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PERSUASIVE COMMUNICATION AND POSITIVE ENVIRONMENTAL

BEHAVIORS AMONG INHABITANTS IN YAOUNDÉ CENTRAL

By

Ensah Nadia Nchuo

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Author: Ensah Nadia Nchuo

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Supervisor(s): Ruslan Gunko

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Abstract

Pressure on the environment has in recent times led to increased ecological issues. Consequently, it has become important to promote messages that will lead to the adoption of positive environmental behaviors. These messages have to be persuasive in nature, so that they are able to motivate people to change their behavior. This study investigated if persuasive messages could positively impact the environmental behaviors of inhabitants in Yaoundé Central, and the factors that could potentially affect behavioral change.

Data was collected using a questionnaire and a consultation. The research established that there was a relationship between level of awareness on environmental issues and positive environmental behavior. By descriptive statistics, most people reported that they have taken a positive environmental action because they were exposed to persuasive messages. There was no significant association between sociodemographic characteristics and positive environmental behavior. We also found that social media is the most popular and preferred medium through which respondents receive messages on environmental issues. Our findings also support the importance of language in message framing.

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Language: English

Key Words: Persuasive communication, Positive environmental behavior, Environmental problems, Awareness, Message framing

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1   INTRODUCTION

1.1   Background of the Study

Continuous human activity has resulted in the progressive deterioration of the biosphere, caused by long term shift in temperature and weather patterns, also known as climate change (Intergovernmental Panel on Climate Change (IPPC), 2023). Environmental pollution and hazards are now a big problem in Cameroon, just like in other parts of the world. Cameroon is predicted to be among the most vulnerable countries in the future to climate change, because of its exposure, the sensitive nature, and the country's low adaptive capacity (Yohe et al., 2006). So far, Cameroon has experienced a temperature increase of 0.86°C between 1974 and 2020, with more significant warming experienced in the north of Cameroon between 1991 and 2020. In parallel, the average annual precipitation over Cameroon has declined by 2.9 mm per decade since 1960, with a particularly low average rainfall in 2015. Despite the fact that precipitation is declining generally in the country, the distribution is uneven with the coastal region experiencing the most precipitation while the northern part of the country has been the driest between 1991 and 2020 (Ebodé, 2022).

The impact of climate change and subsequent issues with the environment provoke a lot of discussions and speculations among ordinary people, journalists, policy-makers and politicians (M. Boykoff & Roberts, 2007; Pidgeon, 2012; Islam and Winkel, 2017). Environmental issues have thus become a trending topic, resulting in a mass of information being shared to the public about the implications of environmental sustainability and its relation to the quality of human life (Pelletier & Sharp, 2008). Media broadcast and messages from local and international organizations are increasingly taking on intermediary roles, urging users to acquire, understand, value, and consider climate information within their decision-making processes. These bodies in turn come up with convincing ways to urge citizens to prevent further negative effects on the environment (Jones et al., 2016). The messages transmitted often provide guidelines on the types

of behaviors citizens can adopt to maintain a good ecosystem, such as waste reduction, promoting recycling and criticizing government policies (Khan & Khan, 2016)

The most common assumption is that when exposed to such guidelines, people will adopt effective behaviors that help reduce the impact of unfriendly environmental actions (Kunda, 1990). Therefore, if people want to live in a healthy environment, they are responsible for adjusting their behaviors. However, there is evidence that shows that there is a gap between the extent to which people are aware of environmental conditions and the pro-environmental behaviors (PEB) they display (Kollmuss & Agyeman, 2002). Their work goes further to point out that habits are difficult to change, as such, being aware of the negative effects of our behavior on the environment do not guarantee that they will be changed.

The number of organizations focusing on increasing awareness around climate related issues and good environmental practices have significantly increased during the last years (Asu et al., 2022). This increase has expanded the level of awareness the global population has about the effects of climate change (Essien et al., 2020). According to Pardo, 2021, people are aware of the ecological danger that is around them. Her work also highlight that a good number of the population understand the role they play in contributing to these threats (Pardo, 2021). Despite this proof of consciousness, most Cameroonians still seem to be lacking behind in adaptation strategies and behaviors. They still demonstrate poor waste management habits, spending on and consuming nonrenewable energy, exposing the country to future environmental hazards (Manga et al., 2008).

Due to the ineffectiveness of environmental campaigns and information-based models in causing behavioral change among Cameroonians, the use of social marketing for sustainability came into light. Social marketing allows the communicator to develop more targeted campaigns, which can potentially persuade different types of audience to change their behavior. This form of advertising has been shown to be very effective at bringing about behavior change (Lewis & Lewis, 2015)

Moreover, due to its mechanisms, social marketing takes into consideration particular aspects of people's lives and carefully comes up with tactics that can potentially influence individuals' behavior. In other words, it is a way to inspire social change by advertising a behavior or lifestyle change to benefit society instead of selling a good or service.

Despite the widespread of information and persuasive messages on environmental attitudes, there is still a vast number of Cameroonians without sufficient knowledge on environmental issues. For example, the residents of most rural areas are still backward with information and communication technology tools (Nouho et al, 2013). The reasons range from poor network reception, illiteracy, poverty, and stereotyped cultures. This tends to limit the range at which social campaigns aimed at sustainability spread. Our study is, however, focused on the urban population in Yaoundé who are most likely to be exposed to everyday persuasive environmental messages, and how they behave upon receiving this information.

1.2   Statement of the Problem

Environmental problems are predominantly a result of human activities, with nearly 100% of the problems being directly caused by human actions (Clark et al., 2013). It shows that these problems can be solved or mitigated by changes in human behavior. In a review of communication as a policy instrument to alter environmentally significant behavior, two researchers highlight that communication can influence important drivers (which are attitudes, beliefs, personal norms, and social context) towards environmental behavior (Garderner & Stern, 2022). The way people process information and organize their knowledge can significantly impact their behavior (Van, 2014). The use of persuasive messages is often perceived as the first step in efforts to encourage people to change specific behavior (Pelletier and Sharp, 2008). Sadly, communicating climate change information in ways that inspire individuals to act is complex (Morton et al., 2011). Even though a group of researchers have criticized information-based campaigns to be too rational and outdated, knowledge still plays a vital role in changing how humans act (Clark et al., 2013).

Human attitudes, social identity, and perceived barriers can all impact behavior (Poortinga & Whitaker, 2018). Through this process, researchers continue to demonstrate that providing knowledge and awareness is insufficient to achieve positive environmental outcomes, even in cases where these outcomes may be advantageous to the individual e.g. the production and consumption of organic products have not seen a voluntary significant increase, even when the quality and benefits are clear (Steg & Vlek, 2009).

This thesis seeks therefore to investigate if persuasive messages can positively impact the environmental behaviors of inhabitants in Yaoundé Central and to find out the factors that can potentially affect behavioral change.

The study will therefore be guided by the following research questions.

- What is the role of persuasive communication in positively influencing environmental behaviors?
- What are the factors that might hinder behavioral change?

1.3 Research Objectives

To investigate how persuasive communication can improve public behavior on specific environmental issues. The specific objectives of this research are;

- To find out the effectiveness of already existing persuasive communication strategies established in Cameroon.
- To understand what persuasion component triggers respondents the most to change their behavior.
- To find out inhabitants preferred medium of communication on environmental related issues.

Therefore, I hypothesize that;

- Exposure to persuasive messages positively influences environmental behaviors.
- Behavioral change is often hindered by socio-demographic factors.

1.4 Significance of the Study

This research will help explore and understand the impact persuasive communication has on environmental attitudes in Cameroon. Development actors such as the Green Climate Fund and the United nation Environmental Program, working on reducing the negative impact of human activity on the biosphere will get to know where and how best to formulate and disseminate their messages to stir behavioral change. I will also find out about the other factors that may hamper the smooth effect of a well-tailored persuasive message such as level of education and channel of communication.

