra coin without saying how.

Session TS\textsubscript{B} aimed at mobilizing the youth to form groups which can be contracted by the NCC or NEMA (see appendix A\textsubscript{12}). First, the maxim of quantity was obeyed. The message was very short and yet the idea in it came
out clearly. Secondly, the maxim of relevance was obeyed. The message came at a time when the government had initiated the Kazi Kwa Vijana (KKV) program which encourages the young people to do some work for payment. The respondents related the message to the program, leading to a better understanding of the message.

Thirdly, the maxim of quality was obeyed. It is true that many youths are idling in the estates without gainful income. The idea of forming groups which can collect waste at a fee was timely. This came as a true solution to one of their pressing needs. Lastly, the maxim of manner was also obeyed. This is because of the clarity of the message.

However, a few who got the message wrong were giving general responses. Some argued that NEMA and NCC were laying down the strategies of managing waste, some just talked about keeping the environment clean. This was too vague, given that the messages were very specific.

In conclusion, the spoken messages were well communicated leading to better interpretation by the respondents.

4.3.0 SPOKEN VERSUS WRITTEN MESSAGES
The study considered spoken and written messages. Previously we looked at them separately to determine their effectiveness. From the onset, we set out to establish the difference in impact between spoken and written messages. We
have subjected the findings to the chi-square test. This is to find out if the difference in impact is significant or not. The procedure involved totalling the number of correctly interpreted spoken messages against the written ones. This was done, first for the messages in English and then finally those done in Kiswahili as illustrated below:

Table 4.31 Spoken versus written messages in English

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken messages</td>
<td>135</td>
<td>9</td>
<td>144</td>
</tr>
<tr>
<td>Written messages</td>
<td>129</td>
<td>15</td>
<td>144</td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td>24</td>
<td>288</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{288(1161-2025)^2}{264 \times 24 \times 144 \times 144} = 1.64 \]

From the above results, it is evident that for the messages in English, the medium (spoken/written) was not significant in interpretation of the messages.

Table 4.32 Spoken versus written messages in Kiswahili

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken messages</td>
<td>134</td>
<td>10</td>
<td>144</td>
</tr>
<tr>
<td>Written messages</td>
<td>96</td>
<td>48</td>
<td>144</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>58</td>
<td>288</td>
</tr>
</tbody>
</table>
\[ X^2 = \frac{288(960-5472)^2}{230 \times 58 \times 144 \times 144} = 33.38 \]

Given that the computed value is beyond the critical value for the messages in Kiswahili, it is obvious that the medium through which the message is communicated is significant in interpretation of the messages.

4.3.1 DISCUSSION OF THE EFFECTIVENESS OF WRITTEN VERSUS SPOKEN MESSAGES

From the above findings, the spoken messages performed better compared to the written ones. In English, the difference in impact was not significant. This is because the computed value was 1.64 compared to the critical value which is 3.841. However, going by the percentage, the spoken messages were 93.75% accurate, while the written were 89.58%. This means that in general, the spoken carried the day. Turning to Kiswahili, the difference in impact between spoken and written was significant. The computed value was 33.38 compared to the critical value 3.841. This means that in general, the respondents preferred spoken messages to written ones. Some respondents argued that they preferred spoken messages because reading was time consuming. Still others argued that the language used in spoken messages is simpler than the one used in written work.

Bolinger (1998) states that the written form of language has been used as criteria for judging the spoken forms. He terms this as unreasonable because in
most cases, the written is always polished, composed and revised unlike in the rapid to –and –fro spoken communication where people do not have time to prepare the message to any great extent. He, however, warns that where the written version has densely packed presentation of information with complicated syntactical structures, the spoken version may carry the day. The level of vocabulary especially in pamphlets did not favour some respondents since some of the vocabulary and expressions selected were not familiar to all the readers. This could have put strain upon the readers’ processing skills, thereby hindering the interpretive ability.

Watts (1989) says that printed words benefit from one major advantage over the spoken equivalent in that print can be continuously be re-examined, thought about and analysed at leisure time. He cautions that this is only true if ideas, explanations and arguments have to be spelt out clearly so that the correct meaning is conveyed. Few of the written messages did not adhere to the requirement stated above. A message like “Our environment, our life, preserve it” was too general.

