



**GHANA INSTITUTE OF JOURNALISM  
SCHOOL OF GRADUATE STUDIES AND RESEARCH**

**EXAMINING THE EFFECTIVENESS OF VISUAL COMMUNICATION  
TOOLS EMPLOYED BY THE NATIONAL ROAD SAFETY AUTHORITY  
FOR BEHAVIOUR CHANGE: A STUDY AT ABLEKUMA CENTRAL  
DISTRICT, ACCRA**

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COMMUNICATION**

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## DECLARATION

### CANDIDATE'S DECLARATION

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

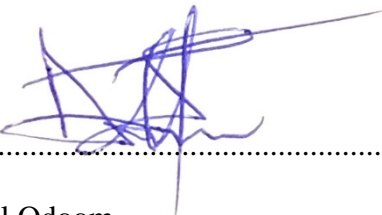
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### SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work were supervised in accordance with the guidelines for supervision of thesis laid down by School of Graduate Studies and Research, Ghana Institute of Journalism.

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Dr. Daniel Odoom

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## **ABSTRACT**

The study examined the effectiveness of visual communication tools employed by the National Road Safety Authority (NRSA) of Ghana for behaviour change using qualitative research approach. Population was drawn from road users in Ablekuma Central District, Accra and interview guide was used for data collection. Content analysis was conducted for the transcribed data. The study observed that though knowledge on informatory signs such as such as traffic light ahead, zebra crossing and bus stop signs was high among road users, they had poor understanding of warning and regulatory signs and their meanings. Poor reach of the campaign messages was identified as a challenge. Measures to improve the existing situation include increased public education, well-planned installation of road signs, legal enforcement to check indiscipline, and enhanced presence on social media and traditional media to have a good impact through use of visuals used in communicating road safety behaviours. A deliberate effort must be made by NRSA to educate road users of all categories and levels on how to identify and interpret road signs. The education should be widened to include more road signs that are taught in schools. Also, campaign messages on road safety should also target specific institutions such as religious institutions to make the efforts of NRSA sustainable. Finally, it is recommended that teaching of road signs and road safety behaviours be integrated into the curricula of basic schools so that people become aware of the signs and what they mean at the early years.

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## LIST OF ACRONYMS

ADT	-	Alternative Development Theory
APEM	-	Associative-Propositional Evaluation Model
BCC	-	Behaviour Change Communication
CAD	-	Communication for Development
COVID-19	-	Coronavirus Disease
DVLA	-	Driver and Vehicle Licensing Authority
ELM	-	Elaboration-Likelihood Model
GES	-	Ghana Education Service
HBM	-	Health Belief Model
IMC	-	International Medical Corps
INRETS	-	Institut National de Recherche sur les Transports
IPC	-	Interpersonal Communication
MORT	-	Ministry of Roads & Transport
NGO	-	Non-governmental Organisation
INGO	-	International Non-governmental Organisation
NNCC	-	National Nutrition Communication Campaign
NRSA	-	National Road Safety Authority
NRSC	-	National Road Safety Commission
PMT	-	Protection and Motivation Theory
SBCC	-	Social and Behaviour Change Communication
SLT	-	Social Learning Theory
SPRING	-	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
TAC	-	Transport Accidents Commission
TIB	-	Theory of Interpersonal Behaviour
TMC	-	The Trans Theoretical Model of Change
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
TSR	-	Theory of Self-Regulation
UN	-	United Nations
UNDP	-	United Nations Development Programme

- UNICEF - United Nations Children's Fund
- UPSA - University of Professional Studies, Accra
- WASH - Water and Hand Sanitation Hygiene

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Many researchers and development agencies agree that development is multi-faceted. Its multi-faceted nature gives a varied meaning to its definition and approach. Pokhariyal (2007) defines development as the spiritual growth and overall well-being of humans. He further adds that the physically measurable sense of development may be linked with proper nutrition and educational opportunities, adequate shelter, healthcare and social amenities. Odoom (2020, p. 40) identifies development as an all-encompassing process that is aimed at improving the material and psychological well-being of a people. According to the report on the Resolution Adopted by the General Assembly of the United Nations' Agenda for Development (1997, pp. 2-3), development is a multidimensional undertaking to achieve a higher quality of life for all people. The idea of development can therefore be seen as involving processes that improve the quality of life through physical interventions that have a bearing on a people's spiritual and psychological well-being as well.

Human development cannot take place without communication. McCall (2011, p. 1) stresses that communication processes are central to broader empowerment practices through which people are able to arrive at their own understanding of issues, to consider and discuss ideas, to negotiate, and to engage in public debates at community and national levels. Communication helps members of a society to engage meaningfully. Warren Feek (2006), as cited in Servaes (2008, p. 14), captures the role of communication in pursuing participatory social development as follows:

“There has been no sustainable, effective social development in which the principles of leadership from within the peoples most affected; a strong and independent voice in public debate, private dialogue and decision making fora by people most affected; and the people most immediately involved defining and agreeing the development agenda, have not been core, central components of the action.”

Communication happens in different ways, forms and for different purposes. There are different concepts and application of communication. Whereas the singular form,

“communication”, refers to a process and its related methods, techniques and media, the plural form, “communications”, refers to products used for communicating ideas, such as, audio-visual programs, posters, technologies, websites, etc. (Mefalopulos, 2008, p. 1). Examples of different types of communication are corporate communication, development communication, political communication, journalism, advocacy and interpersonal communication. The various types of communication employ different strategies and techniques to achieve their intended goals. Many factors account for the achievement of development objectives. Underlying these factors is a strategy to ensure all stakeholders play their role effectively and in a coherent manner. Stakeholders may need to alter their regular behaviour to play their roles effectively. Central to the coherence is communication.

Visual communication is a vital component of communication. Lester (1994), as cited in Ondimu (2012, pp. 133-134), describes visual communication as the use of visuals such as photographs, cartoons, drawings, images, graphics and other representations of people, places and things to pass information. The role played by visual communication in the broad concept of communication is unique. The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project, for instance, relies on images to model behaviour and to motivate individuals, families or communities to try a new behaviour and, ultimately, to adopt the behaviour or behaviours being promoted by the project (Cunningham et al., 2017). The authors of the guide for the project state that images are especially critical in the print materials that are developed for use in low-literacy or multi-language settings where written words are often barriers to communication. According to Pettersson (2021), visual communication knows no limits of grammar, tongue, or vocabulary. This confirms the usefulness of visuals in communicating information in a society with a population of different literacy levels and multiple languages such as Ghana. Road signs, male and female toilets symbols in buildings, traffic lights and power buttons on gadgets, for instance, have a universal interpretation.

Visage Inc. (2017) posits that the human brain quickly recognizes, stores and recalls images seamlessly, and subconsciously cements ideas in long-term memory through the visual system. Visual communication helps to communicate more effectively and helps with recollection. Because of this strength, it is used in education, marketing and advertising, campaigns, and so on. The abundance of visual technologies, such as television broadcasting, mobile phones, computers, telecommunication in the global space has seen an increase in the use of visual communication. Signs, symbols, images, illustrations, pictures, etc. are used on social media

platforms and websites to communicate information that otherwise, would have to be explained using many words. Cameras on phones make it easier for individuals to capture images of themselves and events around them, including videos, and share them with the world with few or no words. The media in Ghana use infographics to present overviews of topics in a way that is easy to understand.

To ensure adherence to road safety practices, road signs are installed to guide road users on what actions to take. The National Road Safety Authority of Ghana is mandated by law to promote and coordinate all activities related to road safety in the country. This is necessary so that provision of roads to enhance movement and transportation of goods, does not pose undue danger to the lives of the users. By observing road safety regulations, the chances of road accidents and the potential harm or fatality can be minimal. Through the use of visual communication, viewers can take notice of what is expected of them, and act responsibly.

## **1.2 Problem Statement**

There are different forms of communication which are used for different purposes. One clear example of communication is visual communication which basically relates to the use of images and visuals. Visual communication plays a crucial in the management and control of social activities (Pauwels, 2008). For example, visual communication is very relevant in road safety campaigns. Road safety campaigns are “purposeful attempts to inform, persuade, and motivate a population (or sub-group of a population) to change its attitudes and/or behaviours to improve road safety, using organised communications involving specific media channels within a given time period, often supplemented by other safety-promoting activities (enforcement, education, legislation, enhancing personal commitment, rewards, etc.)” (Vaa et al., cited in Delhomme et al., 2009). To achieve increased benefits of visual communication in road safety requires a carefully planned use of images and other visual objects in road safety campaigns.

The National Road Safety Authority (NRSA) employs visual communication tools in the education, training, guidance and promotion of road safety activities in Ghana. With the rising numbers of road accidents in recent times and rate fatality signals a cause for alarm. Within the first four months of 2021, Ghana had recorded over 2500 road accidents and over a 1000 deaths, making Ghana’s roads more fatal than the deadly COVID-19 epidemic that had caused about

800 deaths between 12<sup>th</sup> March, 2020 and 14<sup>th</sup> May, 2021. Most of these accidents were deemed to be due to careless actions and were avoidable. This results in avoidable pains and trauma experienced by relatives and dear ones of the victims. Road accidents, invariably, have a negative effect on Ghana's human resource potential as victims become unavailable to carry out productive activities for the period which they seek treatment, become hospitalised or lose their lives. Surviving victims and their dear ones bear varying degrees of financial costs in seeking medical treatment.

Even though NRSA has relied on visual communication campaigns for road safety purpose for decades there is paucity of knowledge on the effectiveness or otherwise of visual communication in achieving the desired outcomes. Not much empirical research has been conducted on the use of visual communication for road safety purpose by NRSA in Ghana. This apparent gap raises questions about the continuing relevance of visual communication strategy employed by NRSA. It is against this backdrop that this study sought to examine how NRSA is using visual communication tools as part of their mandate to ensure road safety and how the tools influence the behaviour of road users. Specifically, the study focused on Ablekuma Central District, Greater Accra Region.

### **1.3 General Objective**

The general objective of this research is to examine the use of visual communication tools for behaviour change in the promotion of road safety activities by the NRSA, using Ablekuma Central District of Greater Accra Region as a case.

### **1.4 Specific Objectives**

The objectives of this research are;

1. To ascertain the types of visual communication used for behaviour change towards road safety in Ablekuma Central District, Accra.
2. To examine the effectiveness of visual communication aids used in road safety campaigns in Ablekuma Central District, Accra.
3. To explore the level of awareness of viewers with respect to the intended messages of visual communication for behaviour change in road safety
4. To explore the measures National Road Safety Authority can undertake to maximize the positive impact of visual communication on road safety.

## **1.5 Research Questions**

The following research questions will be explored:

1. What are the types of visual communication used by the Ghana Road Safety Authority to ensure behaviour change towards road safety in Ablekuma Central District, Accra?
2. How effective are visual communication aids used in road safety campaigns in Ghana?
3. What is the level of awareness of the viewers of visual communication messages for behaviour change in road safety in Ablekuma Central District, Accra?
4. What measures can National Road Safety Authority undertake to maximize the positive impact of visual communication on road safety in Ablekuma Central District, Accra?

## **1.6 Significance of the Study**

This research would be to the benefit of society, considering that there is the need for a concerted effort to promote road safety and to reduce the high mortality on Ghana's roads. The findings would enable road users and authority in Ablekuma Central District, Accra to be aware of the measures to rely on to promote road safety in the district. Again, the findings would provide useful insights into the current use of visual communication tools in road safety activities and how they can be enhanced to influence the expected behaviour of road users in Ghana. Thus, the recommendations would be helpful to the National Road Safety Authority and ultimately, the Ministry of Transport in policy development towards the education of road users, promotion of road safety and management of road signs. The Ministry of Roads and Highways would find useful insights from this research to guide policy formulation in the design, installation and maintenance of road signs to improve safety during road construction. Driving schools, transport and driver unions will be guided on what should be emphasized in the training and operations of drivers of vehicles. For researchers, the investigation will uncover critical areas in the use of visual communication in road safety management in Ghana that can be explored further.

## **1.8 Scope of the Study**

This study focuses on the visual communication tools used NRSA in the promotion of road safety, as applicable to road users. It explores the nature and forms of visual communication, the semiotic application and the visual literacy of the Ghanaian road user and how they influence their intentions and actions in real life scenarios as against recommended actions. Geographically, the study was restricted to Ablekuma Central District of Greater Accra Region.

## **1.9 Limitation of the Study**

The limitations to this research include inadequate funds and time constraint to include a larger sample size that would generate more data for generalization of the conclusions. The COVID-19 epidemic would limit the number of people the researcher can contact to ensure his safety.

## **1.10 Organisation of the Study**

The research is divided into five chapters. Chapter One introduces the research topic. It details the problem statement, objectives, research questions, significance, scope, limitations and organisations of the study. Chapter Two reviews selected literature on communication, visual communication and road safety and establishes the relationship among them. Chapter Three describes the methodology used to answer the research questions. Chapter Four presents the methods used to collect the data, data collected and analysis of the data. Chapter Five presents notable conclusions and makes recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section reviews academic and other literature related to the concepts of development and the key role of communication in development and links them to road safety in. It begins by setting development within relevant theoretical frameworks of modernization and alternative development. It is followed by a review of key concepts and issues related to communication and its usefulness in promoting behaviour change and development. Visual communication is looked at as a tool for communication and its usefulness to communications considered. The key theories and concepts are then lined to road safety interventions as part of development in Ghana and the way the National Road Safety Authority applies visual communication in road safety management.

#### **2.2 Theoretical Framework**

Three main theories underpin this study. They are: the modernization theory, alternative development theory (ADT) and the social learning theory (SLT).

##### **2.2.1 The Modernization Theory**

Societies have been evolving and the process of development brings changes to the economic, sociocultural and technological structures of society. The issue of how development has to be carried out has been highly debated from different perspectives, and until recently, development was classified into the dominant view and the opposing view (Mefalopulos, 2008). Mefalopulos (2008) explains that the dominant view saw the process of development as an effort and mission under the guidance of richer and more developed countries to guide poorer and less developed countries to achieve steady economic growth by helping them to overcome ignorance. The opposing camp, being highly critical of the predefined models of the dominant view that often ignored local knowledge, needs and realities in the poorest countries, were however not unified under a single alternative model. The first camp gave rise to the modernization theory.

Post the Second World War, the formation of the United Nations (UN) led assistance to developing nations to overcome challenges of their colonial past and of wars. The UN sought to achieve this by leading a development agenda that harnesses relations among sovereign states. Servaes (2002, p.3) highlights that the cold war that followed the Second World War, initiated a tussle between the USA and the former Soviet Union as they both tried to expand their systems, ideologies and other interests to the developing nations. So (1991) identifies three main historical events led to the modernization theory's dominance: first was the emergence of the United States as a super power at the time Western nations such Great Britain, France and Germany had been weakened by the world war; second was effort by the former Soviet Union to spread a united world communist movement that was gaining acceptance in Eastern Europe, China and Korea; and third was the birth of many new nation-states in the Third World, resulting from the disintegration of European colonial empires in Asia, Africa and Latin America, that were in search of a model of development to enhance their political independence and improve their economy. Servaes (2002) postulates that whiles the USA was committed to defining development and social change as the replica of its own political-economic system and opening the way for transnational corporations, at the same time, developing countries were being attracted by the model of a centralized state with careful economic planning and centrally directed development bureaucracies of the North Atlantic Nations.

The modernization theory views development as a unilinear, evolutionary process with observable quantitative differences that distinguish between poor and rich countries, and traditional and modern societies (Servaes 1999). It calls for the abandoning of traditional beliefs in order to embrace new attitudes and behaviours that favour innovation and modernity (Lerner 1958) at the cultural level; belief in scientific methods and the principles of enlightenment at the technocratic level; liberalism based on political freedom and democratic systems at the political level; and a blind faith in the free market system with no or minimal government intervention at the economic level (Mefalopulos, 2008). Servaes (2002) posits that the theory is mainly economic-oriented and characterized by endogenism and evolutionism.

The interventions applied by the modernization theory presents an evolutionary path to development, employing the one-way sender-message-channel-receiver (SMCR) model of communication (Mefalopulos, 2008). It relies heavily on the mass media as the channel to diffuse its messages targeted at the people in the poor states. The communication model is

linear, vertical or one-way perspective. Communication theories such as ‘diffusion of innovations’, the ‘two-step-flow’, or the ‘extension’ approaches are associated with the modernization theory (Servaes, 2002; Servaes, 2008).