Again, participants in the research work will be able to reevaluate their environmental habits and choices.

This work is not only directed at bringing more knowledge to the public and the researcher, but it also focuses on putting forward practical and long-lasting results obtainable by policy makers, communication experts, donor agencies and various interest groups in and out of Cameroon.

2   EMPERICAL FRAMEWORK

The concept of persuasive communication is a dynamic one and it cuts across many disciplines of life. To have a better understanding of how beliefs and attitudes can be influenced thus leading to a shift in behavior, I will explore past literature on persuasive communication, theories guiding the concept and the environmental situation in Cameroon.

2.1   Persuasive Communication

According to Carpenter and colleagues (2013)**,** persuasive communication is a strategic process aimed at influencing individuals' attitudes, beliefs, or behaviors through the transmission of messages designed to elicit a specific response. The main aim of persuasive communication is to bring about a change in the audiences' mindset or actions, with the use of various rhetorical and psychological techniques. It is a popular belief that persuasion is mostly related to marketing or advertising contexts (O'Keefe, 2016); on the contrary it is used in everyday interactions, encompassing persuasive efforts in political speeches, social movements, public health campaigns, and interpersonal dialogues. An example is the numerous campaigns made by party members during presidential elections, with the aim of securing votes.

In persuasive communication, the kickoff point is first to identify a goal or objective, after which the communicator should seek to understand the target audience, and then proceed to select effective communication strategies (O'Keefe, 2016). In most cases, the communicator employs tactics like framing, emotional appeals, and evidence-based arguments, to make the message more persuasive. At the core of this process is consideration of the audience's attitudes, beliefs, and values, recognizing that successful persuasion requires alignment with the audience's existing cognitive frameworks (Festinger & Carlsmith, 1959).

To further understand the concept of persuasive communication, I will familiarize the reader with established theories like the Elaboration Likelihood Model (ELM) and Social Cognitive Theory to explain how individuals process and respond to persuasive messages.

2.2 The Environmental Condition in Cameroon and Consumer Behavior

Cameroon, popularly referred to as "Africa in miniature", is home to more than 90% of the continent's existing ecological systems (Esq et al, 2005). Cameroon has access to a variety of natural resources such as oil and gas, different timber species, minerals resources like (uranium, tin, platinum, limestone, iron), hydropower etc, and agricultural products like (coffee, cotton, cocoa, maize, cassava, banana, and oil palm). This country is ranked 5th in Africa in fauna diversity and 4th in flora. Cameroon has 409 species of mammals, 183 species of reptiles, 849 species of birds, 190 species of amphibians, and more than 9000 species of plants (World Bank, 2016). Recent statistics show that this biodiversity is at risk due to consumer behavior (Koholé et al, 2022).

There is evidence of some regulations implemented by the government to protect the environment, like the ban imposed on non-biodegradable plastic packaging. Immediately after the ban, plastic pollution dropped for several years and then doubled since 2019 to 600,000 tons per year (Manga et al., 2008).

Waste reduction efforts have also been in practice for more than 50 years in Cameroon, where glass beverages like Guinness, Fanta, produced by Les Brasseries du Cameroon were sold with the bottle deposit included aimed to motivate people return it and get a price reduction for the next purchase (Laurent, Joel, Bernadette 2009). Back in time, consumers also had the habit of gathering glass and plastic cosmetic containers, which were later sold to street-buyers. Today, we have the Namé Recycling Company which is focused on recycling plastic bottles.

Despite the efforts put in place to reduce plastic waste, millions of plastic bags are still being produced illegally each year in Cameroon and civilians continue to use them (Manga et al., 2008). The reason they advance for not complying to the ban is the fact that the government has not started producing other types of biodegradable packaging materials in partnership with private companies as it promised to do.

While Cameroon has progressed in developing a climate policy, such as increasing import duties on old cars, diesel engine cars, the country still lacks an elaborate regulatory framework to support its goals. The country is yet to come up with a law requiring public institutions to integrate climate change into their policy and planning instruments and

budget process. There are also limited resources in place to fund the realization of their decarbonization goal (Bate et al., 2019)Local governments like councils also face challenges such as lack of finances and staff in bringing climate change into their plans. This is because these councils often rely on state budget to run a great portion of their developmental projects and capacity building programs, but the allocated funds are in most cases insufficient for all the divisions (Eyong, 2007). In Cameroon local governments are responsible for municipal solid waste management, urban transport and municipal infrastructure management, the creation of industrial activity zones, and issuing building permits, which are activities with a high potential for emission mitigation.

While legislation and climate funds are essential to achieve the country's climate goal, citizens also have an active role in supporting this goal. Cameroonian celebrities like Daphne, Mr. Léo, Salatiel, Wax Dey agreed to use their popularity, influence, and voice to support the fight to protect biodiversity. This agreement was made in partnership with the World Wildlife Fund (WWF) on August 11, 2020, in Yaoundé. The impact of their involvement in environmental conservation efforts is yet to be measured. This research will rate the level of influence celebrities on people's behavior, in relation to adopting positive environmental behaviors.

2.3   Factors Affecting Environmental Behavior Change

This section seeks to elaborate on existing literature on the demographic, social and individual factors associated with positive environmental behavior.

Demographic Characteristics

Age: A study conducted by Kurisu & Bortoleto 2011 in the Journal of Waste Management found that older adults were more likely to engage in sustainable behaviors, such as reducing energy use and recycling, compared to younger adults (Kurisu & Bortoleto, 2011). A similar study also show that high school students portray a few positive environmental behaviors more than lower graders (Krettenauer, 2017). However, another finding revealed that younger individuals are more responsive concerning positive attitude shifts and receptive to innovative environmental interventions, such as those involving digital technologies (Liefländer & Bogner, 2014). Despite these variations in past studies, it is

important to keep age in mind when drafting behavioral change campaigns as age groups react differently to various messages.

Gender: In a Journal of Environmental and Behavior, Lam & Cheng indicate that women are generally more engaged in a wide range of pro-environmental behaviors, as compared to men (Lam & Cheng, 2002). Another study in the Journal of Resources, conservation and Recycling revealed that gender differences in environmental behavior change were more pronounced for behaviors requiring significant lifestyle changes, such as adopting renewable energy sources (Li et al., 2019). Gender can thus be considered as one of the demographic factors most likely to influence environmental attitude and positive environmental behavior.

Socioeconomic Status (SES): With regards to socioeconomic status, results from a Swiss study showed that individuals with higher SES contributed greatly to the emission of CO_2 and were less likely to adopt positive environmental behaviors (Enzler & Diekmann, 2019). Keeping this in mind, another study in the journal of Environmental Psychology highlighted the importance of addressing the unique barriers and constraints faced by lower-SES individuals in adopting environmentally friendly behaviors, like budget and regulations (Aboueid et al., 2023).

Educational Level: According to Piao & Managi, higher educational attainment is most associated with greater literacy and a better understanding of the benefits of behavior change especially when it concerns the purchase of energy saving products (Piao & Managi, 2023). Their study further suggests that people with educational attainment have a higher tendency to consume recycled goods than those with less or no education. Educational interventions can be particularly effective in promoting behavior change among individuals with less positive environmental behaviors by improving their knowledge and skills (Chawla & Cushing, 2007).

Individual and social factors

Environmental Awareness and Knowledge: A study conducted by Hojnik et al in 2019 reported that increased awareness and understanding of environmental issues were positively related with the adoption of sustainable behaviors, such as energy conservation and waste reduction (Hojnik et al., 2019). Their findings show that the level at which a

person is familiar with eco-products and their awareness of the environmental impact of these products significantly influence purchase. Their results are similar to a study conducted by Poortinga & Whittaker in twelve universities and business sites in the UK to measure the effectiveness of environmental messaging in promoting the use of reusable coffee cups. The study found that both environmental messaging and the provision of alternatives increased the use of reusable cups (Poortinga & Whitaker, 2018).