4.4. 0 ENGLISH VERSUS KISWAHILI MESSAGES

The study considered the messages written in Kiswahili and those in English. This was done so as to determine the difference in impact between English and Kiswahili messages. We totalled the number of correctly interpreted messages in Kiswahili and did the same for English. We then used chi-square
to determine if the difference between the two languages is significant or not. This is shown in the table below:

Table 4.33 English versus Kiswahili messages

<table>
<thead>
<tr>
<th>Social variable</th>
<th>C.I</th>
<th>W.I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>264</td>
<td>24</td>
<td>288</td>
</tr>
<tr>
<td>Kiswahili</td>
<td>230</td>
<td>58</td>
<td>288</td>
</tr>
<tr>
<td>Total</td>
<td>494</td>
<td>82</td>
<td>576</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{576(5520-15312)}{494 \times 82 \times 288 \times 288} = 16.44 \]

At the level of 5% significance and degree of freedom of 1, the language used in the messages is significant in interpretation of the messages.

4.4.1 DISCUSSION OF THE EFFECTIVENESS OF MESSAGES IN ENGLISH AND THOSE IN KISWAHILI

The study sought to find out the variation in effectiveness between English and Kiswahili messages. In our computation, it is evident that the computed value for chi-square is 16.44. This is way above its critical value. This shows clearly that the difference in impact is significant and not because of chance fluctuations. The English messages had 91.67 correct interpretation compared to Kiswahili which had 79.86%. Doughty (1973) states that the writer's/speaker's view of his/her audience must strongly determine his/her
way of communicating. When the objective is to convey a body of information, this aspect of the writer's task is so important that the success of his/her efforts largely depends on judging the needs of the audience accurately. However, this is not always the case.

Both pamphlets were very detailed. The pamphlet written in Kiswahili was not only detailed, but some terms used required a reader to have a good command of standard Kiswahili. This worked against the message items because a lot of time was required for one to finish going through them. In addition, many Kenyans speak "sheng," or other non standard varieties. The variety used in this message items is only spoken by a few Kenyans. This explains why the pamphlet written in Kiswahili did not perform well as the one in English. In general, English messages items performed better than Kiswahili ones. This is because the messages in English were clear, and the vocabulary used was simpler than that used in Kiswahili.

One reason for this is an attitude problem. Rubin (1971) states that the status of English as a world language has guaranteed it prestige among the educated and those aspiring for distinction. In a scenario where a high population has received primary education, English may well take over the role of Kiswahili. This explains why English is spoken in many homes where parents are literate. They want to be identified with the language that is on the world map. This could have worked against Kiswahili because the respondents were those with primary, secondary and post secondary education. Doughty (1973) adds that a
text needs to rely on the knowledge and attitudes of the audience if it is to convey successfully the information it contains. This means that apart from the attitude problem, some texts were way above the understanding of the audience.

Women had 87% correct interpretation while men had 82%. This could be because of the women’s sensitivity to linguistic forms. Rubin (1971) claims that this could be because of their insecure social position. They thus use language as a means of compensation. This could be the reason why women did slightly better than men.

4.5.0 EXTRA-LINGUISTIC EXPLANATION FOR CONTINUED LITTERING.

From the analysis presented so far, it is clear that to a very large extent, language was used appropriately to pass on the intended message. From the onset, we were aware that access to information does not always lead to a corresponding behaviour change, probably because the wrong attitude still prevails (Pearson, 2003).

Gambie (1993) argues that when a message is delivered, the goal is to modify thoughts, feelings or actions of the audience. One hopes that listeners will change attitude or behaviours that are not approved. However, as Pearson (2003) puts it, immediate change may be for the behaviours that are not significant. Changes in attitude may ordinarily continue through a lifetime.
This could explain why Kayole area is still facing the challenge of waste disposal because the attitude is yet to change. We included questions in the interview schedule which were used to determine the attitude of the respondents towards waste disposal. We present the findings in the tables as shown below:

**4.34 Method of waste disposal in homes**

<table>
<thead>
<tr>
<th>Method of waste disposal</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of bins</td>
<td>0</td>
</tr>
<tr>
<td>Plastic bags provided by the city council</td>
<td>6</td>
</tr>
<tr>
<td>Burning</td>
<td>3</td>
</tr>
<tr>
<td>Use of pockets and bags for later disposal</td>
<td>1</td>
</tr>
<tr>
<td>Use of pits near homes</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

From the table above, it is clear that majority of the homes do not have a specified method of disposal of waste. Most of them said that they dispose their waste in the sewage or in heaps near their houses. The next question was on how the respondents rate the general cleanliness of their estates. The findings are presented in the table below:
4.35 Rating of the general cleanliness by the respondents