Robert White (1988:9), cited in Servaes and Malikhao (2008) states that the most significant dimension of this theory in developing countries led to rapid improvement of the transportation network which linked rural communities to market towns and regional cities, improved transportation and sources of electric power, opened commercial consumer supply networks, stretching out into towns and villages, and carried with it the Western culture. Despite the gains, the modernization paradigm received strong criticisms. Critics argued that the modernization paradigm ignored the complexity of the processes of change as it paid little attention to the consequences of economic, political, and cultural macro-processes on the local level; carrying along with it the whole Western tradition of evolutionism and functionalism (Servaes and Malikhao, 2008). Reyes (2001) concurs that it was a diffusionist theory that sets on course homogenising Europeanization or Americanisation process and produces the tendency of resemblance among nations. Challenges to this Euro- or ethnocentric perspective on development by Latin American social scientists gave rise to alternative theories to development such as the dependency theory, the world-view theory and more recently, a participatory approach to development.

The modernization theory presents an ideal path of development. It presupposes that others have to follow an already charted path towards development by changing aspects of who they are and thinking like those who are ahead of them. The less developed areas, in this case, have to pick the blueprint of developed regions and use them as ideal standards of development. The modernization theory, though originally applicable to nations, is still applicable to development approaches within countries. Decision-makers, often found in richer metropolis and cities, initiate development interventions for poorer towns, cities and villages with the diffusionist mind-set, expecting those at the lower end of what is perceived as development to abandon their systems and methods and adopt new behaviours, beliefs and systems that may be sociocultural alien to them.

As part of development, Ghanaian communities are being provided with relevant infrastructure such as roads. The expansion of Ghana’s road network, supported by the nation and foreign direct investment, continues to see more improvement in the country’s road network. The

modernization theory's approach to development however, does not present an ideal situation of improving the general well-being of the people. Focus on infrastructure, economic targets, science and adoption of behaviours considered relevant to modernization does not allow for participation by the stakeholders of the interventions, mostly from the communities. The mere presence of infrastructure, such as roads, foot bridges, etc., for all their economic benefits and usefulness in aiding movement by connecting villages, towns, cities and even countries within the West African Sub-Region, does not guarantee the desired behaviour and attitude change from the road users. The sociocultural and historical practices of the local communities must be considered in planning development to their benefit. This can be done effectively by involving them at different levels in the initiative.

The approach of this theory in road projects in the country sees their planning, financing and implementation being carried out at the national or a centralized level for local communities with the view that it will better their state and they will use them effectively. Some of these communities only become aware of road constructions planned for them through the media or when they see heavy machinery moving earth for road constructions and bridges to begin. In the end, the roads will be constructed and road signs installed on them without the members of the community understanding the meaning of the signs. They may find such interventions as helpful to their way of living, but in trying to adapt the roads to their convenience, expose themselves to danger by using the roads wrongly.

### **2.2.2 The Alternative Development Theory (ADT)**

At the beginning of the 1970s, new perspectives on development and communication gave rise to alternative theoretical frameworks on development. The dependency theory (and the world-system theory), though rooted in a political-economy perspective, represented an example of a major alternative theoretical framework (Mefalopulos, 2008). The alternative models of development generally emphasize on participation in development projects; drawing on feminism, environmental sustainability, and participatory approaches (Mitchell, 2017). The focus on people-centred approaches to development is to emphasize agency; that is, the capacity of people to create social change themselves (McLennan, 2012). Pieterse (2010), cited in Mitchell (2017), opines that since the 1970s, alternative development has encompassed practically any kind of criticism of the mainstream concept of development, including issues such as 'anti-capitalism, green thinking, feminism, eco-feminism, democratization, new social

movements, Buddhist economics, cultural critiques, and even the post-structuralist analysis of development discourse’.

Odoom (2021) postulates that where states are unable to meet the development needs, create enabling environments that help citizens to improve their lives, or effectively include disadvantaged groups in existing state institutions, alternative channels of service provision and or holding governments to account must be found. ADT is concerned with redefinition of the goals of development through alternative practices that engender empowerment, participatory and people-centred development and has its locus in grassroots movements, urban and rural communities and the informal sector (Makuwira, 2017, pp. 281-282). Mefalopulos (2008) opines that development efforts have been varied from the solely economic-centred approaches and refocused to increasingly engage stakeholders and pay attention to aspects of social life that were previously neglected; such as culture, education, and so forth. Alternative development focuses on identifying alternative ways of intervening and managing development processes (McLennan, 2012). Through participation, alternative ways of development offer a broader store of knowledge, present more enriched perspectives and conceptual frameworks, and provide more tools to work with (Mitchell, 2017).

There are however varying degrees of participation in development. According to the World Bank (1995), participation may take either low-level forms or high level-forms. Low-level forms of participation involve information sharing or consultation with stakeholders. High-level forms of participation involve collaboration or empowerment of stakeholders. Mefalopulos (2003), cited in Mefalopulos (2008) classifies the levels of participation in a development initiative as follows:

1. Passive participation: when stakeholders attend meetings to receive information
2. Participation by consultation: that is when stakeholders are consulted but the experts make the decisions
3. Functional participation: when stakeholders are allowed to make some input but not in equal partnership, and
4. Empowered participation: when relevant stakeholders have an equal influence on the decision-making process and partake throughout the life cycle of the development initiative.

Servaes (2002) states that the communication media, in the context of development, are generally used to support development initiatives by the disseminating messages that encourage the public to support development-oriented projects. This is in contrast to how the media is used in the dominant view. The modernization theory uses an approach that involves a process of diffusion where the mass media is used to spread awareness of initiatives and interventions (Reyes, 2001; Servaes, 2002; Mefalopulos, 2008). The participatory alternative to development on the other hand, based on the emphasis on collective involvement in development, makes use of dialogue to enhance participation. The communication model is horizontal and includes feedback. Emphasis is laid on “the importance of cultural identity of local communities and of democratization and participation at all levels—international, national, local and individual” (Servaes, 2002). Distinct development communication approaches and communication means are identified within organizations working at distinct societal and geographic levels and used (Servaes, 2008).

The Alternative Development Theory pursues a participatory approach to development interventions, in sharp contrast to the one-way approach of the modernization theory. The various development models and approaches aim at addressing the weaknesses in the dominant theory and not necessarily to change the goals of development. The redefinition of goals are meant to include distinct sociocultural, historical and geographical factors that allow for the inclusion of the marginalised in planning development initiatives. Stakeholders’ needs are addressed more distinctly as the alternative development theories and models allow for the sharing of ideas, consensus building and empowerment of stakeholders to own and participate in interventions. Such models engage local organizations and draw on the strengths of NGOs. Alternative development theories makes use of different communication models in the process to enhance participation and localisation of development, preferring the two-way horizontal communication model to the one-way vertical model.

Interventions in road safety ought to involve the end-users of roads. The issues of road safety and communications used must be localized to communities based on research. Participatory approaches that aim at empowering road users will ensure the success of road safety interventions and lower the high rate of road accidents in the country. The National Road Safety Authority, in partnership with local organisations and NGOs, can target the needs of communities more directly and distinctly, drawing their interest and commitment towards road safety practices. Communication research and strategies involved in such initiatives, including

road safety campaigns, can help deal with the challenges associated with road accidents at more distinct levels such as age, sex, education level, and more.

### **2.2.3. Social Learning Theory (SLT)**

The main proponent of the Social Learning Theory is Albert Bandura. SLT explains the learning process and social behaviour as a function of a cognitive process that takes place in a social system. It posits that new patterns of behaviour can be acquired through direct experience or by observing and imitating the behaviour of others. Through a process of differential reinforcement, a behaviour can be selected or discarded based on the rewarding and punishing consequences that follow any given action that is observed. This process is known as vicarious reinforcement. According to Guesec and Joan (1992), the tenets of SLT are as follows:

1. The process of learning is a cognitive process that takes place in a social context
2. Learning can take place by observing and the consequences of that behaviour, i.e. vicarious reinforcement
3. The learning process involves observing an action, extracting information from the observation, and making decisions about performing that behaviour. In observational learning or modelling, learning can still take place without observing changes in behaviour.
4. The learner is not a passive recipient of information as cognition, environment and behaviour influence each other; a process known as reciprocal determinism.

SLT postulates that learning is carried out through observation, imitation and modelling.

Bandura highlights that learning also occurs through observing others, aside the learner's own experiences. During the process of learning, people observe differential consequences that accompany their own actions and the actions of others. Observation helps the individual to form thoughts and development hypotheses about a behaviour through reinforcements which also tend to motivate behaviours (Bandura, 1971). However, learning can still occur without a person carrying out a behaviour. The notion of reciprocal determinism, which implies that a person's behaviour is influenced by the environment and the environment is also influenced by a person's behaviour is key. For example, when a person uses a product that gives him satisfaction, he or she is likely to tell the friends about the product. The friends may try the product too and a positive feedback from them to the person in question will reinforce the person's behaviour to continue using the product.

Bandura identifies three basic models for stimulating observational learning. They include

1. **A live model:** This is where a person demonstrates or acts out a behaviour
2. **Verbal instruction:** This where a person uses detailed descriptions and explanations to present a behaviour, guiding the participant in the process to engage in the behaviour
3. **Symbols:** This involves the use of real or fictional characters to depict behaviours in the media, including radio, television, online, books and other literature.

Four interrelated subprocesses influence the modelling of a behaviour. They are;

1. **Attentional processes:** Studies have shown that a person learns much by attending to or becoming aware of the features of what is being learnt. Merely exposing a person to an action does not ensure that they will pay attention to the details of the action. Reinforcements helps them to notice from the many characteristics of the action the most relevant ones and perceive them more accurately. Numerous factors impact an individual's attention. Aside the intrinsic characteristics of the individual, such as the perceptive and cognitive abilities, the characteristics of the model or phenomenon, such as associational preferences and relevance, affect attention.
2. **Retention:** An individual is less likely to be much influenced by a model's behaviour if they cannot remember the features of the behaviour. Representing patterns of behaviour in symbolic codes helps with recollection. These symbols can be in the form of visual images and verbal codes. Rehearsing is also important in retention as people who rehearse patterns of behaviour, either mentally or by performing them, are less likely to forget them.
3. **Reproduction:** Reproduction refers to overt actions that are carried out based on the symbolic representations or what the learner recalls. It does not necessarily mean the learner performs the same patterns of a model's behaviour. Reproduction is affected by the amount of component skills acquired by the learner, physical limitations (e.g. height, gender, age, etc.) and cues or verbal reports of onlookers in cases where actions of models are not easily observable.
4. **Motivation:** A decision to perform and learnt behaviour overtly is largely influenced by the learner's motivation to do so or refrain from it. When an action is received unfavourably or given a negative sanction, it is likely to act as a disincentive for the behaviour to be reproduced. Conversely, actions that receive approval or praise incentivize the learner to reproduce it.

SLT has been applied in many fields, such as, criminology (e.g. explaining deviant behaviour), developmental psychology (e.g. gender roles), school psychology (e.g. using repetition of phrases and imitation of actions), social change (e.g. use of cues in the media space), and so on.

The SLT explains how people within the social space acquire knowledge about behaviours and engage in new behaviours by observing others. Reinforcements in the form of rewards or punishments influence behaviours that are engaged by individuals within communities. It also highlights how a positive feedback from others influence an engaged behaviour to be repeated or become habitual. The tenets of SLT can be used to inform the distinct intervention strategies aimed at desired road safety behaviours within communities. By involving the members of a given community in development processes, communication strategies, for example, can be designed to effectively create the needed attention and motivate members of the community to engage desired behaviours.

The effects of reinforcements and reciprocal determinism can be used to harness the effectiveness of campaigns to ensure road safety. Legal enforcements, for example, can be used to discourage behaviours that endanger lives on roads whiles modelling can be used to stimulate desired behaviours.

## **2.3 Review of Concepts and Key Issues**

### **2.3.1 Development and Communication**

Many researchers and organisations express varied opinions on the concept of development. Most however agree that it is a multi-faceted endeavour. According to Odoom (2020, p. 40), development is an all-encompassing process that is aimed at improving the material and psychological well-being of a people. To him, development is not an event and does not focus only on material improvement in the lives of a given people. Development should therefore improve the psychological well-being of the people. In that sense, a people should not harbour anxious feelings or feel endangered by the ongoing provision of material development such as road infrastructure, hospitals, pipe born water, etc. Pokhariyal (2007) defines development as the spiritual growth and overall well-being of humans, also connoting that development goes beyond material and economic standards. The report on the Resolution Adopted by the General Assembly of the United Nations' Agenda for Development (1997, pp. 2-3) defines

development as a multidimensional undertaking to achieve a higher quality of life for all people. A higher quality of life includes access to and the meaningful use of facilities and services that promote the material, socio-economic, psychological, spiritual and general well-being of all people.

For development to take place effectively, the process includes the use of communication. McCall (2011, p. 1) stresses that communication processes are central to broader empowerment practices through which people are able to arrive at their own understanding of issues, to consider and discuss ideas, to negotiate, and to engage in public debates at community and national levels. Warren Feek (2006), cited in Servaes (2008, p. 14) asserts that no sustainable, effective social development takes place without a strong and independent voice in public debate, private dialogue and decision making fora by the people most affected and the people most immediately involved defining and agreeing the development agenda, being core components of the action. Communication helps members of a society to engage meaningfully with development partners to pursue a course of action intended for their general well-being. This process helps with the psychological and spiritual process of adopting an intervention to improve the quality of life. Development, therefore, should not be imposed on a people. Their participation at different levels of the process, from conception of ideas, assessment to implementation and sustenance affects how comfortable they feel psychologically and spiritually.

Communication, however, is made up of different concepts and application. Communication happens in different ways, forms and for different purposes. The term communication and communications are different. The singular form, “communication”, refers to a process and its related methods, techniques and media, the plural form, “communications”, refers to products used for communicating ideas, such as, audio-visual programs, posters, technologies, websites, etc. (Mefalopulos, 2008, p. 1). Different types of communication use different sets of skills, tools and techniques to achieve their intended goal(s). Development communication, political communication, corporate communication, journalism, advocacy and interpersonal communication are some examples of the types of communication. The process and set of related methods, skills and techniques of one type of communication is more likely to be ineffective when applied to another field.

Development communication, also known as communication for development (C4D) (Odoom, 2020, p. 40), is suited for pursuing participatory development. Jenatsch and Bauer (2016, p. 10) posit that development communication is a tool for social and political transformation that promotes participation and social change, using the methods and instruments of interpersonal communication, community media and modern information technologies. Odoom (2020, p. 41) postulates that C4D concerns itself with the meaningful use of communication methodologies, principles and techniques by stakeholders to bring about improvement in all aspects of people. C4D, among others, includes Behaviour Change Communication (BCC) and Communication for Social Change (CFSC). Kreps and Maibach (2008), cited in Adewuyi and Adefemi (2016, p. 110), identify BCC also as Social and Behaviour Change Communication (SBCC) and part of the study and application of communication strategies for promoting positive health outcomes. The United Nations agrees with the above assertion too. According to UNDP, BCC envisages individual change and social change as two sides of the same coin and is regarded as an essential element of many health-related programmes (2011, p. 7). BCC can achieve social change as more individuals in a given society adopt a recommended behaviour that leads to an improvement in their general well-being and safety. Both emphasize two-way communication to ensure participatory development where members of the society wilfully make adjustments to their behaviour through purposeful interventions to ensure development.

### **2.3.2 Models of communication**

Communication has been used as a very important tool in influencing behaviour change towards development. Odoom (2020) asserts that social change is one of the key issues of any communication systems. There are two main models presented in development communication; they are the monologic and dialogic models. The monologic or linear or one-way model follows the Sender-Message-Channel-Receiver (SMCR) formula where the sender is the one generating the idea, the message being the encoded idea, the channel being the means by which the encoded idea is transmitted and the receiver being the one who decodes the message. The SMCR model, developed by Berlo (1960) was to refine other communication models that had been developed before it. Laswell's model, developed in 1948 is an example. Laswell's model presents five questions to illustrate the process of communication. It asks; WHO says WHAT through which CHANNEL to WHOM and with what EFFECT? Both Laswell's and Berlo's models however, follow the linear format of communication. They express a one-way flow of information from a source to a recipient or group of people. The element of feedback is not included in the process.

The second model, referred to as the dialogic or two-way model, uses dialogue as part of the process of communication to engage key stakeholders in uncovering perceptions, risks and opportunities, and to build a wider consensus leading to change (Mefalopulos, 2008). This communication model is horizontal and cyclical and incorporates feedback from the recipient. This in contrast to the vertical nature of the monologic model. The dialogic model can also be multidirectional. The model may be interactive or transactional. The process is interactive when there is feedback from the receiver who then becomes the sender of the feedback and follows the SMCR formula back to the original sender. In this case, the original sender becomes the receiver when feedback is given. The dialogic model is said to be transactional when communication happens many times in an interpersonal manner with repetitions of interactions.