Social Norms and Peer Influence: A 2020 longitudinal study in the Journal of Nature Energy found that exposure to descriptive and injunctive social norms promoting environmental behaviors, such as sustainable consumption, led to increased adoption of these behaviors over time (Bonan et al., 2020). While another study reiterated the importance of leveraging social networks and peer modelling to encourage the diffusion of environmental behaviors within communities (Zhou et al., 2020). It is therefore important to take into consideration social norms and the peer factors that may affect the adoption of positive environmental behaviors.

Incentives and Feedback Mechanisms: A field experiment in the Journal of Resources, Conservation and Recycling demonstrated that the provision of monetary and non-monetary incentives, such as bonuses, reduced prices and public recognition in the news or community events could significantly enhance the effectiveness of environmental behavior change interventions (Rajapaksa et al., 2019). In the same light, the Annual Review of Behavioral Economics suggested that the use of feedback mechanisms, such as real-time energy consumption displays and recycling performance tracking, could help individuals monitor and reinforce their environmental behaviors (Trinh et al., 2021).

Contextual and Infrastructural Factors: In a study conducted by Thacker et al, their findings showed that the availability of supporting infrastructure, such as public transportation, recycling facilities, and renewable energy options, played a crucial role in facilitating the adoption of pro-environmental behaviors (Thacker et al., 2019). Many positive environmental behaviors can only take place if the necessary infrastructure is provided. For example waste sorting can only be practiced if separate cans for different categories of waste are made available in dumping sites. The poorer such services are, the less likely people are to use them or act pro-environmentally.

2.4   Theoretical Framework

Cognitive Dissonance Theory

The Cognitive Dissonance theory was proposed by Leon Festinger in 1957, in an attempt to understand how persuasion functions (Festinger, 1957). Cognitive dissonance is a motivational state that occurs when an individual entertains two or more contradictory attitudes, values, beliefs, or behaviors simultaneously. For example, an individual who knows they should practice waste sorting, but still chooses to mix them because of the convenience. In this case, separating the waste and mixing them are two cognitions that are inconsistent with one another. Persuasion comes in at this point as a means of creating enough dissonance(discomfort) in listeners that they will change their attitudes, values, beliefs, or behaviors.

For cognitive dissonance to work effectively there are three necessary conditions: aversive consequences, freedom of choice, and insufficient external justification (Ann Bainbridge Frymier, 2007). When force is applied, dissonance will not be aroused. While force may lead to behavior change, this change will in most cases only last for as long as coercion exists (Hinojosa et al., 2017).

ELABORATION LIKELIHOOD THEORY

The elaboration likelihood model was created by Petty and Cacioppo (1986). The term elaboration refers to the amount of thought or cognitive energy someone uses for analyzing the content of a message. High elaboration uses the central route and is designed for analyzing the content of a message. As such, when people truly analyze a message, they use cognitive energy to examine the arguments set forth within the message. In an ideal world, everyone would process information through this central route and analyze arguments presented to them. Unfortunately, many people often use the peripheral route for attending to persuasive messages, which results in low elaboration or thought (Petty & Cacioppo, 1986)**.** Low elaboration occurs when people attend to messages but do not analyze the message or use cognitive energy to ascertain the arguments set forth in a message. People need to have the ability to elaborate on a message. If the language or message is too complicated, then people will not highly elaborate on it because they will not understand the persuasive message. Motivation, on the other hand, refers to whether

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the audience member chooses to elaborate on the message. (Ann Bainbridge Frymier, 2007).

Social judgement Theory

Muzafer Sherif and Carl Hovland came up with the social judgment theory to determine what types of communicative messages and under what conditions communicated messages will lead to a change in someone's behavior (Sherif & Hovland, 1961). In essence, Sherif and Hovland found that people's perceptions of attitudes, values, beliefs, and behaviors exist on a continuum, including latitude of rejection, latitude of noncommitment, and latitude of acceptance.

Not surprisingly, Sherif and Hovland found that persuasive messages are the most likely to succeed when they fall into an individual's latitude of acceptance. In an ideal world, it is much easier to persuade people who agree with our opinions. Instead, we often find ourselves in situations where we have to persuade others to accept attitudes, values, beliefs, and behaviors which they may not conform with. Sherif and Hovland theorized that persuasion is a matter of knowing how great the difference is between the sender's viewpoint and that of the receiver. If the sender's point of view is similar to that of the receivers, then persuasion is more likely to occur.

3   METHODOLOGY

3.1   Study Area

The area chosen for this study is Mfoundi, located at the heart of the Center region Yaoundé Cameroon. The division covers 297 km2 and has a total population of 1,881,876, who reside in the urban area. Yaoundé is the capital of Cameroon, a sub–Saharan country located at the Gulf of Guinea. It plays a vital role in the development and sustenance of the country. It is in the center region and has a population of about 2 million. Over the years, the city has recorded high rates of floods and repeated cases of poor waste disposal (UNDRR, 2016). Inasmuch as a large part of the prevention efforts and environmentally-oriented measures lie in the hands of the government (e.g., the efforts made in 2012 to ban the use of non-biodegradable plastic packaging), flooding incidents have still been recurrent. One of the reasons are clog waterways because of the layers of plastic, which spoil the landscape, and decomposition of the plastic will take a thousand years (VOA, 2023). Inhabitants also significantly contribute to blocking drains by disposing large quantities of waste in them. This area thus constitutes a significant audience to be studied when evaluating the use of persuasive communication and its impact on environmental behaviors.
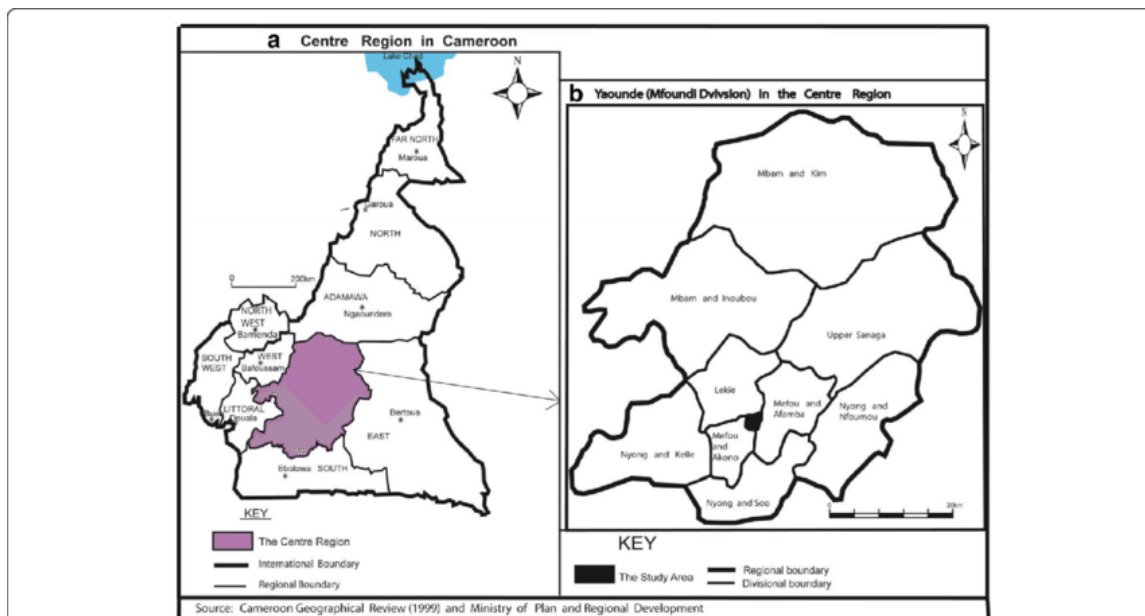

Figure 1: Map of Cameroon showing the centre region

Source: Cameroon Geographical Review and Ministry of Plan and Regional Development

3.2   Quantitative Study

A cross-sectional study involving mixed methods was used to answer the research questions; a consultation interview and quantitative study through a questionnaire.