<table>
<thead>
<tr>
<th>Ratings</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very clean</td>
<td>2</td>
</tr>
<tr>
<td>Quite clean</td>
<td>5</td>
</tr>
<tr>
<td>Clean</td>
<td>9</td>
</tr>
<tr>
<td>Dirty</td>
<td>4</td>
</tr>
<tr>
<td>Very clean</td>
<td>4</td>
</tr>
</tbody>
</table>

According to the findings above, 67% of the respondents find their residential areas clean. This is despite the fact that majority of them do not have a specified method of waste disposal. This could mean that the residents are used to the environment that they do not see the dirty any more. Campaigners should in future start by changing the perception of the people if any fruitful results are to be obtained.

4.6.0 CHAPTER SUMMARY

The study considered both spoken and written messages. The spoken ones appeared in the form of public baraza and training sessions, while the written messages were in form of pamphlets, posters and signposts. These were presented to the respondents with varied social characteristics, namely different education levels, sexes and different ages. This was to establish how the social variables affected the perception of an individual. We then looked at the variation in effectiveness between the spoken and the written messages.
The messages in Kiswahili and English were also compared. Using chi-square, we sought to know if the variation is significant.

Having analysed our data, we now turn to the next section where we have presented the findings, recommendations and given suggestions for further research.
CHAPTER FIVE

5.0 RESEARCH FINDINGS

The study is an evaluation of the language used to campaign against improper disposal of waste; a case study of Kayole area. The study looked at both written and spoken messages and sought to find out if they cut across social variables of age, education level and sex of the respondents. It was found out that the social variables were not significant in the interpretation of the messages. This means that none of the variables was a significant asset when it came to the interpretation of the message.

However, it was established that the messages in English were preferred to the Kiswahili ones. The reason behind this could be the attitude of the respondents towards Kiswahili. Many would like to be associated with English rather than Kiswahili. Kennedy (1984) states that in Kenya, 80% of the town dwellers use English. He states that the incentive to acquire English and demonstrate competence is great since it is from this that economic and social status are believed to flow.

He further states that many young people who are encouraged to speak Kiswahili are quick to point out that those who are currently enjoying both wealth and power did not acquire it through the use of Kiswahili. Also, Kennedy (1984) states that good Kiswahili is not understood by Kenyans who
live away from the coast. This could explain why Kiswahili messages did not perform as well as those in English.

It was established that spoken messages were favoured by the respondents as compared to the written ones. The argument behind this was that the language used in spoken was simpler than the one in written version. More so, in spoken, there is room for clarification as compared to the written form. Coffin (1975) supports this view and argues that when speaking, one can get a chance to react and clarify if the listeners look confused, but this is not possible in writing and one may end up losing the reader.

In a written message like “Your environment, your life, preserve it”, one could preserve the environment by planting more trees, not cutting the already existing trees or by keeping it clean. Few of the respondents who got the message wrong did not know which of the three meanings was being referred to.

Lastly, it has been established that 85% of the respondents have seen and heard of the message items. This means that the reason behind the continued presence of garbage is not lack of information. It was found out that out of the sampled respondents, only a few could afford the services of the contracted garbage collectors. Poverty and attitude could therefore be the reason behind littering.
5.1 CONCLUSION
From the findings, we can argue that the messages used to campaign against improper disposal are understood by most of the people. The language used is clear enough. Most of the respondents had also seen the messages before. This means that the campaigners have done their part by sensitising the public on the importance of waste disposal. We can authoritatively argue that the reason why Kayole is still facing the challenge of waste disposal is not the passage of information.

5.2 RECOMMENDATIONS
Most of the respondents got the interpretation right. This means that the designers of the messages adhered to most maxims as stipulated by Grice. However, a few of the messages could be improved. Coffin (1975) argues that a message is always clearer if the sender is specific. He adds that when writing or speaking, one should make sure that each word contributes to the substance of the message.

The designers of the pamphlets made the messages unnecessarily long, losing clarity in the process. In future, the messages in pamphlets should be made short and the font of the print larger. Also, a message like “Our environment, our life” should be made more specific so as to reduce the room for guess work. Coffins (1975) says that when sending a message, one should make sure that the message doesn’t raise more questions than answers. Though the
message performed fairly well, it could be improved by being made more specific.