**Table 1: Basic Features of Communication Models**

	<b>Monologic Mode</b>		<b>Dialogic Mode</b>	
Compare and contrast	Communication to inform	Communication to persuade	Communication to assess	Communication to empower
Main purpose	To raise awareness or increase knowledge of key audiences	To change attitudes and behaviours of key audiences	To assess, probe and analyse the situation	To involve stakeholders in decisions over key issues
Model of reference	One-way model (Monologic)	One-way model (Monologic)	Two-way model (dialogic)	Two-way model (dialogic)
Preferred methods and media	Predominant use of mass media	Predominant use of mass media	Wide range of methods to investigate issues	Use of dialogue to promote participation

Source: Mefalopulos (2008)

Communication approaches to development are largely situated within two views: diffusion and participation. These two views in themselves reflect the two models of communication. The monologic model is basically associated with diffusion. It is rooted in the one-way transmission model whose scope involves communicating messages and information to “sell a product” or to induce needed change (Mefalopulos, 2008). Information is generated from a sender and is transmitted to a recipient (or recipients) who are expected to receive the information. The flow is one directional: from the top to the down. It is vertical in nature and typical of the communication model of the modernization theory. Development is viewed as modernization and communication as one-way persuasion through the diffusion of innovations, the two-step-flow, and other ‘social marketing’ strategies of behaviour and social change directed at ‘underdeveloped’ people (Servaes, 2002). It is used to inform, persuade, instruct

and transfer knowledge and principles. It relies on the media with belief in its ability to persuade the masses.

Communication is often focused on emphasizing its dialogical and analytical functions (Odoom, 2020). The linear communication model, in more recent times, is not pervasively dominant, but rather, is complemented by the two-way circular model where the sender is at the same time the receiver and vice versa, hence a shift from the focus on media to people and from persuasion to participation (Mefalopulos, 2008). Participatory development lays emphasis on the two-way dialogic model of communication where the stakeholders of development interventions exchange information at different levels. Communication is used to engage the targets of social change in a more meaningful way so as to improve participation and sustenance through collaboration, social mobilisation and empowering of stakeholders. It can be effective when consideration is given to the audience to be reached, channels to be used and creation of opportunities for dialogue (Jenatsch & Bauer, 2016). The participatory model views people as the controlling actors or participants for development and makes use of communication to educate and stimulate people to be active in self and communal improvements (Servaes, 2002). This process allows for marginalised voices to be heard in the designing of interventions and formulation of policies.

### **2.3.2.1 Communication methods and techniques**

Communication takes place verbally or non-verbally. Verbal communication uses words and can be presented orally or in a written format. Oral communication takes place when the sender speaks to the hearing of the audience or receiver. It can be done face-to-face or via a medium such as the telephone, radio, television or the internet. Written forms of communication involve sending textual messages from a sender to an audience. E-mails, SMS and letters are examples of written communication.

Non-verbal communication involves other means of sending information to a receiver or group of receivers rather than using words. They involve the use of images, sounds and movements. Pictures and visual symbols are examples of images used in communicating messages. The siren of a fire tender or ting of a microwave oven communicate messages to people using sound. General body gestures communicate meanings to others; for example, a smile connotes happiness whereas a frown connotes disapproval and can reinforce a behaviour as a reward or

to or discourage it respectively in another. Sign language is a more conscious encoding of meanings that is also used to communicate.

Whatever method is used to communicate must factor all aspects of the communication process to make it effective. Jenatsch and Bauer (2016) posit that a communication tool is only the starting point for a communication process, and although the technical quality of the tool is an important factor, it does not guarantee a good communication process by itself. The process must be carefully thought through and applied.

### **2.3.3 Visual Communication and Behaviour Change**

Visual communication is one of the tools used in Behaviour Change Communication. Its relevance is highlighted by Cunningham et al. (2017) who states that the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project relies on images for the purpose of modelling behaviour and motivating individuals, families or communities to try a new behaviour and, ultimately, to adopt the behaviour or behaviours being promoted by the project. Lester, as cited in Ondimu (2012), defines visual communication as the use of visuals such as photographs, cartoons, drawings, images, graphics and other representations of people, places and things to pass information. Visual communication is a unique area in the field of communication. Perhaps Messaris (2003) states it best as follows:

“Interest in visual issues appears to be growing among communication scholars... As it seeks to differentiate itself from other scholarly areas with similar purviews (such as mass communication or cultural studies), the study of visual communication is increasingly confronted with two major issues. First, on a theoretical level, visually oriented scholars need to develop a sharper understanding of the distinctions among the major modes of communication (image, word, music, body display, etc.) and a clearer appreciation of the specific role that each plays in social processes. Second, on the research front, there is a need for more sophisticated ways of exploring visual meanings and investigating viewers' responses to images.”

Pauwels (2008) asserts that visual images, produced through modern imaging techniques, “fulfill an important role in the management and control activities in society (ranging from traffic speed monitoring to the shaping of 'worldviews') and are indispensable for the transfer of information and knowledge, leisure, economic activities.” In this regard, as a tool in C4D, visual communication can be used to communicate, manage, control and sustain behaviour

through the sharing of meanings that can be decoded by the intended viewership. Lester (1995, p. 73), cited in Pettersson (2021) advances that: “Visual messages are a powerful form of communication because they stimulate both intellectual and emotional responses—they make us think as well as feel.” Their ability to stimulate thoughts and engage our emotions make them useful in stimulating desired behaviours.

Visuals do not focus on words. They do not always contain words but can have words in them. The words do not form the emphasis of the visual communication medium (Ondimu, 2012). The use of visuals in communication adds something valuable to the intended message and meanings derived from it. Visage Inc. (2017) posit that the human brain quickly recognizes, stores and recalls images seamlessly, and subconsciously cements ideas in long-term memory through the visual system. This helps with recollection of themes, concepts and principles. Pettersson (2021), adds that visual communication is not limited by grammar, tongue, or vocabulary. This is very much unlike text or spoken language whose meanings can be decoded only when the audience understand or are familiar with the words. It makes the use of visual communication very relevant in societies with a heterogeneous population of different literacy levels and multiple languages such as Ghana. It however does not make visual communication perfect in itself. Decoding visual information also comes with some measure of familiarity with the images and concepts used. In other words, the viewer’s visual literacy counts in interpreting the message inherent in the visual communication.

Visual literacy is an adjunct to our language skills through the plethora of symbols that we use daily, a realm beyond alphabets and numbers (Whitcomb, 2001, p. 17). Visual literacy is not static. It evolves alongside information literacy and media literacy, reflecting cultural, educational, social, and technological changes in society (Pettersson, 2021, p. 161). It evolves according to the experiences of people and their ability to determine that a symbol represents something. Visual communication takes place within socio-economic, cultural, developmental and environmental elements influencing the response of different audiences (Mbananga & Becker, 2002). The visual media reflects and creates societal reality, offering as best as possible, versions of a reality that can never be fully grasped and known (Pauwels, 2008, p.79). Viewers therefore must be familiar with elements within the visual communication, either from their environment, socio-economic experiences, culture, education or exposure to some form of technology to make inference from forms and substance expressed in the material. Designing a message to be communicated through visual perception therefore needs to take into

consideration the reality of the intended audience to make use of elements that can be juxtaposed to real life events or phenomena to make meaning to the viewer. It is however important to note that the constant and evolving experiences of people helps with perceiving components of an image than for a heterogeneous audience of different backgrounds, languages and education to decode text or speech expressed in one language.

Bowen (2017) cited in Pettersson (2021, pp. 174-175) proposes five levels of assessment criteria for describing visual literacy competency that may also be useful for developing scales for assessing competency at different levels. They are;

1. Recognition of Representations: Looking at images and being aware that they represent creatures, events, objects, people, places and things in the world.
2. Identification and Narration: Understanding that images can be used to illustrate a story about an activity or event, a moment or interactions.
3. Interpretation and Analysis: Reading images and gaining perspectives in ways that words alone may not.
4. Manipulation and Recreation. Understanding affective implications of images in a critical way. That is, people can reuse, recreate, and redistribute affective implications of images, and create their own narratives and they can retell stories from new perspectives.
5. Conceptualization, Creation, and Intertextual presentation: The capacity to understand and apply visual rhetorical concepts. People can critically analyze different visual representations, articulating and rationalizing decisions they make about contextual positions, image selection, and manipulations.

Bowen's five levels of assessment criteria for describing visual literacy competency is a useful guide to conducting research into how an audience construct meanings from visual materials used in C4D and other campaigns.

### **2.3.3.1 Types of visual communication**

Visual communication can take many different forms. Guo, Wright, and McTigue (2018), cited in Pettersson (2021), identify nine (9) types of visual communication. They are comic strips, diagrams, flow diagrams, general images (e.g cartoon illustrations, realistic illustrations, computer enhanced photographs, screen shot images, and X-ray images), graphs, maps, photographs, tables and time lines. Levin et al. (1987) assert that the different types of visuals

perform five functions. They may perform a *decorative* or ornamental function without adding any real meaning to an information; *representational* function by providing concrete and literal meanings to abstract concepts; *organisational* function by categorizing information in text, e.g. tables; *interpretational* functions to help with comprehension e.g. directional maps; or a *transformational* function by recoding information into memorable forms.

Theoretically, visuals can be categorized into pictures and symbols according to their effects and functions or a combination of their effects and functions (Pettersson, 2021). Pictures or photographs are representations of reality. In a picture, a tree can be seen as a tree just as it appears in reality. Symbols, on the other hand, are shapes and colours that have overtime and usage, been used to represent something (Whitbread, 2002). Examples of symbols are road signs, logos, pictograms and star rating systems. Agrawal, Deshpanday, and Sinha (1987), cited in Pettersson (2021), postulate that symbols are a part of a whole belief system and links the past to the present, and the future. Their meanings are based on the appearance of their shapes, such as a silhouette of a cattle or a child on a road sign, or constructs ascribed to them to represent some concept in real life such as star ratings. Photographs or symbols or a combination of both may be used in a visual communication together with some text in some cases.

Improvements in visual technology has liberalized the making (generation and reproduction) and viewing images. Pauwels (2008) argues that power of the visual media to reflect and create societal 'reality' allows for conscious or unconscious decisions by the senders (producers, demander) that ensure a particular representation of 'reality'. Pauwells adds that that may possibly be one-sided or biased according to the medium chosen's characteristic expressive and mimetic possibilities and limitations. Visuals can be reproduced and distributed by printing of hard copies (posters, brochures, banners, etc) or using the digital and electronic means (e.g. television ads, websites, emails and social media).

### **2.3.3.2 Use of visual communication in road safety**

Images and visuals fulfil an important role in management and control of social activities (Pauwels, 2008). Vaa et al (2008), cited in Delhomme et al. (2009), define road safety campaign as “purposeful attempts to inform, persuade, and motivate a population (or sub-group of a population) to change its attitudes and/or behaviours to improve road safety, using organised communications involving specific media channels within a given time period, often

supplemented by other safety-promoting activities (enforcement, education, legislation, enhancing personal commitment, rewards, etc.)” This purposeful pursuit must be carefully planned and carried out to achieve the desired outcome. The main focus of road safety campaigns is to change the behaviours that are likely to cause accidents on the road. Delhomme et al. (2009) posit that communication campaigns about road safety can have as many as the following as the main goals:

1. Provide information about new or modified laws.
2. Improve knowledge and/or awareness of new in-vehicle systems, risks, etc. and of appropriate preventive behaviours.
3. Change underlying factors known to influence behaviour.
4. Modify unsafe behaviour or maintain safety-conscious behaviour.
5. Decrease the frequency and severity of accidents.

Campaigns of this nature usually involve the use of the mass media, aside other means. In doing so, Delaney et al. (2009), identify a variety of elements that influence the effectiveness of these campaigns, including the target behaviour and audience, message and campaign characteristics, links with enforcement and legislation, and institutional management. In identifying the target behaviour and audience, a data driven and systematic approach should be used by examining several different sources of data such as crash statistics, traffic offence data, behavioural observations, household surveys, and focus groups (Wundersitz et al, 2010). The audience are the most important of these elements as they are expected to adopt new behaviours. They must be considered in great detail in designing the message. Whitbread (2002) highlights that in profiling the audience of a communication, the following must be considered: the age—and implied cultural influences and education levels; life experiences—and family backgrounds; language; visual literacy—comprehension level of symbols and metaphors.

Research reports show that campaigns on road safety are targeted at a wide range of behaviours. Some of the common target behaviours include drink driving, speeding, seatbelt usage, use of mobile phones while driving, fatigue, use of helmet by bicycle riders, motor cycle safety and pedestrian behaviour. Others include drug driving, young drivers. Delaney et al. (2004) in their review of mass media campaigns in road safety, highlight other reviews done in the area of road safety by Elliot (1993) who evaluated 87 campaigns targeting six areas of road user behaviour: vehicle restraint usage, drink driving, bicycle helmet usage, motorcycle safety, pedestrian behaviour and speeding behaviour; INRETS (1999) who evaluated 265 campaigns

conducted outside of Europe, particularly in North America, Australia and New Zealand; and the Victorian Transport Accident Commission's (TAC) road safety program which included advertisements with additional road safety themes to drink-driving and speeding. The campaigns involved use of the mass media. Visual communication was used as a tool to present messages to the target audience and as cues to behaviour change.

Although road safety campaigns are directly targeted at behaviour change, visual communication in road safety is not limited to campaigns only. Road signs use symbols carrying messages for road users to direct their actions. The symbols include the use of shapes and colours. It is common to find silhouettes of children, cars and animals; shapes of rectangles, triangle, octagons and circles; as well as colours such as red, yellow, white and blue being used on road signs. Akple and Biscoff (2012) state that the purpose of a road sign is served when the road user effectively recalls the sign, and follows that by a conscious effort to apply the message conveyed by the road sign. Road signs convey meanings that road users must recall and apply as they move on roads to ensure their safety and the safety of other road users.

### **2.3.3.3 Challenges associated with the use of visual communication for behaviour change in road safety**

Our senses pick many things from the environment. With the abundance of many different elements in the environment that can potentially catch our attention, a visual that is meant to communicate behaviour change must first attract the attention of the viewer. The attention of the viewer can be drawn to the content of a message, or the execution of the message, or the context in which that message is presented, or to the actual format or medium that carries the message (Barry, 2002 cited in Pettersson, 2021). The choice of a medium or channel the visual message is used to communicate must be informed by the target audience's ability to notice the visual. An important consideration is termed by Delhomme, et al. (2009, p. 122) as aperture, that is, the opening. They explain that the aperture, or attraction, is related to the target audience's general habits and interests such as leisure activities, mode of transportation, etc., and to the audience's media preferences, that is which media channels they use at which moments. In the case of road signs, the positioning of the sign along the road makes it noticeable or not. The visual must be well designed to attract and sustain the attention of the audience. According to Whitbread (2002), a good and effective design is described as the organisation of material which communicates information to a selected audience or receiver using the visual language most appropriate to that person, the information itself and the

information source. If a visual does not catch the intended audience's attention, it is not likely that they will consider it.

Another significant challenge with the use of visuals in communication is how it affects the clarity that the audience obtain. This is based on their visual perception. Visual perception plays a key function in our daily lives and in our understanding of the world (Pauwels, 2008). Visual perception is a multidimensional process involving the sensing of information, use of real and genetically acquired past experiences and processing of information along dual pathways (Pettersson, 2021). For a person to relate well with an image, the person's perceptive ability and competency come into play. The audience will not be able to clearly understand the message if they do not obtain clarity from the visual design of the message. Visual literacy plays a key role in visual perception. Pauwels (2008) states that visual literacy is a multifaceted process that requires learning to look more consciously at visual manifestations of reality, and of societal phenomena in particular; learning to understand various forms of images and visual representations (etchings, paintings, photographs, film, maps, graphs, scans) and areas of application (advertising, art, reporting, training, science, etc); being able to place images and visual representations in a broader context of production and consumption; and becoming aware of the personal and cultural colouring in visual reflection and action. Visually literate people are more likely to perceive visuals much better than the visually illiterate.