For our quantitative study, a structured questionnaire (Appendix 1) was designed on Survey 123 connect. It was later deployed online to random target respondents in Yaoundé, using watsapp groups as the main medium of distribution. Watsapp groups were used because it is easy to find people who belong to the same community (ethnic group, workplace, school) through these groups. It is also one of the most used social media platforms in Cameroon. Yaoundé is made up of French and English-speaking people, but our questionnaire was administered only in English. The study population was made up of adult Cameroonians, aged 18 years and above, currently residing in the study area during the period of the research.

The questionnaire had 15 questions, and its content was divided into six different parts. The first part was on demographic information, which included the participants' age, gender, level of educational and occupation. The other parts were divided into sections. Section one was on Knowledge and Exposure to Persuasive Communication. The second was on Environmental awareness, where respondents were asked to rate their level of awareness regarding environmental issues. The third section had questions linked to Behavioral Change and Effectiveness of Persuasive Communication. The fourth was on message content and appeal, this was to know the communication style which is most likely to persuade the respondent to adopt a positive environmental behavior. Lastly, section five focused on the preferred communication channel of the respondents. In total, there were 14 closed ended questions and one open ended question.

To arrive at the sample size, we used the Rao soft online sample calculator with a 95% confidence level and 5% error margin using a target population 1,881,876 which is the population of the study area. After inputting this into the Raosoft online sample size calculator, we had a sample size of 385. However, because the data collection period was short (March-April 2024) and we had to collect the data remotely, we collected data from 100 respondents which was equally a representation of the total population.

The data collected was then extracted in Microsoft Excel where we used Excel functions such as pivot tables for analysis. We also made use of the Analysis section on Survey 123 connect where some already analyzed data was extracted to the word document. And to test our hypothesis, we did a chi square test on the Statistical Package for the Social Sciences SPSS to find out the relationship between demographic characteristics, individual factors, and positive environmental behavior.

The purpose of the study and the participants' role was explained in the consent form, and the questionnaire was only administered after the participant gave his/her consent. Data collected was treated with strict confidentiality and used solely for the study.

3.3 Consultation

When choosing the consultant, we wanted to provide insights into the survey responses by collecting information through an expert interview that will answer the why and provide more explanation on people's views and environmental behavior.

For the consultation, two environmental organizations were purposively selected for the study, but one of the organizations could not fully participate due to poor internet reception. As such, only one interview was conducted with the communication officer of an environmental organization based in Yaoundé (Game Changers), who had in-depth knowledge on persuasive communication and current environmental issues.

The interview took place on Microsoft teams. Information from the session was recorded, transcribed, and analyzed, with the main issues of interest extracted to support the quantitative findings of the study. The interview questions focused on the medium of communication used by the selected organization, examples of successful behavioral change campaigns led by them, factors affecting persuasive communication and the incorporation of socio-cultural factors in their communication messages (see appendix 2 for the complete interview guide).

4   RESULTS

SOCIODEMOGRAPHIC FACTORS

Age of Respondents

To obtain general information about the ages of the respondents, they were asked to choose the age bracket that they belonged to. Age was categorized into brackets as presented in figure2 below. A large percentage of the respondents were in the 25-34 age bracket, that is 44% of the total population, 38% were in the 18- 24 age group as shown in figure 2 below. These numbers are expected as our survey was distributed online, and these two groups account for the largest percentage of those exposed to online platforms. 5% fell under 60+, which represents the pension age group.
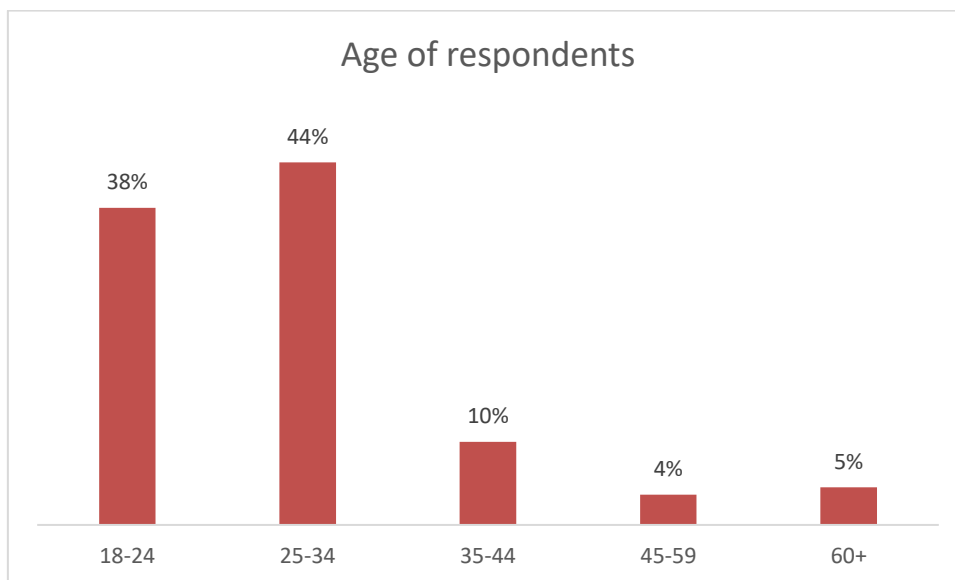

Figure 2: Age of respondents

Gender Distribution

With regards to gender representation, most of the respondents were females, representing 65% of the respondents.
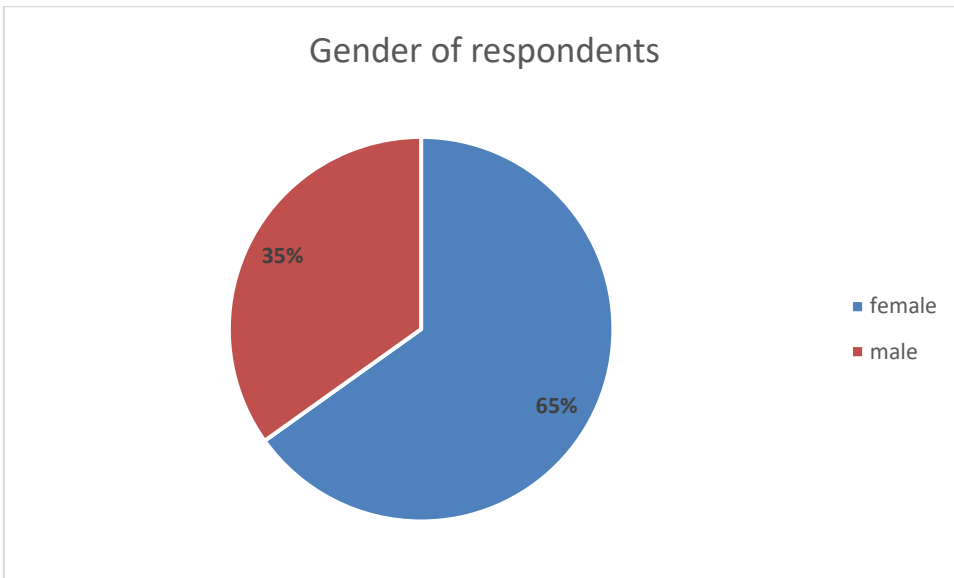
Figure 3: Gender of Respondents