85% of the respondents admitted to have seen/heard the message items. This means that the messages are accessible, and from the figures in the tables, they are well understood. The possible explanation why Kayole is still facing the challenge of waste disposal is not lack of sensitisation but probably an attitude problem. To make Kayole clean, one has to change the attitude of the people. They are so used to staying in a dirty environment that it does not bother them any more. The grinding poverty could also be an issue. Residents are put in a situation where tough choices have to be made for the sake of survival. Thus, no money is set aside for waste disposal.

5.3 SUGGESTED AREAS FOR FURTHER RESEARCH

This study evaluated the language used to campaign against improper of waste disposal. The researcher acknowledges that a lot can still be done along the same lines. The study looked at the social variables such as age, sex and educational level of the respondents and sought to find out how they influence the interpretation of the messages used to campaign against improper disposal of waste. However, we are aware that other variables like social class and residential location of the respondents could be revealing. A further research can be done to determine how these variables affect the interpretation of the messages.
We also looked at language in a general sense. A study can be carried out to determine how the meaning of linguistic signs without context can influence the interpretation by of an individual. Further, one can also look at how words are combined to communicate the intended message, thus syntax. In addition, we all know that there are different types of media used during the campaign. These are newspapers, booklets, sports and songs. This could be looked at to determine their effectiveness.
BIBLIOGRAPHY


APPENDICES

A1

INTERVIEW SCHEDULES FOR THE RESIDENTS

My name is Christine Wekesa, an M. A. student from Kenyatta University, department of English and Linguistics. I want to collect data on waste disposal. You are kindly asked to respond to the questions below to facilitate the exercise. Any information given will be treated with strict confidentiality. The schedule is made up of two parts. Part A deals with language while Part B with waste. Do not leave any blank spaces.

Part A

1. Please indicate your sex. Tick one.
   Male   Female

2. Indicate your age bracket in the categories given. Tick one.
   10-20
   35-45

3. Look at each of the messages and then answer the following questions (the researcher displaying messages one at a time)

   a) Have you come across any? Tick one
      Yes ( ) No ( )

   b) What do you understand by the message?
      Posters A
4. Listen to these recorded messages (the researcher plays the messages one at a time), and briefly explain what they are about?

Trainings session A

Training session B

Public baraza A

Public baraza B

5. Have you ever heard any of them?
6 Which one do you prefer? (Please tick one)

- English
- Kiswahili

Why

7. You have read the written and listened to recorded messages. Given the two, which one would you prefer?

- Written
- Spoken

Why?

8. Is there anything that should be added or removed from these messages to improve their communication ability?
Part B

1 How do you dispose of waste generated in your home, work place or school?
   Tick the appropriate one.

   a) I use of bins provided by the city council. □
   b) I use Plastic bags provided by companies contracted by the city council of Nairobi. □
   c) I Burn it □
   d) I put it in my pocket or bag for later disposal. □
   e) I put it in a pit near my house. □
   f) Others. □

2 If the answer to question 1B is other, please explain further.

3 How do you rate the general cleanliness of your residential area?

   I. very clean □
   II. quite clean □
   III. clean □
   IV. dirty □
   V. very dirty □
INTERVIEW SCHEDULES FOR ORIGINATORS OF THE MESSAGES

My name is Christine Wekesa, an M. A. student from Kenyatta University, department of English and Linguistics. I am carrying a study on waste disposal. The study seeks to find out if the messages you use to campaign against improper waste disposal reach the intended recipients. Your responses will be highly appreciated and treated confidentially.

Name:

Occupation:

1. In your campaigns against improper waste disposal, which media do you use?

Why?

2. The messages are written in English and Kiswahili, why do you find it necessary to use both languages?
3. Looking at these messages (the researcher will present each item at a time), could you please tell me the meaning you would wish your recipients to get from each message item?

4. These messages were designed for the general public which is mixed in terms of age, education levels and sex, what do you do to ensure that your messages are interpreted in the same way by all these groups of people?

5. If you are to redesign these message items, what would you do differently?
Bank (KCB) Revenue Account (2137971396) or Cash payment of
Kshs 3,000 at NEMA headquarters. NEMA official receipt will be
issued on evidence of payment such as bank deposit slip or copy of
banker’s cheque.

Return the duly filled application forms and documents to the
District Environmental Officer who will then forward them to the
NEMA Headquarters, waste management section for reviewing.

The application will then be reviewed within 21 working days. An
approval for licensing will be given with relevant conditions or a
decision stating the reasons.

• Upon fulfillment of application requirements and payment of license
  fee, a license will be issued within 30 working days.
• The license is renewed annually upon adherence to all conditions
  provided.