Mere perception of the visual messages do not guarantee appropriate responses. Other factors can influence the effectiveness, or non-effectiveness of visuals in stimulating behaviours in road safety campaigns that are external to the visual communication. As identified by Delhomme et al. (2009) other safety-promoting activities such as enforcement, education, legislation, enhancing personal commitment, rewards, etc. affect the effectiveness of road safety campaigns. The concept of reinforcement plays a key role. The self-efficacy of the audience to engage the target behaviour is equally important. An audience with high efficacy is more likely to engage the behaviour than an audience with low efficacy (Wundersitz, Hutchinson and Woolley, 2010). This is aside a visual's attractiveness, well couched message and the audience's high perceptive and literacy level. For example, a study by Fisher (1992), cited in Akple and Biscoff (2012) indicated that a driver's recollection of a road sign was a reliable indication of whether the driver reduced their speed or obeyed the sign as many drivers who reduced their speed after passing a warning sign were unable to recall whether they had seen the sign 100m earlier.

#### **2.3.4 Road Accidents in Ghana and the Role of National Road Safety Authority**

Ghana is pursuing a development agenda through the expansion and improvement of its road network. This mainly falls under the Ministry of Transport and the Ministry of Roads and Highways. In order to ensure safety and minimize the threats of these development projects, the National Road Safety Authority (NRSA), under the Ministry of Transport, has been given an authority status from the previous commission status. The National Road Safety Commission (NRSC) by an Act of Parliament (NRSC 1999, Acts 567) was established to plan, develop, promote and coordinate policies related to road safety. The National Road Safety Authority Acts, 2019 (Acts 993) which received Presidential Assent on August 2nd, 2019 repeals the former Act and empowers the Authority to regulate, ensure implementation and enforcement of road safety standards and procedures.

According to NRSA's website, in the previous two decades of its mandate, the NRSC discharged the task of increasing general awareness for road safety, worked towards stabilizing the trend of road traffic crashes and reducing the fatality rate among others through research, data-led campaigns and other innovative measures such as the teaching of road safety in schools, use of lollipop stands among others. However, the mandate excluded exacting obedience to road safety standards and procedures. At best, the NRSA offered advice and made recommendations where breaches to road safety standards and procedures resulted in casualties. The new authority status empowers the NRSA to issue compliance notices to institutions or organizations who breach road safety standards and procedures in the construction of roads, leaving construction materials on the roads, wrong siting of billboards, etc. (<http://nrsgovgh.com/index.php/about-us>).

Road accidents have however been on the rise, despite the pursuit of this development to improve movement and support economic activity in the country, and the new status of NSRA. The effects of road traffic injuries cause significant economic losses to individuals and their families and countries all over the world including cost of treatment, loss of productivity and valuable working time for victims and relatives, loss of skilled labour force, and loss of school hours (Konlan, et al., 2020). Within the first four months of 2021, Ghana recorded over 2500 road accidents and over a 1000 deaths, making Ghana's roads more fatal than the deadly COVID-19 epidemic that had caused about 800 deaths between 12th March, 2020 and 14th May, 2021. The relatively high figures of road accidents give a cause for concern about the current behaviours of Ghanaians on roads that contribute to the accidents. In 2019, road traffic

accidents accounted for 62% of deaths at the casualty unit of the emergency department at Korle-Bu Teaching Hospital in Accra with 50% occurring in pedestrians and 31% in passengers (Blankson et al., 2019).

As part of the NRSA's efforts to promote road safety practices, the authority employs visual communication tools in the form of road signs and other visual materials in sending out campaign messages such as posters, stickers, etc. Road signs in particular have a very important role in communicating recommended actions wherever they are used. We use a whole different language based on simple geometric shapes and colour when driving (Whitcomb. 2001, p. 17). These geometric shapes and colours communicate meanings to drivers. For example, a red octagon on a road sign means stop, a red circle means stop and a green circle means go; road signs in the shape of equilateral triangles send warnings, and signs in circular shapes communicate regulatory messages. These shapes are sometimes combined with others or with text to send more holistic messages to road users for their action. Aside road signs, campaign ads are designed to further communicate with road users on different platforms.

The rise in the use of social media by Ghanaians offers an alternative platform by which NRSA can extend campaigns messages, using visual communication to educate and inspire behaviour change in a relatively less expensive way, as compared to using the traditional media. Social media is utilized for health communication in a myriads of ways and has become easier for healthcare industry players to connect and interact with their clients (Adewuyi and Adefemi, 2016, p. 111). They add that social media is participatory, socially engaging, and reciprocal. This makes social media a good medium for engaging members of the Ghanaian society on road safety related behaviours. The active use of social media by the NSRA, using visual communication tools, can help engage Ghanaians who are spending more time on social media to adopt positive behaviours on roads.

## **2.4 Empirical Review**

Several studies have conducted on the use of visual communication across the world and visual communication in road safety campaigns, in particular. In a study report on behalf of Radi-Aid project on the topic "Visual Communication in Six African Countries", Girling (2018) and his supporting team of researchers sought to find out how beneficiaries of aid in African countries perceived the imagery used in different International Nongovernmental Organisations (INGO)

campaigns. The central element of the research was to explore whether participants preferred 'positive' or 'negative' images. They identified positive images as those with the aim of providing evidence of the positive effects that actions of donors have on the recipients of aid, e.g. the image of a person smiling indicating a success story of someone who had previously suffered. Negative images, on the other hand, aim to focus on the suffering of aid recipients, e.g. an image of a person expressing sadness in a crisis situation such as war or famine. The Radi-Aid research project was conducted in six sub-Saharan African countries: Ethiopia (Oromia Region), Ghana (Bawjiase), Malawi (Lilongwe), South Africa (Johannesburg), Uganda (Kampala) and Zambia (Lusaka). Focus groups were used to collect primary data between July 2017 and July 2018. 12 focus group discussions were held, 2 in each country with a total of 74 participants; 36 females and 38 males. The participants cut across different ages. Each focus group was audio recorded and the transcript was translated.

Ten adverts that were carefully selected, based on their visual representations of people in African countries, combined with textual messages reaching out to the public calling for attention used in INGO campaigns were used in the focus groups. They included adverts by Amnesty International, CARE, Cordaid, the Disasters Emergency Committee, Dubai Cares, Oxfam, Save the Children, UNICEF and War Child. The adverts were. In addition to that, the researchers made mock adverts depicting the same child photographed in the same location with different facial expressions: one happy, one neutral and one sad. The mock adverts had the same descriptive text but with a different expression in each. Of the 59 respondents, the 46% preferred the sad image, 39% preferred the happy one and 15% preferred the neutral image. Majority of respondents demonstrated a high level of visual literacy and recognised that negative imagery is used to prompt emotional reactions that result in increased donations. 71% of the respondents felt that the images used in the campaign ads were accurate and were of the view that they would prefer campaigns ads that address challenges with health (15), education (13) and then water and food security (7).

The Radi-Aid research project was not centred on road accidents and the population size is not large enough for generalization, however, it offers some interesting insights into how target audiences of campaigns perceive and feel about visual materials intended to carry messages to them. From the research project, issues relating to the health of the respondents, which can include road safety because of its potential effect on a person's health when not assured, proved to be of great concern to poor communities in developing countries. With the majority of

respondents preferring sad images, visual materials can be carefully designed to appeal to the emotions of people in order to stimulate desired behaviours in the use of roads.

In the “Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns: Part I; Campaigns and Awareness Raising Strategies in Traffic Safety”, Delhomme et al (2009) sought to “provide a detailed and practical tool that can be used to design, implement and evaluate road safety communication campaigns. The manual uses theoretical backgrounds and offers practical guidelines as to how to carry out campaigns on a national and international level as it is aimed at both researchers and practitioners involved in designing and implementing road safety communication campaigns all over Europe. To them, from a pragmatic point of view, road safety campaigns can have the explicit or implicit goal to inform road users of risky behaviours identified by authorities in addition to the following five main goals:

- To provide information about new or modified laws.
- To improve knowledge and/or awareness of new in-vehicle systems, risks, etc., and the appropriate preventive behaviours.
- To change underlying factors known to influence road-user behaviour.
- To modify problem behaviours or maintain safety-conscious behaviours.
- To decrease the frequency and severity of accidents.

Delhomme et al (2009), importantly, state that other supportive activities such as enforcement, education and legislation are often used in combination with communication campaigns in interventions to reduce the number of road crashes. They highlight that new campaigns should draw on lessons learnt from the past the past regardless of whether previous campaigns had positive effects or not; without which the new campaign could pay a high price. About campaign messages, they postulate that there is need for careful planning of message and choosing of the various means of communication (selective, interpersonal, and mass media) to disseminate them in order to play an important role in behavioural change.

Wundersitz, Hutchinson and Woolley (2010) conducted a study to determine best practice for mass media campaigns in South Australia in order to update the level of knowledge for road safety. The study looked at the elements of road safety advertising that are more effective for the different road user groups. Fourteen road safety mass media campaigns in the published

literature were reviewed and evaluated. The researchers identified the theories can be used as a conceptual foundation for a road safety campaign, determine the focus of campaign messages and accommodate the possibility of evaluating the effectiveness of the campaign as follows:

- **Theories predicting behaviour change:** Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB), Theory of Interpersonal Behaviour (TIB), Health Belief Model (HBM), and Protection Motivation Theory (PMT).
- **Theories explaining social persuasion:** Elaboration-Likelihood Model (ELM) and Associative-Propositional Evaluation Model (APEM)
- **Theories explaining the process of behaviour change:** Theory of Self-Regulation (TSR) and The Transtheoretical Model of Change (TMC).

Factors key to developing road safety mass media campaigns were identified as including the target audience that should have a link with the target behaviour and be determined based on data; the means of communication that is to be decided based on the target audience and the characteristics of the media itself such as reach and selectiveness, information capacity, lifespan, ability to gain attention and cost; and the message content, form and style. The messages could have an informational/rational approach; threat appeals and fear which studies have demonstrated to be persuasive among audiences that have high self-efficacy and perceive high response efficacy but less effective in an audience with low self-efficacy; or a positive emotional appeal that evokes “good” feelings among the audience. Four possible methods for studying the effectiveness of road safety campaigns were identified as follows:

1. Before-after comparison.
2. Before-after comparison, with one or more control areas that have not received the campaign.
3. Before-after comparison, with several treatment and several control areas, randomly assigned.
4. Comparison of areas after exposure to the campaign with other areas not exposed to the campaign.

According to the researchers, it was difficult to determine what elements of the road safety mass media campaigns were effective because of the lack of scientific evaluations, generally poor methodological designs, confounding factors, and lack of documentation of campaign activities. The researchers however argued that effectiveness of media campaigns on road safety was difficult to determine because the time between commitment to a media campaign

and starting the campaign is often too short for the baseline measurement of the safety-related behaviour to be planned and take place. They suggested that there is the need for an on-going program to measure the frequencies of certain safety related variables and behaviours - blood alcohol concentration, speed, the usage of secondary safety devices, and so on. Comments were made regarding the improvement of media campaign design and evaluation, amplifying previous findings from the literature reviewed.

Although the above research is directly related to road safety campaigns, it does not focus on evaluating the visuals used to influence behaviours. It however highlights the conscious efforts that must go into the planning, designing, implementation and evaluation of road safety campaigns.

In a study article published by Hanson et al. (2020) on the topic “A National Communication Campaign in Indonesia Is Associated with Improved WASH-Related Knowledge and Behaviours in Indonesian Mothers”, the researchers sought to determine whether exposure to a national communication campaign using media and interpersonal communication (IPC) is associated with WASH-related knowledge and behaviours among Indonesian mothers with children under the age of two. The effects of a social and behaviour change campaign called the National Nutrition Communication Campaign (NNCC) launched in Indonesia in 2014 was assessed. The NNCC involved both mass media communications that included television, radio and social media, and interpersonal communication (IPC) approaches like face-to-face verbal two-way communication inclusive of listening, dialoguing, and auctioning. The data for the study was collected through a cross-sectional survey that was conducted in rural Indonesia following the 2014–2018 NNCC intervention. The campaign was a collaborative effort between the IMA, World Health (IMA), the University of Indonesia’s Centre for Nutrition and Health Studies, and the Ministry of Health in Indonesia.

The researchers found that exposure to both media and IPC interventions was associated with participants having a higher knowledge of appropriate defecation practices, higher knowledge of proper hand washing practices, and higher self-reported hand washing at critical times but was not associated with reported practicing of appropriate defecation. They also found that mothers exposed to only media interventions were more likely to have knowledge of appropriate defecation practices and to have reported practicing appropriate defecation behaviours. Mothers exposed to only IPC interventions were more likely to have reported hand

washing at critical times. The findings in the above study give the indication that campaigns that involve television and social media, which are also platforms via which visual messages can be communicated, can increase knowledge of appropriate behaviours and serve as cues to help with self-efficacy among audiences. However, visual communication, as a tool in communicating desired behaviours in development related scenarios are more effective when combined with other relevant activities such as interpersonal communication.

Nsiah-Acheampong et al. (2020) in the study on the topic “The Ghana Highway Code as a teaching and learning material”, stipulate that the Ghana Highway Code, published and promulgated in 1974 at a time when Ghana changed its traffic system from left-hand to right-hand drive, is the official state-recognised and most widely patronised book for motorists in Ghana. They identified the users of the code to include the Ghana Education Service (GES), driving schools, learner drivers, practising drivers, the police and pedestrians. The objectives of the code include: teaching road users how to drive, ride or walk safely on the roads to avoid road accidents; serve as a standard of behaviour to all road users; and serve as a source of guidance to all road users (Ministry of Roads and Transport (MORT), 1974).

The researchers used content analysis to bring out content-details of the Code. Sampled driving schools (12 out of 24), as well as motorists and educands were interviewed to ascertain level of patronage, user-satisfaction and comprehension of the Code. It was found that 87 respondents out of 95 motorists interviewed, representing 91.5% indicated they use or had ever used the Code. Three respondents, representing 3.2%) had not used the Code before, and five respondents, representing 5.3% did not know about the Code at all. All the 12 driving schools indicated that they use the Code as a teaching material. The study found out that the Code

- uses unfamiliar technical terms without working definitions to indicate their contextual meanings,
- has inadequate information on everyday traffic use, has text-Ground data inconformities that create incongruity in the objective understanding-by-application method of learning,
- has one text reference that does not match corresponding folio on pages 39 to 42 as indicated,
- has shadowy illustrations,
- uses doubtful emergency instructions,

- has language ambiguities that disturb the meaning of information, and
- has typographical errors

They recommend that the Code should be republished professionally, addressing contemporary traffic situations, language problems and the poor quality of graphics in the new edition.

The study by Nsiah-Acheampong, et al. (2020) expose fundamental errors in the official state-recognised and that widely patronised to train and educate motorists and pedestrians in Ghana. These fundamental challenges can affect the quality of teaching and learning and eventually, show in the quality of decisions and behaviours of road users.

## **2.5 Summary of Chapter Two**

This chapter reviewed related works on the use of visual communication in activities that are related to road safety. The study focused on approaches to development and how communication is used to facilitate the sharing of information. Three main theories were concentrated on: the dominant modernization theory that is unilinear in approach and uses the monologic model of communication to sell the goals of development; the alternative development theory that employs a participatory approach and favours a two-way communication model that may be interactive and/or transactional; and the social learning theory which explains how behaviours are engaged by observing others and through reinforcements. Key concepts of development and communication were reviewed and linked to the use of visual communication as a tool of communication to stimulate behaviour change. The role of the Ghana National Road Safety commission in managing and promoting road safety was also explored. An empirical review of related works provided more details on other studies on the use visual communication in campaigns aimed at influencing behaviours and highlighting the methods and results.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter explains the methodology used for the study. It provides an overview of the processes used and the reasons for using them. The methodology explains how the study has been systematically designed to ensure valid and reliable results that address the aims and objectives of the research (Jansen and Warren, 2020). This chapter therefore describes the processes used to collect data, analyse the data and present results on the effectiveness of visual communication tools employed by the National Road Safety Authority of Ghana on behaviour change. The areas discussed include the research design, data type and source, sampling technique, unit of analysis, determination of the sample size, data collection instruments and processing tools, analysis and presentation of data, selection of visual materials and the research process.

#### **3.2 Research Approach**

The research approach used for any research design influences the type of data selection and how it is analysed. This study is a qualitative research. A qualitative research uses less structured and non-structured methods to address the questions about the ‘why’ and ‘how’ of the existence of a phenomenon rather than ‘what’ and ‘how much’ (Kielmann, Cataldo and Seeley, 2011). Cresswell (2003) describes a qualitative research as an effective model that occurs in a natural setting that enables the researcher to develop a level of detail from being highly involved in the actual experiences. It is constructed within poststructuralist paradigm and builds its premises on inductive, rather than deductive reasoning (Williams, 2007). Qualitative research methods generate non-numerical data, usually in the form of text, but also, sometimes in the form of maps, pictures, and audio and visual recordings (Kielmann, Cataldo and Seeley, 2011).