Educational Level

With regards to the educational background, the level of education of the respondents with the most response was bachelor's degree, which stood at 43% and master's degree was the second highest with percentage of 29%. Educational level was further segmented into gender but there was no significant difference, as bachelor's degree and master's remained the most dominant between the genders.
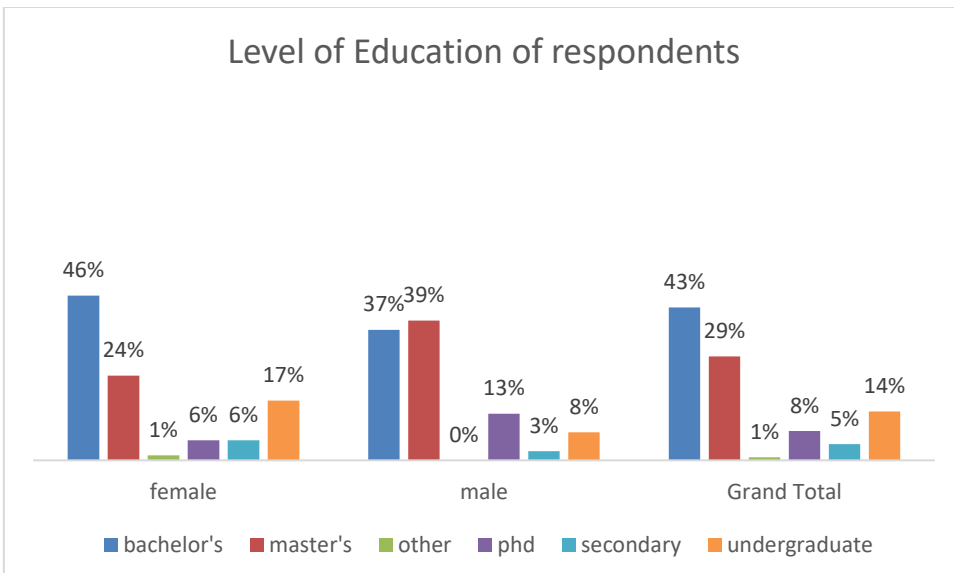

Figure 4: Educational Level of Respondents

Employment Status

A great percentage of the audience were employed, with a total of 43%, while 37% were students (figure 5).
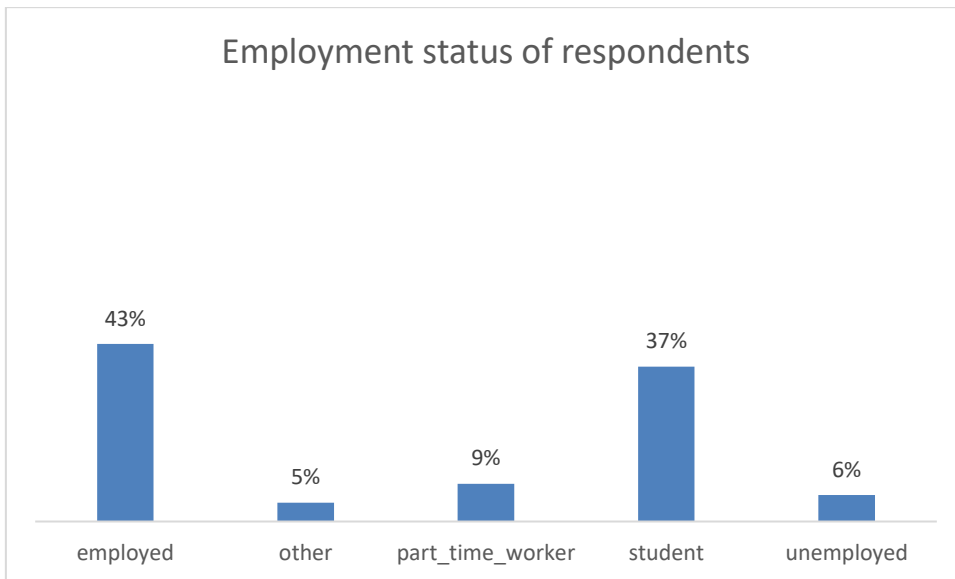

Figure 5: Employment Status of Respondents

Objective 1: To access the effectiveness of already existing persuasive communication strategies established in Cameroon.

Our analysis of the question regarding how many respondents have been motivated to take any positive environmental action because of persuasive communication shows that 54% agreed and while 46% replied no, as shown in figure 6 below.

Results from the interview conducted also shows the effectiveness of some persuasive communication strategies used by the organization. The interviewee cites an example of how their sensitization campaigns led to the creation of an environmental committee within a hospital in Yaoundé and because of this committee, the hospital started sorting their waste. The respondent adds that the hospital staff have also engaged in planting more trees in the premises.
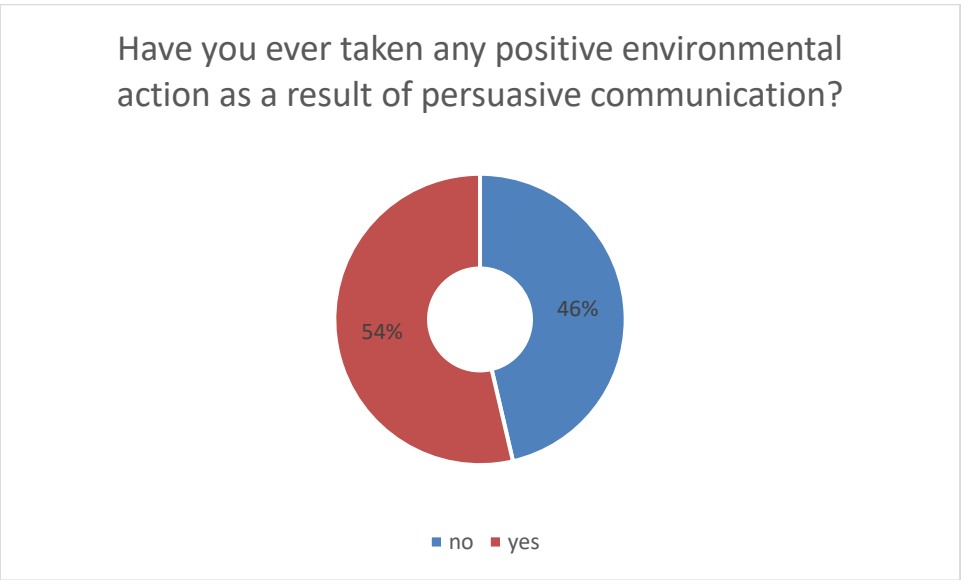
Figure 6: Pie chart representing the percentage of respondents who have taken a positive environmental action because of persuasive communication.

During the analysis of the question regarding persuasion and environmental action, I used the opportunity to collect examples of positive environmental actions carried out by the respondents, the answers were later summarized in a word cloud. The result of the analysis extracted from the software Survey 123 presented in figure 7 below shows the most practiced acts, like reduction of plastic use, proper waste disposal, planting of trees, participating in clean up campaigns.

Figure 7: Word cloud of positive environmental actions taken by respondents because of persuasive communication

Objective 2: To understand what persuasion component triggers respondents the most to change their behavior.