N/B: Processing of the license will proceed upon submission of
necessary documents.

Charges

Application Fee
1) Transportation of waste Kshs 5,000
2) To export hazardous waste Kshs 3,000

Licensing fee to:
1) Transport waste Kshs 5,000.
2) Exportation waste Kshs 30,000

Environmental Monitoring and Compliance

Environmental Inspectors will undertake regular monitoring of the
facilities to ensure compliance with the Regulations. In the event of
violation of conditions in the license not withstanding the official
renewal dates, such facilities shall cease to operate until the licensing
conditions are fulfilled.

Offences and Penalties

Any person who contravenes any provision of this section shall be
guilty of an offence and will be liable to imprisonment for a term not
more than two years or a fine of not more than one million shillings
or both such imprisonment and fine.

For further information please contact:
Director General, National Environment Management Authority
(NEMA)
P.O. Box 8231, Nairobi, Kenya
Tel: 020-020-002, Fax: 363-0357, Mobile: 0720-803417
E-mail: info@nema.gov.ke
Website: www.nema.go.ke
Mamlaka ya Kitaifa ya Kusimamia Mazingira (NEMA) inatambua umuhimu wa ushirikiano wake na mashirika yasiyo ya kiserikali (NGOs), hivyo basi imeanzisha afisi ya kutoa ujumbe baina yake na mashirika hayo. Shirika lo lote lisilo la kiserikali liko huku hutoa ushauri na maoni yake kwa afisi hii kuhusu masuala ya usimamizi na uhifadhi wa mazingira yetu.

Kwa Maelezo zaidi Wasiliana na Mkurugenzi Mkuu

Mamlaka ya Kitaifa ya Kusimamia Mazingira (NEMA)
S.L.P 67/99 00200
Nairobi
Simu: 605522/601945
Kipepeo: 608997
Banza.pepe@nema.cest@swiftkenya.com
Website: www.nema.go.ke

MAMLAKA YA KITAIFA YA KUSIMAMIA MAZINGIRA (NEMA)

Utangulizi

Wadhifa
Halihamishauri imepewa uwezo wa kuchunguzwa na kuratibu maswala yote yanayohusu mazingira na kuwa mashauri mkuu wa Serikali katika utakwasaji wa sera zote za mazingira.

Maelezo
Kuwa halihamishauri ya Kimataifa inayohakikisha mazingira safi na bora kwa wote.
Kenyatta Public Service Week
Huduma Bora ni Mwili Yako
Wa-thinga Safi ni Huduma
"Our environment
our life,
Preserve it."
Focus on plastic bags

In Nairobi and indeed all other urban centres in Kenya, plastic bags of all sizes and colours are found doting the landscape. Besides this visual pollution, plastic bag wastes contribute to

1- The blockage of drains
2- Consumed by livestock at a greater danger, and take many years to degrade.
3- The bags when discarded can fill with rain offering ideal and new feeding grounds for the malaria carrying mosquitoes.

Plastic bags are not only durable, versatile and convenient, but also inexpensive, easily available and easy to store and transport on account of their thinness and lightness. Alternatives such as boxes and paper cannot handle liquids as well as plastic bags do. Simply put, plastic bags are popular with consumers because they are functional, lightweight, strong, inexpensive and hygienic. However, the very problem with plastic bag emanates from some of their advantage

- Because they are cheap, there is a tendency for misuse
- Most of the plastic bags produced are too thin and fragile to be reused.

This characteristic of plastic bags leads them to inadvertent littering which has become a serious problem in urban centres especially in Nairobi. Littering of plastic bags is associated with numerous environmental problems.

- It causes pollution that affects such sectors as tourism
- They block gutters and drains creating serious water pollution.
- They find their way into water bodies killing aquatic life in Nairobi.

The problem is rampant in cities. It is argued that supermarkets in Nairobi give around 1 million bags every year. This means serious action has to be taken to curb the menace.
PUBLIC BARAZA (PB$_B$)

The session read in part as shown below

**Kuboresha vitu vilivyotumika kuwa na manufaa na kuweza kutumika tena**

Ongezeko la idadi ya watu na kudhoofika kwa mbinu za kukukusanya taka huchangia pakubwa mkusanyiko wa takataka. Ili kupunguza uharibifu na matumizi mabaya ya rasilimai, juhudi zinafanywa ili kuboresha na kutumia vitu vilivyotumika. Hii itasaidia kuhifadhi mazingira yetu.