Qualitative research is deemed suitable for this study as it seeks to ascertain the visual communication tools used by the National Road Safety Authority and how they are used to communicate behaviour changes, the level of awareness of the of road users with respect to the intended messages and the measures can National Road Safety Authority undertake to

maximize the positive impact of visual communication on road safety. It explores the views of road users, both drivers and pedestrians who are the target audience of the visual communication.

### **3.3 Research Design**

Pandey and Pandey (2015) describe a research design as the framework or plan for a study that is used as a guide in collecting and analysing the data. The study was based on an exploratory research design. Related articles, reports and manuals on the concept of development, social learning, communication, visual communication and the role NRSA and road safety were reviewed. They provided a theoretical framework for the study and offered insight into other related studies on development, communication, visual communication and road safety. Information on the website and social media accounts of NSRA were accessed and observed. The different types of visual images used for communicating behaviours to road users were identified. Ten (10) out of the numerous road signs were selected for this study. The selected road signs were made up of different colours and shapes. Participants were allowed to do their own analysis of the signs to identify the colour symbolism, the denotative and connotative meanings of the shapes, symbols and images, determine the expected behaviours and tell their experiences about how the signs impact behaviours on the road.

Out of the pool of road safety campaign ads pulled from the Facebook page and website of the National Road Safety Authority of Ghana, five (5) have were selected. Three (3) of the selected ads are from the Arrive-Alive campaign that was launched by NRSA in August 2020 to lessen the high figures of road accidents often recorded in the last quarter of the year in Ghana. They included ads with the following catch phrases: Don't text and drive, Always use the zebra crossing and Fasten your seatbelt. The two other campaign visuals included one 2018 Easter campaign ad that was co-sponsored by Toyota and National Insurance Trust to prevent recording of high rates of road accidents during the Easter festivities and a 2019 ad by the Western Region division of NRSA to curb motor cycle accidents. The ads were chosen based on the researcher's discretion regarding the presentation and relevance of the messages to the participants and study. The selected images were printed on A4 bond sheets and presented to the participants for reference during group discussions. It allowed all participants to see and identify the particular sign or ad on board for discussion. To ensure that the COVID-19

protocols were adhered to, each participant received a set of the printed materials in order to avoid sharing or two people handling the same materials.

An interview guide was chosen as the appropriate data collection tool. An interview guide was developed, involving a set of questions based on the research objectives. Respondents were carefully selected and contacted for their consent to be part of the study. Based on their agreement to the time and venue, interviews were arranged. The data collected was then processed by transcribing the text, coding and analysing them. Analysis was based on identification of themes from the comparison of responses by participants and presenting them to reflect the different views expressed for each question asked.

### **3.4 Study Setting**

The study was done in the Ablekuma Central District of Greater Accra Region of Ghana. Participants were however from different parts of Accra. According to the Ghana Statistical Service 2021 Population and Housing Census Press Release on Provisional Results (2021), Greater Accra is the most populous region with about 5,446,237 people. The region also has the highest number of accredited driving schools (158) (MHB, 2021). As at 8th October, 2021, the region ranked 2nd in terms of deaths by motorcycles (341), 1st in pedestrian knockdowns (169), 1st in motorcycle deaths (154), 1st in private vehicles deaths (122), and 4th in commercial vehicle deaths (65) (Citi Newsroom, 2021). Based on the high numbers of road accidents in Greater Accra, the study focused on road users in the region. In the study area, road users had access to both tarred roads with installed road signs and untarred roads with street name signs.

### **3.5 Study Population**

A population, also called universe or target population, refers to all the members of a real or hypothetical set of people, events or objects to which we wish to generalize the results of our study (Pandey & Pandey, 2015). The study population is a subset of the target or universal population from which the sample is selected, as researchers are seldom in the position to study an entire target population (Hu, 2014). Henry (1990) and Bickman and Rog (1998) cited in in Hu (2014) opine that study population is the operational word for target population. This study focuses on road users. It identifies two forms of road users from which a sample was selected: drivers, i.e. road users on wheels, and pedestrians, i.e. road users on foot (MORT, 1974).

### **3.6 Sample and Sampling Techniques**

Sampling refers to the selection of the specific group of individuals from whom data will be collected (McCombes, 2019). According to Pandey and Pandey (2015), a sample is a collection consisting of a part or sub-set of the objects or individuals of the population which is selected for the express purpose of representing the population. The sample selected for the study involved a non-probability process due to the qualitative approach to the study. The non-random processes allowed for purposive sampling and quota sampling methods to be used. Both purposive and quota sampling involve some level of application of discretion by the researcher. Whereas purposive sampling picks out the sample in relation to a criteria considered important by the researcher for the particular study and is appropriate when the study places special emphasis upon the control of some specific variables, in quota sampling, the observer is allowed to sample as he likes based on judgment or assumption or previous knowledge, deciding on the proportion of population that falls into each predetermined category (Pandey & Pandey, 2015).

The researcher selected a sample that was active on social media because of the ads picked from NRSA's Facebook page. Their use of social media offered a possibility of them having seen the campaign ads in one form or the other, as opposed to persons who are not on social media or hardly use social media. The sample included persons who had some form of formal education and could express themselves freely in the English language. This was important because Ghana's population is diverse and speak different languages. The use of translators and possibility of misinterpreting thoughts expressed in a local vernacular was avoided. Participants could also feel free and not intimidated by their inability to express themselves in another language. In all, 23 respondents took part in the study.

All the meetings for the interviews had to be rescheduled for three main reasons and that affected the number of participants. The initial postponement was because the researcher's phone was stolen a few days before the scheduled meetings. The researcher therefore could not contact all the participants on time to send them reminders. They were contacted later and new dates, time and venue was communicated to them. Two of the interviews were rescheduled for the second time because of heavy rains that prevented participants from showing up. The third rescheduling was due to non-availability of participants, most of whom communicated their unavailability to the researcher rather belatedly.

### **3.7 Data Collection Instrument**

Data was collected through interview guide. An interview guide was developed and used for collecting data from respondents. The guide was semi-structured. A set of predetermined open-ended questions were asked. The set of questions was to guide the focus group discussions to solicit the awareness, interpretation and usefulness of the visual messages to road users in their daily movements when going about their endeavours. Even though the questions were to guide the focus groups in order to answer the research questions, it allowed for a leeway to explore other areas that were not captured within the set of questions but deemed relevant to the study. The participants were allowed to express themselves with some degree of elaboration while answering the questions. The researcher sought to obtain enough in-depth data from the participants so that variations in their perspectives and experiences related to the research question could be captured (Kielmann, Cataldo and Seeley, 2011). Relevant areas of interest were explored based on the responses of participants. The data from the interview guide were recorded using an audio recording device and stored for analysis.

### **3.8 Data Collection Procedure**

The study focused on primary sources of data in order to establish more insightful and relevant facts to make the research more empirical. The data was collected from different groups of road users, particularly drivers and pedestrians. Selected visual messages falling into two categories, being road signs on one hand and campaign ads on the other hand were discussed by participants. An interview guide was used to assist the researcher to glean information about the awareness, perspectives, influence and measures that can be undertaken by NRSA to make visual messages more impactful on the behaviours of the target(s) of road users. The data collected were records of first-hand experiences of the participants.

An interview for two different categories of participants was used. One category was made up of drivers. The drivers possessed a license and have been driving for more than two years. Their experience with driving was deemed useful to this study. They provided views and experience of road users from drivers' perspective. Drivers of various categories were involved in the study. As drivers, they had received some basic training in road signs and were deemed to have some knowledge, understanding and skill that pedestrians may not have.

The second category of interviews focused on pedestrians. The pedestrians included persons who either did not drive or have some knowledge about driving but were not in possession of drivers' license and so have not been actively driving on the roads. The participants included persons of different demographics. The researcher sought to create a balance by seeking an equal representation of the sexes. Even though that was achieved among the pedestrians, it could not be achieved among the drivers. Their responses provided the views of pedestrians as part of the targets of visual messages on road safety by NRSA. Both drivers and pedestrians were selected using the quota sampling method.

### **3.9 Data Processing and Analysis**

Data analysis involves reducing large amounts of gathered data to make sense of them (Kawulich, 2004). The data gathered was analysed using a qualitative approach that ensured the research questions posed within the study are adequately answered (LeCompte and Schensul, 1999 cited in Kawulich, 2004). The gathered data in the form of recordings were transcribed. Themes were identified based on the structure of the experiences of participants and put together for analysis. The data was analysed using both semiotic and content analysis. Semiotic analysis was applied to the verbal and gestural responses of participants to understand the interconnection between their representation and knowledge, and the interpretive meanings (Sebeok, 2001) of the road signs and campaign ads. Content analysis was used to evaluate patterns within the responses of participants, identify the frequency of ideas shared and to group them to represent patterns of deeper underlying interpretations (Warren, 2020). The outcomes of the analysis were presented in tables and direct quotes in the key findings and results. Sampled quotations were grouped under the questions asked that elicited those responses.

### **3.10 Ethical Consideration**

Several ethical considerations were taken into account to ensure that the study was conducted in the most appropriate manner. A verbal consent was sought by the researcher to seek the agreement of respondents to participate in the study. Participants for the focus group discussion were selected based on their willingness to provide information on their perspectives and experiences. Participants were unwilling to sign a consent form but expressed their willingness to partake in the focus group discussions.

The purpose of the study was explained to each participant. It was also explained to each participant that should they wish to withdraw at any point during the discussion, they were at liberty to do so. Permission was sought from participants to record the discussions using an audio recording device and assurances were given that the information provided by them would remain confidential with specific contents of individual views only discussed with the supervisor. Participants were assured that in the final report, their identity would not be used, hence, only a variation of their first names were used and not their full names. The assurances were purposefully carried out to build trust and encourage participants to freely share their experiences. After each interview, the researcher and the participants engaged in a debriefing process, talking about the interview process and the impact of the discussions. This process was engaged so that participants would feel comfortable about the exercise undertaken and none felt harmed, inconvenienced or traumatised by any experience shared during the interview.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

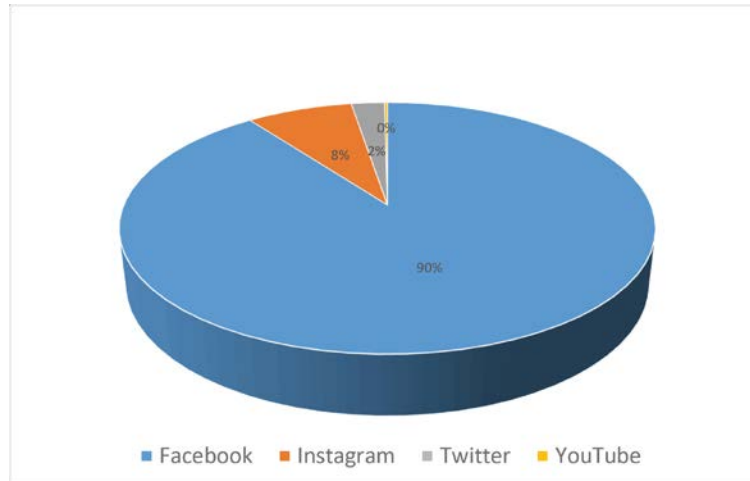
#### **4.1 Introduction**

In this chapter, the key findings and discussions based on data collected are presented. The focus group discussions enabled participants to explore their awareness of some visuals used by the National Road Safety Authority, their perceptions of the intended messages and measures NRSA can undertake to maximize the positive impact of visual communication on road safety. The experiences of participants were shared to either explain their views further or as examples to express their feelings.

#### **4.2 Visuals by National Road Safety Authority**

The first research objective sought to look at the types of visual communication used for behaviour change towards road safety. The researcher visited the website and four other official social media platforms of NRSA; namely, Facebook, Twitter, YouTube and Instagram. A number of pictures and videos were viewed and the comments associated with them read. The visual images identified included pictures, illustrations and digital adverts that portrayed events undertaken by the Authority, campaign ads, educational/informational ads and other notices in forms consistent with the types of visuals identified by Guo, Wright, and McTigue (2018), cited in Pettersson (2021). They were presented as still images and short videos. Some of the short videos had voice overs carrying educative and informative messages. All the official social media sites had the short videos. With the exception of YouTube, on the other platforms, NSRA used still images as well. From the pictures, the researcher took notice of printed materials that carried messages by NRSA, including stickers that were being handed over to road users and placards with printed messages on them.

As at the time of the study, the researcher observed that the number of followers of NRSA on the various social media platforms was very low, considering the fact that their role and impact is nationwide. Facebook had the highest number of followers (13,127), followed by Instagram (1,114), Twitter (351) and YouTube (30). This could mean that millions of Ghanaians are not aware of the presence of NRSA on social media and visuals are not reaching enough targets hence. The full potential of social media is therefore not being utilised to generate engagement with road users on safe practices through the visual images as likes and comments are few.



**Figure 1: A pie chart showing followers of NRSA on social media in percentage**

Source: Author's, November 2021

Aside the visual images identified on the official social media platforms, respondents mentioned having seen some campaign ads and education involving NRSA on billboards, as stickers and on television.

### **Identification of road signs**

Participants were at liberty to look through the road signs which were printed to identify the ones they were familiar with or understood and tell what they were. In each of the focus groups, participants were observed closely. Their actions, such as nodding was construed by the researcher to mean approval. That is, the participant was in agreement what was being said by another participant identifying some signs. Reactions such as a slight frown or shaking of the head from left to right were construed as disapproval or disagreement with what was being said at the time. Where a participant neither showed a facial expression or gesture, they were construed as waiting to express their own view or being indifferent about what was being said because they either did not know or were unsure. The ability of road users to effectively recall a road sign is the first step to serving the purpose of the road sign (Akple and Biscoff, 2012).



**Figure 2: Road signs used in the focus group discussions**

Source: Author's

Based on the responses, both verbally and non-verbally, participants' initial thoughts on the road signs were classified as being rightly identified or wrongly identified. Pedestrians included road users who were often passengers in vehicles and either did not drive or had some driving skill but did not possess driver's license or rarely drove a motor vehicle such as a car or motorcycle. There were 18 pedestrians made up of 9 males and 9 females. The drivers were 5; 4 males and 1 female. Under the two broad categories, two sub-categories were used to classify the responses. The responses were identified as being right or wrong according to the names mentioned by participants. Participants were also identified as male or female. Table 2 below shows the responses to the above question.

**Table 2: Initial identification of road signs by participants**

No.	Road sign	Pedestrians						Drivers					
		Rightly identified			Wrongly identified			Rightly identified			Wrongly identified		
		M	F	Total	M	F	Total	M	F	Total	M	F	Total
1.	No entry	-	1	1	6	1	7	3	1	4	1	-	1
2.	Maximum Speed limit	5	2	7	3	3	6	4	-	4	1	1	2
3.	Speed limit ends	-	1	1	4	4	7	-	-	0	4	1	5
4.	Traffic light ahead	9	9	18	-	-	0	4	1	5	-	-	0
5.	Right Curve	2	2	4	3	3	6	2	1	3	2	-	2
6.	Give way	1	1	2	-	-	0	1	-	1	3	-	3
7.	One way	1	-	1	6	4	10	-	-	0	4	1	5
8.	Zebra crossing ahead	9	9	18	-	-	0	4	1	5	-	-	0
9.	Bus stop	9	9	18	-	-	0	4	-	4	-	1	1
10.	Advance direction	-	-	0	-	-	0	-	-	0	4	1	5

The responses to the first question offer insights into how participants readily interpreted the signs upon seeing them. This represented their first impressions or interpretations of what they perceived the signs to be. The first attempted response by participants in identifying the road signs was used in most cases, except where participants corrected themselves a few moments later before the next question was asked or before another group member's view convinced the participant. The second attempt was used in those cases because the researcher assumed that the participant had reconsidered the sign without another's influence.

The road signs that participants were aware of most were the traffic light, the zebra crossing ahead and bus stop signs. All participants identified them correctly. All participants identified the bus stop sign correctly, except for one female driver who interpreted the sign to mean a bus lane. The above signs were easier to identify because participants could easily tell what the appearance of the shapes in the symbols (silhouettes) represent in real life (Pettersson, 2021). Although initially, most participants who identified the maximum speed limit did so correctly, the presence of the end of speed limit sign got some confused about the meaning. Being unsure, some reinterpreted the maximum speed limit to mean minimum speed limit. The speed limit ends sign was also thought by some to mean minimum speed limit. The diagonal cross in the speed limit ends sign, was interpreted to mean don't go beyond the speed number in the sign. The give way sign was the least attempted sign. Most participants were unaware of its name. The one way sign was the most wrongly identified sign. These signs did not contain silhouettes

that could easily be associated with real life and so participants tried to identify them inductively.