To find out about message content and behavior change, we asked a question about the type of message content which convinces respondents the most and the emotion which triggers them to take environmental action. With regards to message content, 45% of the respondents reported that they are mostly convinced by statistical information and facts. 32% selected emotional appeal, which includes stories and testimonials, 19% are convinced by messages from authoritative figures and experts, while only 4% selected messages from celebrities. Segregating this information by gender, we can see a significant difference between the answers. While Statistical information and emotional appeal are quite high between both genders, it is however worth noting that more males (61%) are convinced by statistical information as opposed to 37% for females, whereas most females (40%) are convinced when there is the use of emotional appeal in a message content, as opposed to 18% for males, as shown in figure 8.
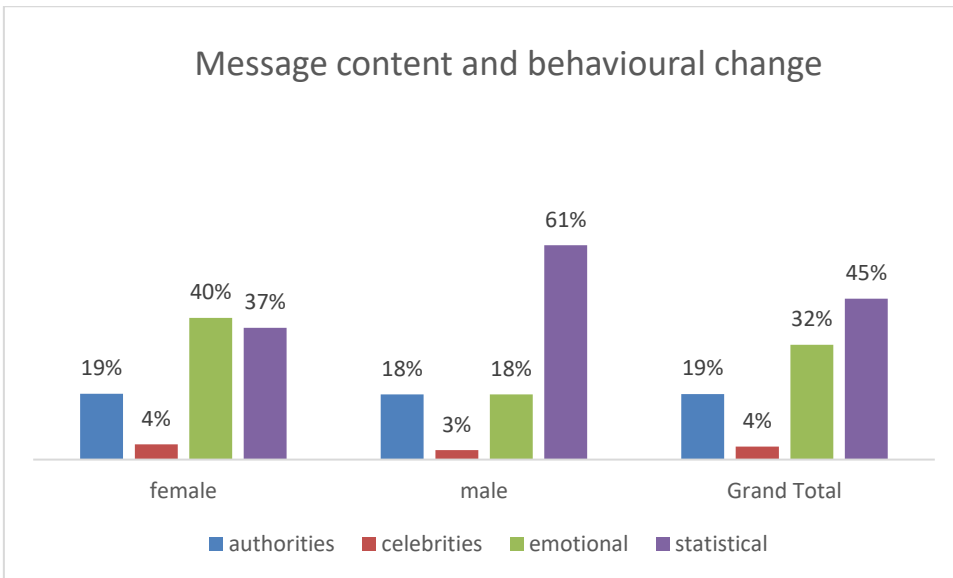
Figure 8: Bar chart showing message content most likely to convince respondents.

In our analysis of the question on message content, we broke down emotion into different categories, to understand which emotional factor had the biggest influence on the respondents. From figure 8 below, hope had the highest number of responses (39%). 28% of the respondents are most prompted by guilt to take positive environmental action, 18% is triggered by fear and 15% by excitement. We can also see from the chart that after dividing the responses based on gender, both genders are highly triggered by hope and guilt, and a higher percentage of males are moved by fear (26%) as opposed to 13% of females as seen in figure 9.
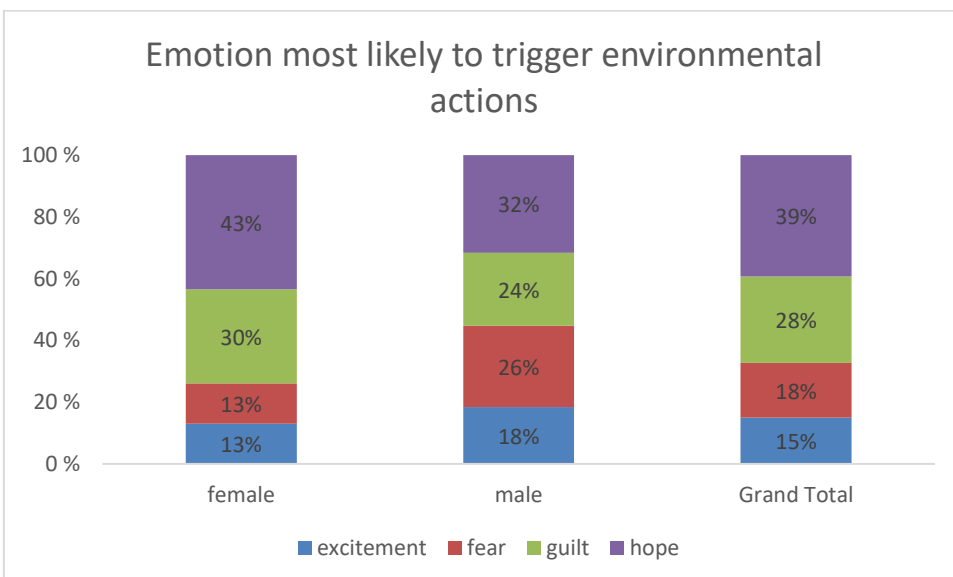

Figure 9: Bar chart showing emotion most likely to trigger environmental action.

The consultation also sought to find out what message content and emotion the interviewed personnel thinks captivate their audience the most. The results pointed out environmental storytelling as the most used communication style and hope as the emotion most likely to trigger people to take environmental action.

'Creating fear can discourage people from taking positive environmental action, but focusing our storytelling on hope shows people that the future is bright, and this motivates them'.

The interview result also points to language as a strong factor to consider when drafting persuasive messages. The respondent stated that environmental problems must be given names that are understandable and relatable to the local people.

Objective 3: To find out inhabitants preferred medium of communication on environmental related issues.

For our third objective, the channel of communication and the sender were analyzed. This was answered by question 3,4 and 13 of the questionnaire (see Appendix 1 Section I & IV). Question 3 sought to find out where respondents most often encounter persuasive messages. 52% choose social media, followed by 18% for community events, radio was the least with only 6%. Question 4 on the other hand was centered on whom they often receive this information from, 42% responded local NGOs, 23% ticked international organizations, 14% from the government and school authorities was the lowest with 9%. Finally, question 13 sort to know the respondents most preferred medium of communication in relation to environmental issues as represented in figure 10 below. The findings show that social media is the most preferred medium between both genders, followed by community events.

In the same light, results from the consultation also reported social media as the most preferred medium of communication. After probing to understand the specific social media platform used, the respondent highlighted WhatsApp, facebook and twitter.
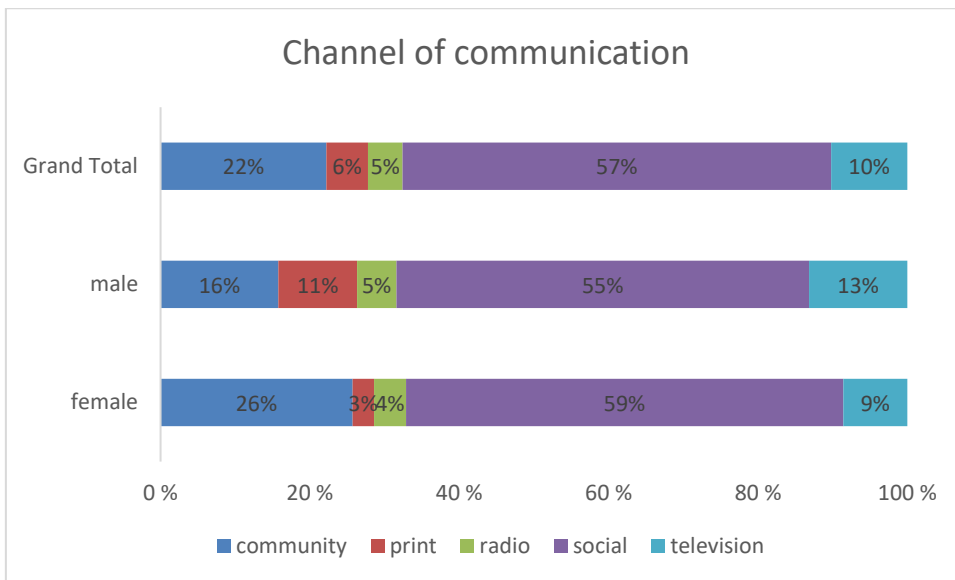
Figure 10: Respondents Preferred Medium of Communication

Hypothesis 1: Exposure to persuasive messages positively influence environmental behaviors.

Table 1: Chi square analysis between persuasive messages and environmental behavior

Variables	Categories	Have you ever taken any positive environmental behavior		chi-square	p-value
		Yes (%)	No (%)		
How frequently do you come across persuasive communication messages related to environmental protection?	Frequently	8 (72.7)	3 (27.3)	9.345	0.05
	Never	3 (30.0)	7 (70.0)		
	Occasionally	12 (41.4)	17 (58.6)		
	Rarely	32 (57.1)	24 (42.9)		
	Very	4 (100.0)	0 (0.0)		
How would you rate your level of	Very high	6 (66.7)	3 (33.3)	9.785	0.044
	High	15 (78.9)	4 (21.1)		

awareness regarding environmental issues?	Moderate	26 (41.9)	36 (58.1)		
	Low	8 (66.7)	4 (33.3)		
	Very low	4 (50.0)	4 (50.0)		
How willing are you to adopt environmentally friendly behaviors in your daily life?(e.g reducing the use of plastic, sorting waste, using solar panels)	Slightly	1 (25.0)	3 (75.0)	2.869	0.412
	Moderately	10 (45.5)	12 (54.5)		
	Very	31 (54.4)	26 (45.6)		
	Extremely	17 (63.0)	10 (37.0)		

Table 1 above, is a chi square analysis showing the relationship between positive environmental behavior and individual factors. The results obtained show that there is a significant relationship between the frequency at which respondents receive messages on environmental protection and environmental behavior as **(Chi =9.345, P = 0.05).** Additionally, awareness on environmental issues equally showed a significant relationship with positive environmental behavior **(Chi =9.785, P = 0.04).**

Also, there was a high rate of willingness to adopt positive environmental behaviors among 77% of the respondents, but this willingness does not imply that they will actually adopt a positive environmental behavior. We see from the table that there is no significant relationship between willingness and environmental behavior **(Chi =2.869, P = 0.412)**

H2 - Behavioral change is often hindered by sociodemographic factors.

Table 2: Level of Agreement of the influence of socio-demographic factors on behavioral change

Table 2: Chi square analysis between socio-demographic factors and environmental behavior

Variables	Categories	Have you ever taken any positive environmental action		chi-square	p-value
		Yes (%)	No (%)		
Age group	18-24	17 (40.5)	25 (59.5)	8.277	0.082
	25-34	30 (62.5)	18 (37.5)		
	35-44	6 (54.5)	5 (45.5)		
	45-59	4 (100.0)	0 (0.0)		
	60+	2 (40.0)	3 (60.0)		
Gender	Male	19 (50.0)	19 (50.0)	1.567	0.457
	Female	40 (56.3)	31 (43.7)		
	Prefer not to say	0 (0.0)	1 (100.0)		
Highest educational background	Bachelor's	25 (53.6)	22 (46.8)	2.858	0.722
	Master's	18 (56.2)	14 (43.8)		
	PhD	6 (66.7)	3 (33.3)		
	Secondary	2 (33.3)	4 (66.7)		
	Undergraduate	7 (46.7)	8 (53.3)		
	Other	1 (100.0)	0 (0.0)		
Occupation	Student	15 (36.6)	26 (63.4)	8.072	0.089
	Employed	29 (61.7)	18 (38.3)		
	Unemployed	5 (71.4)	2 (28.6)		

	Part time worker	7 (70.0)	3 (30.0)		
	Other	3 (60.0)	2 (40.0)		

Table 2 above shows the analysis done between sociodemographic factors and positive environmental behavior. Findings from the survey show no significant association between sociodemographic characteristics and positive environmental behavior, as the association between age, gender, education and occupation are weak. The analysis on figure 11 below, which shows the connection between educational level and awareness on environmental issues serves as support to this weak association. The results read that the same percentage of respondents with secondary level of education and PhD have a high level of awareness on environmental issues (33%). 47% of undergraduates have a low level of awareness, while 68% of bachelor degree holders have a moderate level of awareness.
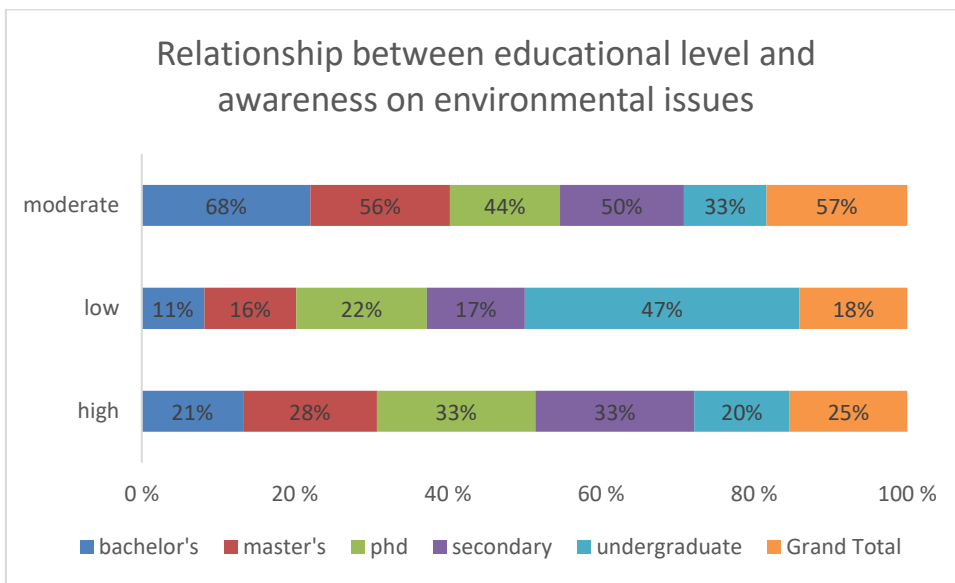

Figure 11: Bar chart showing the relationship between educational level and awareness on environmental issues.

5   DISCUSSION

This study had as objective to investigate the impact of persuasive communication on positive environmental behaviors among inhabitants in Yaoundé Central (Mfoundi Division). To change people's attitudes and impact them to adopt new behaviors, there is need to make use of the most persuasive style of communication, which convinces and motivates them. That is why governments and environmental organizations carry out campaigns to raise awareness and inspire the population to be more environmentally conscious. An example of such campaigns is the street clean-up campaign carried out by ICENECDEV (a climate activism organization) every year in different parts of Cameroon to reduce plastic pollution by visiting schools, picking up plastic waste and taking the waste to a recycling center.

Regarding the association between positive environmental behavior and knowledge on environmental issues, awareness and the frequency at which respondents receive information on environmental issues showed an association with positive environmental behavior, even though we did not carry out further analysis to know in what direction they affect each other. Results from the survey showed that a great percentage of the respondents have taken positive environmental action because they were exposed to persuasive communication. These results go in line with the findings of Poortinga & Whittaker who conducted a field study in twelve universities and business sites in the UK to measure the effectiveness of environmental messaging in promoting the use of reusable coffee cups. The study found that both environmental messaging and the provision of alternatives increased the use of reusable cups (Poortinga & Whitaker, 2018). This accepts hypothesis one of this study which states that exposure to persuasive messages positively influences environmental behaviors.

However, a study by Whitmarsh et al, 2017, found out that awareness on environmental issues do not always produce behavior change, unless the messages are tailored to the audience values and beliefs (Whitmarsh et al., 2017). Verplaken et al, 1997 also support this view in their research when they state that many interventions (e.g., information campaigns) are ineffective because they are not strong enough to disrupt habits (Verplanken B et al., 1997).