### **Meanings of the road signs**

After participants were asked to identify the signs, they were asked to interpret the meanings of the signs according to their understanding. Not everyone was obliged to answer this question. They were at liberty to express their opinions or understanding of the signs based on their subjective interpretations as road users. The purpose of this exercise was to examine the meanings participants, as road users, assign to these signs they see on the roads. Whereas some deduced meanings were similar to what the signs actually mean, others gave wrong meanings to them. In Table 3, the actual meanings of the road signs, as well as the other interpretations provided by participants are presented.

From the researcher's observation, pedestrians rarely discussed the meaning of the no entry and give way signs because they were not familiar with their meanings. Only two of them identified the sign and explained it correctly. The pedestrians also expressed some confusion about the meaning of the speed limit ends sign. They mostly assumed that it meant that the driver should not get to the stated speed limit in the sign. One female pedestrian got it right. The drivers were also not sure of the meaning of the give way sign. One male driver later identified the sign as give way but was not very sure about it. He was soon convinced by the other drivers that a give way sign would have the text written clearly in the sign. Participants were also divided over the meaning of the right curve sign. Whereas some explained it to mean a sharp curve, others felt it was safer to interpret it as a curved road. Almost all participants failed to identify the advance direction sign by the name. When asked about the meaning of the sign, participants rather sought to explain the shape in the sign and what it could mean in terms of movement or directions. The responses confirm Pauwels's (2008) assertion that visuals create societal reality by offering as best as possible, versions of a reality that can never be fully grasped and known unless viewers are to make inference from forms and substance expressed in it.

**Table 3: Meanings and interpretations given to road signs by road users**

No.	Road sign	Meaning	Interpretations given participants
1.	No entry	Do not cross over where the sign is posted	<ul style="list-style-type: none"> <li>• Stop</li> <li>• One way</li> <li>• Do not enter</li> <li>• Mostly at construction signs to prevent people from entering construction zones</li> </ul>
2.	Maximum Speed limit	Do not drive beyond the stated speed limit	<ul style="list-style-type: none"> <li>• Minimum speed limit</li> <li>• Maximum speed limit</li> </ul>
3.	Speed limit ends	End of speed limit. The maximum speed limit can be exceeded	<ul style="list-style-type: none"> <li>• Maximum speed limit</li> <li>• Driver can drive beyond speed limit</li> </ul>
4.	Traffic light ahead	You are approaching an intersection that is controlled by a traffic light	<ul style="list-style-type: none"> <li>• There is a traffic light ahead or near by</li> <li>• Slow down, you're approaching a traffic light</li> </ul>
5.	Right Curve	The road bends to the right ahead	<ul style="list-style-type: none"> <li>• Sharp curve</li> <li>• There is a right turn ahead</li> <li>• Road curves towards the right</li> </ul>
6.	Give way	Motorists must wait for traffic on the road the intend on joining to pass or wait for a suitable gap to join the new road as traffic on that road has priority	<ul style="list-style-type: none"> <li>• A caution sign</li> <li>• Danger ahead</li> </ul>
7.	One way	Traffic moves in one direction on that road. Drivers must travel in the direction of the sign	<ul style="list-style-type: none"> <li>• A straight road with no junctions</li> <li>• Go straight</li> </ul>
8.	Zebra crossing ahead	Pedestrian crossing or an area where pedestrians frequently cross and have right-of-way	<ul style="list-style-type: none"> <li>• A safe place for pedestrians to cross</li> <li>• Drivers must lookout for pedestrians</li> <li>• Drivers must slow down or stop for pedestrians to cross</li> </ul>
9.	Bus stop	A designated place for boarding and alighting from a bus	<ul style="list-style-type: none"> <li>• A bus stop for people to board or alight from a vehicle</li> <li>• A safe place to stop or park a car briefly</li> <li>• A Bus lane</li> </ul>
10.	Advance direction	Informs drivers of directions available	<ul style="list-style-type: none"> <li>• An incomplete roundabout with an entry point and exits</li> <li>• Tells where you are or are going</li> </ul>

### **Views of respondents on the expected behaviours being communicated by road signs.**

The second objective focused on respondents' views on the expected behaviours being communicated in visuals. To gain further insight into the understanding participants have about road signs, the researcher sought to find out whether the knowledge or awareness of a road sign is commensurate with what they expect from road users in the form of behaviours. That is, does the road sign demand a particular behaviour or set of actions from a road user? The question solicited the beliefs and perceptions of participants regarding behaviours the road signs seek from road users. The answers provided are that of both pedestrians and drivers. Participants were free to mention any of the signs and comment on the expected behaviour. Table 4 highlights some of the responses offered during the focus group discussions. Similar views by participants were summarised and presented in a single sentence.

When asked whether pedestrians or passengers in vehicles the road signs communicated some expected behaviours to them, the pedestrians highlighted that the zebra crossing, traffic light ahead and bus stop signs were necessary for pedestrians. They acknowledged looking out for some of these signs to cross the road at the zebra crossing or where a traffic light is situated and to pick up a bus at a bus stop. The pedestrians agreed that as passengers, knowledge of the signs are helpful in confronting, advising and educating drivers who flout road regulations because they endanger the lives of other road users.

*“Most at times when you stand by the zebra crossing, the driver knows that he or she has to stop for you [cross]”*

Naa

*“[The bus stop tells both the driver and pedestrian that] that is where you can stand to pick a car and that is where you can park to alight someone”*

Priss

*“When you are driving and you are getting to a town, it [the traffic light road sign] tells you that you are approaching a traffic light so you have to slow down and be cautious; there is traffic light ahead”*

Eben

*“The circle with the 50 crossed, I think it is trying to communicate that the speed limit of 50 now ends so you can now exceed 50 from this point.”*

Sue

*“When you are driving 100km/h hour and you see that sign [maximum speed limit of 50km/h] you definitely have to [reduce your speed] to 50km/h. I’m sure they normally do this for pedestrians because they will be crossing and maybe it’s not a safe zone or maybe there are a lot of children around”*

Eli

From the responses in the table below, it can be observed that wrong identification and wrong interpretation of the signs resulted in some of the wrong description of the expected behaviours from seeing some particular road signs. For instance, those who identified the speed limit ends sign to be maximum speed limit and interpreted it to mean not driving beyond the crossed number in the sign, expected that drivers drive below that number. The fact that a number of respondents identified signs wrongly, gave wrong interpretations to them and expressed behaviours that reflected their understanding of the signs presents a tendency for them to act in a manner that does not ensure their safety or the safety of others on the road. It demonstrates a gap between the messages communicated by the road signs and the knowledge road users have with respect to these signs.

**Table 4: Participants’ understanding of the expected behaviours of road signs**

No.	Road sign	Expected Behaviours
1.	No entry	<ul style="list-style-type: none"> <li>• One way. Traffic moves in one direction</li> <li>• Stop at sight of the sign and don’t enter</li> </ul>
2.	Maximum Speed limit	<ul style="list-style-type: none"> <li>• Drive below or at the stated number</li> </ul>
3.	Speed limit ends	<ul style="list-style-type: none"> <li>• Drive below the speed limit</li> <li>• The driver can drive above the crossed speed limit</li> </ul>
4.	Traffic light ahead	<ul style="list-style-type: none"> <li>• Drivers have to slow down when approaching the traffic light</li> <li>• When the red light is on, the driver must stop. When the light is amber, the driver must slow down and be getting ready to stop. When the light is green, the cars can move</li> <li>• The pedestrian must lookout for the colour of the traffic light to either stop or cross the road.</li> <li>• A pedestrian should not cross when the light is amber or green</li> </ul>
5.	Right Curve	<ul style="list-style-type: none"> <li>• The driver must slow down when approaching the curve</li> <li>• The driver must honk to alert an oncoming vehicle if the driver cannot see the other vehicle on a two way road</li> </ul>
6.	Give way	<ul style="list-style-type: none"> <li>• The driver must lookout for other vehicles and yield or give them way</li> <li>• In some places, they are situated at lanes reserved for ambulances so drivers must lookout for ambulances and not obstruct them.</li> </ul>
7.	One way	<ul style="list-style-type: none"> <li>• The driver should keep driving straight and not stop</li> <li>• Drivers do not have to the turns on the road</li> <li>• Speeding drivers must be careful not to bump into</li> </ul>
8.	Zebra crossing ahead	<ul style="list-style-type: none"> <li>• Drivers are expected to stop for pedestrians to cross</li> <li>• Drivers should slow down to allow pedestrians to cross</li> <li>• Pedestrians are supposed to cross at the zebra crossing because it is safe to cross there</li> </ul>
9.	Bus stop	<ul style="list-style-type: none"> <li>• The drivers have to alight or pick up passengers at the bus stop</li> <li>• Pedestrians are supposed to board cars or alight at the bus stop</li> <li>• Drivers can stop there briefly to make a phone call</li> <li>• Tired drivers can stop at the bus stop to take a short nap</li> <li>• Bus stops with time limits do not expect drivers to exceed the time limits on the bus stop signs</li> </ul>
10.	Advance direction	<ul style="list-style-type: none"> <li>• Drivers can go in the directions indicated</li> </ul>

**How the road signs influence your behaviour on the road**

The researcher sought to find out whether as road users, participants make use of road signs when taking decisions on the road and how it influenced their behaviours. That is, do they look out for road signs and does the message in a sign influence them to engage particular behaviours

or set of actions? Their experiences were of interest to the researcher as road signs are meant to inform road users to engage certain behaviours.

Generally, a number of those who fell into the category of pedestrians were of the view that road signs are of greater interest to drivers who are required to be responsible enough to engage the expected behaviours. This, they believe, is the reason why drivers receive education on road signs during their training. The view expressed by the pedestrians above presupposes that they were less likely to find out the meaning of road signs until they are ready to be trained as drivers. This could potentially make them vulnerable to poor judgement while viewing a road sign. Most pedestrians admitted to having confronted a driver of a vehicle they sat in before for not adhering to a road sign, especially, for driving beyond a speed limit. However, in another breadth, they admitted to mostly not minding if the driver exceeded the speed limits as they often were in a hurry to get to their destination. Participants also admitted to having some form of reluctance to engage drivers in a number of cases for fear of being verbally abused by the drivers. One lady admitted that she never looked out for road signs and had never confronted a driver before. All that mattered most to her was to get to her destination safely.

*“For me, I’m just in the car. Whatever you do, I don’t talk. When I get to my destination, I just alight. What is important is that I get to my destination and drop [off].”*

Joy

*“Actually, when I’m travelling, that [looking out for signs to make decisions] is how come I just look out for the speed limit, just to see if the driver is within the limit. [For] the Metro Mass [buses], they write behind their buses 80. The driver is supposed to drive at most 80 [km/h] and not more than 80 but the drivers on the Kumasi highway, they go beyond 80; on the Winneba road, they go beyond 80. Every Metro Mass bus that you see, [there is] 80 on the bus [and a telephone number] and they write that if you realise that the driver is driving more than 80 or carelessly, you should call that number. But you know, we the passengers we are always in a hurry so we even want the driver to go more than the 80.*

*[For] the Sprinter [bus] drivers, as for them, they go beyond [80km/h]. I remember, the last time, I nearly had an accident. I was coming [to Accra] for a children’s week programme, ... for a rehearsal, and in the night when I was coming, the driver did an overtaking and went into the next lane. He saw a car coming but the car had just one light [on] so he thought it was a*

*motorcycle. When he got closer and he realized [that it was a car and not a motorcycle], that was when he decided to turn back [into his lane].*

Sam

The pedestrians admitted that the zebra crossing, traffic light and bus stop signs influence their decisions most on the road among the road signs. Some admitted to looking out for them to cross the road at safe places, as in the case of zebra crossing and traffic light signs, or to board or alight at safe places as in the case of the bus stop sign. However, they were also quick to add that the markings are faded or absent at important places most of the time. They also highlighted that most drivers they have encountered on the road hardly make way for them to cross when they are at a zebra crossing. One emphasized how drivers, including policemen, had on numerous occasions ignored him at a zebra crossing and waiting to cross a road. Both pedestrians and drivers expressed extensive opinions about how respecting the right-of-way of pedestrians at the zebra crossing takes more than the effort of one driver or rider because some drivers or riders do not pay heed to that sign. Another male participant claimed he had stopped looking out for road signs because they are not as common and prominent as they ought to be. The lack of installation and maintenance of road signs, coupled with the reluctance of drivers to observe them, demonstrate a weakness in deliberate actions towards achieving appropriate behaviours through road signs on the part of both NRSA and road users.

*“Personally as a road user, a pedestrian, I will say what influences me the most [are] the zebra crossing, that is one; the bus stop, that is two; the traffic light, that is three. Basically, I think the rest are for those who drive.... The truth of the matter is I don't [look out for road signs]. You hardly even see zebra crossings around. So for me, it [looking out for road signs to behave in a particular way] is a psychological thing; if you see them more, you get to appreciate them more but, if you find yourself in a location where you hardly see them, it gets to a point where there are road signs [but] you hardly even identify them; and that is my situation. I have lived with the feeling of not seeing road signs so when I'm crossing [the road], I just cross. I just make sure that I am safe; not necessarily looking out for a zebra crossing...*

*Maybe what I will say I look out for most is the traffic light because it is one of the safest points to cross when there is no zebra crossing because when you see the red sign, then you know that these cars have stopped so you can cross.... And that of the bus stop. Obviously if you want to pick a car to another place, that is the safest point you can pick a car from. But even that, it is*

*unfortunate that most of our roads don't have bus stops so the cars stop at the shoulders of the road.*" (a male pedestrian)

### **Meaning of the different colours and shapes to respondents**

Participants were asked to proffer their opinions about the meanings of the colours and shapes used. Colours and symbols are significant in visual identity (Whitbread, 2002). Even though most of the pedestrians admitted to not knowing the meanings of the colours and shapes used in the road signs, some however attempted to explain the colours and shapes using their past experiences. This attempt by the participants highlighted how experiences from a person's past affect his or her interpretation of visual images (Whitbread, 2002; Agrawal, Deshpanday, and Sinha, 1987, cited in Petterson, 2021).

**Table 5: Meanings ascribed to colours and shapes of road signs by road users.**

Colour/Shape	Ascribed meaning	
	Pedestrians	Drivers
Red	<ul style="list-style-type: none"> <li>• Caution</li> <li>• Danger</li> </ul>	<ul style="list-style-type: none"> <li>• Caution</li> <li>• Warning</li> </ul>
Blue	<ul style="list-style-type: none"> <li>• Safe</li> <li>• Informative</li> </ul>	<ul style="list-style-type: none"> <li>• Informative</li> </ul>
Green	<ul style="list-style-type: none"> <li>• Freedom of movement</li> <li>• Unhindered movement</li> <li>• Directions</li> </ul>	<ul style="list-style-type: none"> <li>• Information on directions</li> </ul>
Circle	-	<ul style="list-style-type: none"> <li>• Order</li> <li>• Instructive</li> </ul>
Triangle	-	<ul style="list-style-type: none"> <li>• Warning</li> </ul>
Rectangle	-	<ul style="list-style-type: none"> <li>• Caution</li> </ul>

Participants ascribed the red colour to danger, hence signs with red colour were deemed to carry a warning or a caution. Blue was interpreted to mean a calm colour so does not reflect danger but gives an important information. To them, the blue signs indicated safety. A green sign was associated with freedom of movement. They were not far from their colour associations, per their use in road signs. Participants found it difficult to attach meanings to the shapes. Only one participant, a male driver, attempted to ascribe meanings to the shapes. The

other drivers were not very sure or had forgotten the meanings associated with the shapes and colours.

According to drive-safely.net (2021), every road sign has a specific colour associated with it that tells what it is about. The red signs refer to a situation where the observer must stop or yield, green road signs are direction signs and blue signs are not regulatory, but rather, display services for travellers. In the Ghana Highway Code (1974) Handbook, it can be observed that all the warning signs are triangular and have red outlines, the regulatory signs which are prohibitory are circular and red, and the informatory signs are mostly blue and green and rectangular. Regulatory signs which are mandatory included different colours (e.g. blue, red, yellow and black) and different shapes. The red octagonal stop sign and red triangular give way sign are also included in the mandatory regulatory signs.



**Figure 3: Warning signs in the Ghana Highway Code**

Source: Ghana Highway Code



**Figure 4: Informatory and Regulatory (Prohibitory) signs in the Ghana Highway Code**  
 Source: Ghana Highway Code (MORT, 1974)



**Figure 4.4: Regulatory (mandatory) signs in the Ghana Highway Code**  
 Source: Ghana Highway Code

Below are sampled views expressed by participants:

*“The red always alerts you that it’s dangerous. When you miss it, it can cause an accident. But [for] the blue and [green] there is not much danger”*

Jerry

*“The green one, I think it’s for directions. The green one is directional.... It tells you that you can go this way or that way. The blue one is giving you an information. The red one is more of warning.”*

Vida (female driver)

*“I know they all [shapes] have their purpose. Em..., you know, when you are driving and you normally engage and interact with them, you are very familiar with them, but I mean, for some reason I have forgotten what the circle ones mean and the triangle ones mean.”*

James (male driver)

*“The circle ones always mean... like an order, telling you do this or don’t do this. This one [the triangle] is more of the warnings but as for the [circular] ones, it’s don’t do this or do this: don’t cross this limit, don’t be below this minimum.... It is like an order ordering you to follow some specific instructions. But the triangular ones are more of warning signs, and the [rectangular] ones [are] more of the information signs.”*

Rich (male driver)

## **Effectiveness of visual communication aids used in road safety campaigns**

### **Road safety campaign ads**

The second research objective looked at the views of respondents on the effectiveness of visual communication aids used in road safety campaigns. A number of issues were considered in this objective. First, the researcher sought to find out whether participants had seen any of the visual campaign adverts prior to the interviews. Participants were asked to identify any of the 5 campaign adverts that they had seen before and state where they remember seeing them. 8 out of the 23 participants admitted to having seen at least one of the campaign ads before. One of them was not very certain whether it was the particular road safety campaign advert that she saw but claims to have seen a sticker or poster of the ad. 2 claimed they had seen the adverts on television, with one naming Citi TV in particular. The others had seen stickers and a

billboard of some of the ads. Some could not tell where they had seen any or some of the ads but were sure they had seen them before. The rest of the participants could not identify any of the adverts by the visuals handed over to them. However, the catch names and catch phrases of the campaigns sounded familiar to almost all the participants. The intended messages being carried by the ads were not new to participants. The low level of awareness and uncertainty of respondents is an indication that the visual messages used in campaign ads are not reaching the intended targets as they ought to. Perhaps, other means of communication are reaching them better, since they acknowledged familiarity with the catch phrases. Table 6 shows the number of respondents who had seen any of the road safety campaign adverts. The most recognised campaign ad was the Arrive Alive: Fasten your seatbelt, followed by the Don't text and drive ad.

**Table 6: Campaign ads that had been seen by participants**

Campaign Ad	Those who have seen the adverts	
	Those certain	Those uncertain
Arrive Alive Campaign: Don't text and drive	3	-
Arrive Alive Campaign: Fasten your seatbelt	4	1
Arrive Alive Campaign: Always use the zebra crossing	2	-
A dream ride can become a nightmare. Don't drink and ride	2	-
Arrive Alive Campaign: Don't drive tired	-	-

Participants were expected to try and tell the stories in the images without the text and judge whether the images told the messages the text in the ads expressed. The researcher was interested in the how they appreciated the elements present in the various campaign ads and the messages they communicated to them as words do not form the emphasis of the visual communication medium (Ondimu, 2012). In Table 7, participant's assessment of whether the images without the text still communicate the intended messages are presented in numbers and percentages.

A high percentage of participants were of the view that 3 of the images used communicated the intended messages without the text: Fasten your seatbelt (91%), Always use the zebra crossing (83%) and Don't drive tired (96%). 91% of the participants were of the view that the image used in the 'Don't drink and drive' campaign ad did not communicate the intended message without the text. Participants were however divided over the effectiveness of the image in the 'Don't text and drive' campaign. 30% were of the view that the image communicated the intended message without the text and 43% were of the view that the image did not communicate the intended message without the text. The predominant view held by participants was that the text complemented the images to make the messages being communicate more specific. A few participants did not take a clear stance as to whether some of the campaign ads were effective without the text or not.

**Table 7: A table assessing the effectiveness of images used in campaign ads**

No.	Campaign ad	Image communicated intended message without text	Percentage	Image did not communicate intended message without text	Percentage
1	Arrive Alive Campaign: Don't text and drive	7	30%	10	43%
2	Arrive Alive Campaign: Fasten your seatbelt	21	91%	1	4%
3	Arrive Alive Campaign: Always use the zebra crossing	19	83%	-	-
4	A dream ride can become a nightmare. Don't drink and ride	-	-	21	91%
5	Easter Campaign: Don't drive tired	22	96%	-	-

Different views were expressed by participants in discussing the images. The views were reflective of their information literacy, media literacy, educational level, social and cultural reality, and technological changes in society (Pettersson, 2021; Pauwels, 2008). A summary and samples of the views expressed are presented below:

### 1. Arrive Alive Campaign: Don't text and drive ad



**Figure 5: Arrive Alive Campaign: Don't Text and Drive**

Source: National Road Safety Authority's Facebook page

Participants described the image above as a person focusing on a phone in a car. Without the text, participants were divided over whether the image depicted a person driving or a person doing an activity on the phone in a stationed vehicle. Participants argued that the blurred background could be an indication that the car was in motion. Some stated that one hand of the lady on the steering wheel gave the impression that she is driving. Others also argued that the blurred background could be attributed to technology, such as a camera effect caused by focusing on the lady.

One of the drivers stated that he deemed it to be a less common occurrence to see a driver holding the phone in the left hand and the steering wheel with the right hand, as cars are right-hand driven in Ghana. To him, drivers more often held the steering wheel with their left hand and manipulated their phones with their right hand. Generally, participants were of the view that the activity being undertaken by the lady on the phone in the picture was unclear. They

postulated that the phone in the lady's hand could mean she was texting, making a phone call, taking a shot of herself or doing a video recording.

Below are some sampled comments by participants:

*"When you look at the picture, it has been shot in a way that the background is blurred so you cannot tell if she's actually stopped or moving. The blur is not a motion blur. If the image had other cars in the background or showing a queue of cars in the background, everybody will know that she is on the road, or she is driving"*

Eli (male pedestrian)

*"Without the writing [text], it actually depicts that she's trying to read something from her phone, or she's trying to do something with the phone while driving. She's not supposed to [do that]. She's not focused on the driving. She's rather focused on the phone."*

Ella (female pedestrian)

*"Without the text, someone can assume that it is okay or normal to use our phones while driving because there is no caution sign in there"*

Nana, (male pedestrian)

*"Just looking at the picture without the text, it is like the lady is comfortable doing what she is doing and a lay person may think that it is right. Because we know that it is not a right thing to do, we say it is not right but a lay person or someone who has not been to school might think it is right by just looking at the picture, will admire it and wish that 'I will also be in my car and have my phone'."*

Joy (female pedestrian)

*"Looking at the picture, I think she is not driving. As a driver, you have your [gear lever] on your right. Supposing she was driving and she wants to use it, the phone will be in her right hand, even if she is left-handed. More often, when holding the steering wheel with one hand, it is the left hand that holds it, not the right because the operation signals are on the right. In Ghana, we drive on the right lane and use left-hand drive vehicles. Driving and operating the phone in your left hand is more difficult than doing that with your right hand."*

Richie (male driver)

## 2. Arrive Alive Campaign: Fasten your seatbelt ad



**Figure 6: Arrive Alive Campaign: Fasten Your Seatbelt**

Source: National Road Safety Authority's Facebook page

Participants mostly described the image as a gentleman wearing his seatbelt. Two participants however suggested that it could also mean that the gentleman was removing his seatbelt but the others disagreed. They argued that his posture did not suggest he was taking off the seatbelt, a view that those who made the previous suggestion accepted as true. Most participants were of the view that the picture communicated the intended message without the text. Participants particularly took notice of the image of the smiling gentleman and were of the view that it indicated that he was happy to put on his seat belt. They liked it and were of the view that it has a positive effect on social learning. However, a number of participants expressed the opinion that use of a driver in the image creates the impression that seatbelts are meant for drivers only. They believed it fuelled the apathy among a substantial number of Ghanaian passengers who feel less concerned about wearing seatbelts in cars for their own safety. Participants, all pedestrians and one driver admitted that they either forget or don't feel obliged to use seatbelts in most cases. Below are sampled views of participants:

*“If you are in a car and you see this advert and you are not in your seatbelt, it is a reminder that you should put on your seatbelt”*

Prissy (female pedestrian)

*“This [ad] is not only for drivers because cars are not meant for drivers [only]; it’s meant for people to be using it. So, the fact you are seeing the driver does not mean that [you should] conclude that it is only meant for drivers. It [goes for] everybody; so far as there is a seatbelt in your car, it means you have to wear it.”*

Eben (male pedestrian)

*“This guy is so happy, he has gotten some nice wheels and he’s wearing this big smile.”*

Adu (male driver)

*“He is happy to wear the seatbelt.”*

Vida (female driver)

*“His smile is infectious”*

Nana (male pedestrian)

*“Before you move, you have to put on your seatbelt”*

Eben (male pedestrian)

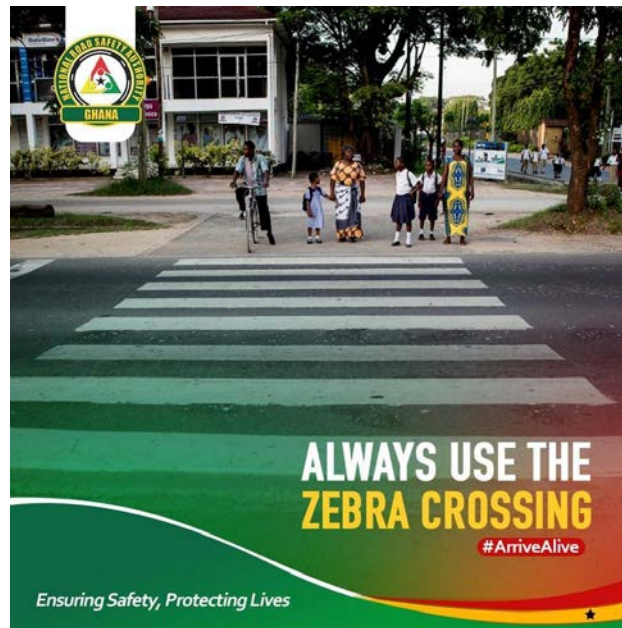
*“Me, for seatbelt, I hardly use it anyway. I hardly use my seatbelt.”*

Jerry (male driver)

*“With seatbelts, [for] these new type of cars, anytime you move above 20 [km/h] it gives you a sign to wear your seatbelt. It will be making noise [beeping] so I always put on my seatbelt so I wouldn’t hear that noise.”*

James (male driver)

### 3. Arrive Alive Campaign: Always use the zebra crossing campaign ad



**Figure 7: Arrive Alive Campaign: Always Use the Zebra Crossing**

Source: National Road Safety Authority's Facebook page

Participants identified a bicycle rider and mothers with children at a zebra crossing and set to cross the road. Most participants were of the view that the image communicates the intended message, especially with the knowledge of the purpose of a zebra crossing as present in the picture. Some drivers however pointed out a mistake in the picture according to what pertains in Ghana. They were of the view that the stop marking on the road should have appeared on the left hand side of the pedestrians and before the zebra crossing rather than after it. That is, it should have been on the right side of the picture. This is because when facing the road, cars in Ghana move from the left and towards the right. The stop marking on the road in the ad supposes that the cars will approach the zebra crossing from the right hand side of the pedestrians.

Some participants suggested that the presence of a car or cars that had stopped for the pedestrians to cross would have communicated better to both drivers and pedestrians in the campaign ad. Participants shared a number of experiences where cars did not stop for them to cross the road while they stood behind the zebra crossing. They talked about instances where speeding drivers did not regard their right-of-way while crossing the road on the zebra crossing and so they had to run to cross the road in order to avoid being knocked down. On double lane roads, they indicated that one car on one lane may stop for them to cross but another

car in the other lane or a motor rider in between the lanes may not stop for them. Below are some sampled comments by participants on the above ad:

*“Without the text, the image makes sense. You can know from the signs that the zebra crossing is where we have to cross the road so if you understand the sign, you can tell from the advert that this is what they are trying to say.”*

Eben (male pedestrian)

*“For drivers, when we see people standing there as in the picture, we are supposed to stop. From the way they [pedestrians] are standing there [in the picture], I can’t tell whether the [approaching] car has stopped. And if it has stopped, it doesn’t seem like they are ready to cross so it a little bit confusing.”*

Richie (male driver).

*“I think the guy’s focus is on the wrong side. Ideally, if a car is supposed to stop for you, it should be from the other side. The cars will come from his left side. If this line [the stop marking on the road] is here, then it is still wrong. I have never seen a zebra crossing that has the stop line for drivers after it; it is always before the zebra crossing. I have seen some [road] signs which are wrong... I saw one [road sign] which was saying the road bends to the right but the road bends to the left. I think it’s around Madina, behind UPSA. So, I don’t know about this line [stop marking on the street in the campaign ad], but for me... this is wrong.”*

James (male driver)

*“The one on the bicycle is looking at the place where the cars are supposed to be coming from, but it appears the women and children are chatting and not ready to cross.”*

Jerry (male driver)

*“I have a problem with this picture: you can see that there is a road behind them but there is no zebra crossing on it.”*

Nana (male pedestrian)

#### 4. Don't drink and ride campaign ad



**Figure 8: Don't Drink and Ride Ad**

Source: National Road Safety Authority's Facebook page

Almost every participant was of the view that without the text, the image on its own did not carry the same meaning. The image of a motor bike lying on a road with a helmet by the side was deemed as not communicating much on its own. According to some of the views expressed by participants, the image could go for an over speeding ad or an ad to check jumping of red light by motorcycle riders. Some suggested that an injured rider and a bottle of an alcoholic beverage somewhere in the picture would communicate the idea better. Others also were of the view that creating a before and after story to show a rider consuming alcohol and having a motor accident after would have given a much clearer message. Participants took note that the adverts focus on the motor bike indicates that the campaign was targeted at motor riders and not pedestrians or car drivers. Below are sampled comments by participants:

*"It depicts an accident because you will not usually see motor [cycles] parked like this."*

Gabby (male pedestrian)

*"You can just see a motorcycle; as to where the human being is, you can't tell. What shows that the person was drunk? You can't tell. There is nothing talking about drinking here so the image and the text don't really tally. The image could also go for not respecting road signs or*

*jumping the traffic light. When it is red and you [riders] are still forcing to go through you can be knocked down. Most of the time, that is what we see happen. Without the text, there is nothing talking about drinking here [in the ad].”*

Alfred (male pedestrian)

*“[With the picture and the text] I don’t think the communication is appropriate. I think they can show a bottle [of an alcoholic beverage] or something so that you can see that this is what resulted in the accident. The advert could go for over speeding... It is the text that has restricted the thing to this angle.”*

Eben (male pedestrian)

*“If they are going to insist on using this one [image of the motorcycle lying on the street], then there should be a human being beside it and some alcohol bottle that is also broken beside it.”*

Richie (male driver)

*“Such adverts are for road users, they should make them a little bit bright. It’s too dark.”*

Jerry (male driver)

## 5. Easter Campaign: Don’t drive tired



**Figure 9: Easter Campaign: Don’t Drive Tired**

Source: National Road Safety Authority’s Facebook page

Almost all participants described the above image as a male driver sleeping behind the steering wheel. Participants found this image, among the other campaign ads, to be the most effective in terms of communicating the intended message without the text. Some were of the view that using an illustration of an African instead of a Caucasian would have been best, considering the fact that the target audience were basically Ghanaians. Participants were also of the view that the warning sign in the ad sent a message across to drivers to avoid driving tired. The use of images and visual representations helped participants to interpret the message in this ad much better (Pauwels, 2008).

*“To be sincere, to me, this picture without the text, I will get the idea.”*

Remy (male pedestrian)

*“I will also get the idea.”*

Sue (female pedestrian)

*“For me, the idea will be don’t drive when you are feeling sleepy and not tired.”*

Nana (male pedestrian)

*“The image is a warning to the driver. The message is very, very clear.”*

James (male driver)

*“There is a caution sign; he is sleeping; he is holding the wheel with both hands, he is driving. But, with the illustrations, I always feel that every background with more cars show us that the car is moving. Every time the background is empty, it doesn’t really tell that the driver is on the road... Since it’s a Ghana ad, right, maybe they should consider using a black man so that it will be localised?”*

Eli (male pedestrian)

Participants were asked to express their views on what they perceived the different campaign ads were communicating as the expected behaviours from target road users. For each of the campaign ads, the perceived expected behaviours are presented below. Similar perceptions shared by different participants are presented as one.