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Findings from the survey show no significant association between sociodemographic characteristics and positive environmental behavior. This result contradicts the study conducted Kurisu & Bortoleto, 2011 on a comparison on waste prevention in the context of socio-demographics, which reported that older adults were more likely to engage in sustainable behaviors, such as reducing energy use and recycling, compared to younger adults (Kurisu & Bortoleto, 2011). The same contradiction holds for another study conducted by Lam & Cheng, which reported that women were generally more engaged in a wide range of pro-environmental behaviors, compared to men (Lam & Cheng, 2002). However, this difference in results could be justified by the fact that the younger generation in Yaoundé are more exposed to environmental messages and campaigns in the school milieu and social media and constitute the main target population of most environmental organizations. Even though socio demographic characteristics are important in behavioral change strategies, our study did not find any strong association, therefore rejecting our second hypothesis which stated that behavioral change is often hindered by socio-demographic factors.

It was also observed that social media is the most popular and preferred medium through which respondents receive messages on environmental issues. This can be justified by the fact that 82% of the respondents fell between the age range 18-34 and this age group accounts for the largest percentage of people exposed to social media platforms (Lin et al., 2016). This supports the shift from traditional to digital media, which constitutes one of the strongest tools used by most organization in carrying out environmental campaigns and sensitization programs (Ahmed, 2022), including the environmental organization interviewed in my research work,

Another significant finding was gotten from our consultation, where the interviewee highlighted the importance of simplifying environmental issues and speaking in a language the people will understand. This is in line with the elaboration likelihood model previously mentioned in the theoretical framework, which explains that if the language or message is difficult to comprehend, then people will not highly elaborate on it because they will not understand the persuasive message (Petty & Cacioppo, 1986). In this case, persuasion will be less likely to occur.

CONCLUSION

While communication experts and environmental organizations continue to base their persuasion strategies on theories, it remains hard to understand the best way through which information should be shared to the population, so that it truly motivates them to act, and more importantly, that it leads to the adoption of positive environmental behaviors in their daily lifestyle. The solution however lies in overcoming the barriers to behavioural change and tailoring messages that will fit the unique characteristics of the target audience.

In this research work, I examined how exposure, message content and emotional appeal can motivate respondents and cause behavioral change, as well as the preferred medium of communication of the study population.

I hope that this study provides a framework for future research on the impact of persuasive communication on positive environmental behaviors in Cameroon, and that communication experts will be able to come up with new strategies that can trigger the audience to adopt more positive environmental behaviors.

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Appendices

Appendix 1

Questionnaire

I am a final year student at Novia University of Applied Sciences, studying Sustainable Coastal Management. I am conducting a study on "Persuasive Communication and Positive Environmental Behaviors, for my thesis. Your participation is vital in helping me understand how persuasive messages influence environmental behaviors. Persuasive communication aims to convince, motivate, or appeal, while positive environmental behaviors refer to those actions or practices individuals engage in to conserve the environment and promote sustainability, e.g. reducing the use of plastic. This questionnaire only **takes 2-3 minutes** to complete. Your answers and all related information will be kept confidential.

Please answer the following questions honestly and to the best of your knowledge.

Demographic Information:

a. Age:

   - Under 18

   - 18-24

   - 25-34

   - 35-44

   - 45-59

   – 60+

b. Gender:

   - Male

   - Female

- Prefer not to say

  c. Educational BAckground:

    - First School

- Secondary education (O level or A level)

    - Undergraduate

    - Bachelor's degree

    - Master's degree

    - Phd

  - Other

  d. Occupation:

    - Student

    - Employed

    - Unemployed

Part-time worker

    - Other (please specify)

Section I Knowledge and Exposure to Persuasive Communication

1. Have you ever been exposed to persuasive communication campaigns related to environmental protection or climate change? (e.g. street clean up campaigns, messages on planting trees)

a) Yes

b) No

2. How frequently do you come across persuasive communication messages related to environmental protection?

a) Never

b) Rarely (once a month)

c) Occasionally (2-3 times a month)

d) Frequently (4-5 times a month)

e) Very frequently (above 6 times a month)

3. Where do you most often encounter persuasive messages about environmental issues? (Select all that apply)

a) Social media

b) Television

c) Radio

d) Print materials (brochures, posters)

e) Community events

f) Other (please specify)

4. From whom do you often receive messages about environmental protection

a. The government

b. School authorities

c. Family/friends

d. Local non governmental organisations

e. International organisations e.g (UN, WWF)

Section 2: Environmental awareness

5. How would you rate your level of awareness regarding environmental issues?

a) Very low

b) Low

c) Moderate

d) High

e) Very high

Section 3: Behavioral Change and Effectiveness of Persuasive Communication

6. How willing are you to adopt environmentally friendly behaviors in your daily life?(See question 7 for examples of environmentally friendly behaviors)

a) Not willing at all

b) Slightly willing

c) Moderately willing

d) Very willing

e) Extremely willing

7. Which of the following environmental behaviors are you most willing to adopt? (Select up to three)

a) Reduce waste generation (Cooking what you can finish, not buying according to trends but according to needs, repairing electronics)

b) Reuse more frequently (e.g. reusing shopping bags, plastic containers,)

c) Reducing energy consumption (unplugging appliances when not in use, switching off the light, traveling less)

d) Conserving water (Taking shorter shower

e) Using eco-friendly products

f) Participating in community clean-up events

g) Other (please specify)

8. Have you ever taken any positive environmental actions as a result of persuasive communication?

a) Yes

b) No

7b. If yes, please specify the action(s) you have taken.

9. Socio-cultural factors like education, beliefs, income sometimes hinder my ability to adopt positive environmental behaviors.

a) Strongly agree.

b) Agree

c) Neutral

d) Disagree

e) Strongly disagree.

Section IV: Message Content and Appeal

10. What type of persuasive message content resonates with you the most? (Select only one)

a) Statistical information and facts

b) Emotional appeals (stories, images, testimonials)

c) Messages from authoritative figures or experts

d) Messages from celebrities

e) Others……………………..

11. What emotions are more likely to prompt you to take environmental actions? (Select all that apply)

a) Guilt

b) Hope

c) Fear

d) Excitement

e) Other ……………………………………

12. Would you be more motivated to engage in positive environmental behaviors if there were incentives or rewards (money, gifts) tied to it?

a) Yes

b) No

Section V: Preferred Communication Channels

13. Through which communication channels are you most receptive to persuasive messages about environmental issues? (Select up to three)

a) Social media

b) Television

c) Radio

d) Print materials (brochures, posters)

e) Community events

f) Other (please specify)

14. To what extent do you trust information presented in persuasive messages on social media?

a) Not at all

b) Not much

c) Neutral

d) Very much

e) Completely

15. What, in your view, could be improved or enhanced in persuasive communication strategies to further encourage positive environmental behaviors?

Thank you for completing our survey! Your input is valuable.

Appendix 2

Interview Guide for Environmental Protection Communication Experts on an academic thesis titled "Persuasive Communication and Positive Environmental Behaviors."

1) Can you please introduce yourself and tell us about the issues your organization is currently targeting?

2) What are your duties within this organization?

3) Which group of persons constitute your target audience when carrying out environmental campaigns?

4) What are some of the channels you use to communicate with this audience?

5) What do you think captivates your audience the most and how do you reflect their needs in your message?

6) Conversely, what type of message or communication method do you think your audience does not connect with?

7) Do you employ the use of persuasive communication in your environmental campaigns?

   Can you please describe a time when the use of persuasive communication within your organization led to behavioral change among your target population?

   Can you also state an instance when this form of communication failed to cause behavioral change?

8) Do you consider social-cultural factors when drafting persuasive environmental messages? Can you please elaborate on how you do so?

9) What has been the role of social media in your communication strategies and campaigns so far?

10) What are some of the challenges faced in communicating environmental messages to your target population?

11) In your opinion, what are some of the factors that hinder behavioral change in the community you work with?

12) Do you use AI tools when drafting persuasive communication messages? If yes what has been its impact in your work?

13) How do you think persuasive communication can be improved upon to cause positive environmental behaviors?