**Table 8: Campaign Ad and the expected behaviour**

No.	Campaign ad	Expected behaviour
1	Arrive Alive Campaign: Don't text and drive	<ul style="list-style-type: none"> <li>• Abstain from texting and driving</li> <li>• Put your phone on silent or off when you are driving and put it far away so you'll not be tempted by it</li> </ul>
2	Arrive Alive Campaign: Fasten your seatbelt	<ul style="list-style-type: none"> <li>• Drivers must put on their seatbelt before they move their car</li> <li>• Both drivers and passengers must wear their seatbelt</li> </ul>
3	Arrive Alive Campaign: Always use the zebra crossing	<ul style="list-style-type: none"> <li>• Pedestrians should always cross the road at the zebra crossing</li> <li>• Look out for the zebra crossing to cross the road since it is the safest place to cross</li> <li>• When drivers see the zebra crossing, they would have to stop for them to cross the road</li> </ul>
4	A dream ride can become a nightmare. Don't drink and ride	<ul style="list-style-type: none"> <li>• Don't drink and ride your motorcycle</li> </ul>
5	Easter Campaign: Don't drive tired	<ul style="list-style-type: none"> <li>• If you feel tired, don't start a journey as a driver</li> <li>• If you are driving you feel tired, park your car and rest</li> <li>• Commercial vehicles that go on a long journey should have at least two drivers so that when one is tired, the other can take over</li> </ul>

On the second issue, the researcher sought to gain insight into some of the behaviours, either positive or negative that are persistent among road users that also have an impact on social learning among Ghanaians. The experiences of participants were of prime interest as they tended to be empirical. In most cases, participants identified with the experiences shared by others in the focus group, indicating that the behaviours outlined were not unique to the sharer of the information. Sampled responses are presented below:

### **On the use of mobile phones while driving**

*“Now it’s even fashionable; people sit in cars and take calls and do videos while driving. Funny enough, they are doing live videos while driving: Facebook live to educate people [on other subjects] meanwhile, they [themselves] are doing the wrong thing. Unfortunately, I see it a lot: you see the driver, not even the passenger but the driver driving and having a Facebook Live [video]. Most of the celebrities do it. These are the people who should even champion this arrive alive campaign but you see them on Facebook, driving and still having a Facebook live.”*

Alf

### **On the use of zebra crossings**

*“With road users, especially pedestrians, they should always use the zebra crossing. There are time and time again I meet people crossing the road where [within] about 20 meters ahead of them there is a zebra crossing for them to cross. When I was doing my service at SNNIT, there was a bus stop. When you are coming out, there is zebra crossing on your left. You just have to walk, I think 10 steps to access it, but they [pedestrians] always cross in front of [before] the zebra crossing. Let’s say someone is going to Korle-Bu, he won’t take the 10 steps to the left, use the zebra crossing and then go back. They will always cross [anywhere] to wherever they are going, which is very bad. I was always taking the 10 steps to use the zebra crossing. I had someone say I’m book long [regimented].*

*When I started driving, they [people] were telling me that my driving is not for Ghana: For the way I drive, I’m supposed to drive outside [a Western country]. That is one of the things people were telling me because I was not like the usual ‘takashi’ [aggressive] driver. I think that doesn’t even help. We create problems for other road users.”*

James

*“In Ghana here, drivers don’t mind zebra crossing. They see you on it and they are still coming on top speed so you have to run if you value your life.”*

Joy

### **On the use of seatbelts**

*“I always want to use myself as an example. I don’t [use seatbelts]. One problem I have is that when they [development partners and campaign sponsors] are creating these ads, they only*

*use the drivers... Pictures communicate a lot. Someone sees this picture and thinks that it is only the driver who has to always be in his seatbelt. Okay, but if they have ads that also show passengers using the seatbelt, it will communicate something. Now, I use public transport a lot. In the trotro, there is no seatbelt for passengers. Even the driver does not have a [good] seatbelt. When they meet the police, they pull it like this [an already locked seatbelt from the back and across their body in the chair] or even sit on them [that is, the seatbelt pulled across their body and place the male buckle end or latch beneath their bodies by sitting on it]. With passengers, we don't have seatbelts in the car because most of the cars that come here [are] in quote 'home used' so some come with it and some don't come with it. I personally don't use it. When I sit in a private car, I even forget I have to use a seat belt. As I see the driver use it, I'm okay. It means I'm safe. I forget that if there's a collision, I can be thrown out of the car. But because I see a driver strapped I think then I'm safe. I forget about my personal safety. I think that is where my issue, my problem is."*

Alf

*"Anytime I order for an Uber, it's the driver wearing the seatbelt. A policeman can meet us and he can see the driver wearing the seatbelt and me not wearing the seatbelt but he will not ask me anything, which means I'm safe."*

Prissy

*"I have heard some people say that when they fasten their seatbelt, they can't breathe, or their tummies are too big so they can't fasten their seatbelts because they become uncomfortable. That is their excuse for of putting on the seatbelt. Some people also say that when there is an accident and you have your seatbelt on and you have to run out of the car, because of the seatbelt, you will be held in place. So, if the car should explode, you will be in it and it will explode. Because of that belief, they don't use the seatbelt, which shouldn't be."*

Gail

### **On respecting the traffic light**

*"I found myself at [the] motor court, [in] 2013 and ever since that time, my driving has changed. I was coming from Tema and [at the] Royal Fiesta traffic light—Dzorwulu traffic light—I saw amber. I thought I could go. Before I realized, the [cars] from the other side, from Royal Fiesta going this way [he demonstrates with gestures], their light was green. Before I realised, I had collided with one Dr..., he's a military doctor, and the two cars [were*

*damaged]. And, this man was on me that I should come and pay [for damages]. After going through the testing and all that at the Airport Police Station, I was told to come and pay a bill of about 10,000 [Ghana Cedis]. I asked [myself] why [do I have] insurance? Though I created the problem, I [didn't] think that if I went to court, they will ask me to come and pay the GHS10,000 so I said [to them], let's think about it again but they were giving me pressure that even if it was GHS5,000 [I could readily afford], I should come and pay.*

*Finally, I had to call a lawyer to lead me to court, went to the motor court, I admitted to the 3 counts and they gave me a fine of 360 Ghana Cedis and I paid. I went to pick up my car at the police station, and when I went, my battery was missing, [and] my car key was missing. I had a spare key. I picked my car and sent it to the mechanic to fix it. They gave me whatever they will give me for the insurance too. His car [insurance] was also comprehensive and mine was third party. I could have waited for how many minutes? Less than 2 minutes to avoid that court issue. So, amber means red to me! Now, if I'm heading towards a green light [from afar], I don't see it to be a green light anymore; I slow down. When I'm getting close [to the traffic light] and it's still green, then I will go. [This is] because most of the time, when you see it afar, [you speed to pass through]. It's a serious offence because you are heading towards a junction and automatically, you have to relax. Someone may be silly and [bump into your car].*

*I will not waste my time at the fitting shop or police station. So, [for] my 1 minute and my 2 minutes, I will just [wait]. I will devote my 1 minute and my 2 minutes. It will not cost [any] problem to relax, because we have kids on board who will definitely learn driving. So, [with] that attitude, you are talking to them indirectly that they can do that thing. They are learning how to [drive]. So, [for] that time you've been dodging [running through the red traffic light], they will come and take over and we'll still be producing more messed [up] drivers in this country.”*

Jerry

*“I remember that one time I wanted to be a very good citizen and so I said [to myself] that [for] this time, if the traffic light for the cars is green and the pedestrian one is red and there were no cars coming, I will wait. I was standing there [and] people were crossing. They were looking at me. They were wondering, this guy, is he mad? I looked strange because there was no car approaching and I was waiting for the traffic light to tell me that I should cross the road. Because it is not part of us, they saw me to be strange. So apart from ‘when you see a*

*traffic light there is something you should know: red means stop...”, they should teach us other things... at least there should be something small in the syllabus from class one, class two... At least, by the time you reach JHS [Junior High School], you have an idea on some of these things [road traffic regulations].”*

Nana

### **On driving tired**

*“When we went on a trip to Nzulezu and we were coming back, our driver was sleeping. Hm! People were crying [in the bus]. He was sleeping and he was [driving]. When you wake him up, he sleeps again. It was a long journey. When we got to Mankessim, we asked him to stop. [There was] a police station [nearby] and we asked him to stop and rest a bit there. He said no! We continued with the journey and people were praying, shouting... [That was] very risky. It was a Metro Mass [bus].*

Gail

A friend of Gail who was part of the focus group and also part of the trip mentioned above testified to the story.

*“Eei, I was even crying. That day eh! It was around 1am. There was another driver in the bus but he was just sitting there. He didn’t take the car from the driver. We had our own [school bus] driver but the driver [of the Metro Mass bus] did not want to give the [bus] to our driver. He was tired but he didn’t stop. Hm! [That was] very risky!*

Precious

The researcher enquired from the two ladies whether they reported the driver to anyone after the trip. According to them, no one reported the driver because they were not confident that neither the institution he worked in nor the police would take any action against him.

*“One time we travelled to the Volta Region. When we were coming [back]in vehicle, we were about six. There was one particular driver of a car we were following. The car will go towards the side of the road or into the opposite lane and then will come back. Our driver was very cautious of the car in front of us. We realised that any oncoming car could just [crash] into that car so we had to find a way of stopping that. Our driver was smart enough to drive past the [other] driver and manage to go and park in front of him, give him a sign and ask him to*

*park on the side of the road. We spoke to the driver telling him that he either gets down and someone from their car drives or we will report him [to the police]. I think they had travelled a long distance was tired. The driver too was a bit intoxicated at the same time. He said no one in the car could drive so we had to allow someone else from our car to drive [their car]. This was because we realised that if we should continue [without caring], it's likely they will have an accident. They were going in the same direction [as we were].*

Richie

*“When you are tired, park. If you are travelling and you feel you're tired, park somewhere and sleep for a while before you continue. Sometimes, just a 30 minute sleep can change a whole lot. I don't have a personal experience but my senior brother [does]. He went to church and was returning home. At Mallam, [that is] from Mallam towards Gbawe, he said he was very tired and before he realised, he was off [in] a deep sleep for like 2 seconds and he hit the next car [in front of him]. But because it was in a traffic that very slowly, it wasn't that impactful even though he damaged some portion of the other car. I've been wondering, if this happened on a highway and the cars were really moving fast, what could have happened? It happens in a second! Sleep is something that can overtake you within a second. You can't actually tell when you sleep so if you are tired, just sleep and continue. Your family needs you alive. You yourself need to be alive.”*

Alf

### **On law enforcement and education**

*“I think that some of these signs should be implemented and I think that they [NRSA] should partner with the law enforcement agencies and use more technology because some of these law enforcement agencies can deal with that. So, if you have a camera, cameras don't lie. They should punish they people. They should trace some of these people [road traffic offenders] and punish them; that way, people will take it [road traffic regulations] seriously. It looks like people drive and they don't have that education. They get licenses but they don't go through the nitty-gritty of driving and all that. We need to really go back to that.*

*There was a time we [myself and two friends, one male and the other female] were with an Uber driver and the driver didn't know a particular sign; that this one [particular sign], he had to do this. Because my female friend had been to driving school, she told him that if you go to driving school, they teach you all this. He said I didn't go to driving school so I don't*

*know that, but this is someone who has a license and he is driving. They really need to work on that because if he knocked someone down, it was really due to lack of knowledge.”*

Judy

### **Level of awareness of viewers with respect to the intended messages of visual communication for behaviour change in road safety**

The third research objective focused on level of awareness of viewers with respect to the intended messages of visual communication for behaviour change in road safety. From the study, the researcher identified the following as some of the key findings:

1. A visit to the website and social media accounts of the National Road Safety Authority (NRSA) of Ghana shows that the Authority uses different visual communication tools to guide behaviours of road users on roads, raise road safety awareness, train and educate different road users, and to inform the general public about developments. The visual materials are in the form of still images and videos. They include pictures, designed images, illustrations and short videos. Some of the images are printed, for example, in the form of stickers that are given to drivers, while others displayed on electronic media, such as on social media.
2. NRSA initiates and partners other organisations in campaigns to ensure road safety. During such campaigns, adverts are developed to create awareness and communicate messages to educate road users.
3. Participants' inability to identify some campaign ads by NRSA and their persistent suggestion that NRSA must use social media as a tool to reach out to road users to educate them indicates that their presence and activities on social media remains unknown to a lot of Ghanaian road users. Awareness of the visual tools on social media is very low. NRSA has presence on different social media platforms, such as Facebook, Instagram, Twitter and YouTube. However, they have very few followers even though they have some good content. Facebook had the highest number of followers (13,127), followed by Instagram (1,114), Twitter (351) and YouTube (30). Their posts do not generate enough engagement with visitors to their pages. This is evidenced by the very few likes, comments and sharing of the visual images.
4. Participants possessed some level awareness of the road signs. Generally, respondents offered a better interpretation and displayed a better understanding of the informatory signs than the regulatory and warning signs. Both drivers and pedestrians identified

some signs more easily, such as the traffic light ahead, zebra crossing and bus stop signs. Other road signs were either interpreted wrongly or participants were unsure of their meanings. In comparison with the campaign ads, participants demonstrated very low levels of awareness of the ads but better visual literacy. This is probably due to the use of pictures that helped respondent to identify the objects in there more closely with things in real life (Sebeok, 2001).

5. Respondents drew on their experiences in other areas to interpret the colours used to code road signs and the images used in the campaign ads. By this, even though they mostly admitted not knowing the colour coding of road signs, they interpreted red to mean a warning or caution, and the blue and green signs to be informatory. Only one participant attempted to explain the meaning of the shapes. Respondents were of the view that the images and text complimented each other to give a much better understanding of the campaign ads. On whether the images alone communicated the same intended messages, they identified 3 out of 5 ads as communicating effectively, 1 image as not communicating effectively, and 1 were divided over the effectiveness of 1, offering the indication that improvements are needed in the visuals to communicate more effectively.
6. The experiences of respondents show a widespread and persistent disregard for road safety practices, indicating that there is still much grounds to cover in using visual communication messages to change road safety behaviours among Ghanaians. Poor identification, wrong interpretations, inadequate cues, low levels of engagement in addition to a general lack of self-efficacy culminate in the ineffectiveness of visual messages used by NRSA. Participants highlighted education on road safety practices across different aspects of society and enforcement as keys in ensuring road safety behaviours among Ghanaian road users.

**Measures National Road Safety Authority can undertake to maximize the positive impact of visual communication.**

The final objective considered the measures National Road Safety Authority can undertake to maximize the positive impact of visual communication. Seeing the communication effort of NRSA through the use of visual communication tools and the low level of impact on shaping behaviours of road users, participants offered various suggestions on the means by which NRSA could communicate their visual messages with road users. These suggestions are consistent with other studies that highlight the importance of careful planning of messages and

choosing of the various means of communication (Delhomme et al, 2009; Wundersitz, Hutchinson and Woolley, 2010; Hanson et al. 2020; Nsiah-Acheampong, et al., 2020) on one hand, and the use of education, enforcement and legislation as supportive activities to enhance the effectiveness of road safety campaigns (Delhomme et al, 2009). Below are the suggestions provided:

1. **Social media:** Participants suggested that the use of social media would reach a large number of people because more people spend a lot of time on their phones, specifically on social media. They suggested that sponsored adverts on the various social media platforms would help users to see some of the campaign ads without visiting NRSA's pages first. This would create and increase awareness of ongoing campaigns and activities involving NRSA and possibly draw likes and followers.

*“It's been shown through research that within a particular time, there are a lot of people on social media as compared to traditional media. A lot of youth now are on social media so the best place to channel a product, an advertisement, a warning is on social media. They [NRSA] should use social media a lot: Instagram, Twitter, etc. Now, it's even TikTok [that is the vogue]. They can utilise some of these social media platforms. They will go a long way to help. For example, YouTube has a way of forcing you to watch an advert when you are doing something else. It comes without you requesting for it. You will have to wait and skip it, but before you skip it, you would have seen something in some 5 seconds. Within the 5 seconds, something can hit you and you'll be prompted to watch it.”*

Alf

2. **Traditional media:** The television was believed by some to be a good place to share some of the visual messages. Some participants recounted receiving some form of education on road signs and seeing some campaign ads on the television. They also suggested that the time and reach of the particular TV stations used must be factored in the decision making in order to reach a large audience. Participants were also of the view that visuals can be made more interesting by animating them and forming them into interesting stories.

*“Since people are more stuck to the TV nowadays, I mean their [favourite] programmes, these people [initiators and sponsors of road safety campaigns] can actually heir people to create some simple motion ads to play whiles there is an advert session for [people’s favourite programmes].”*

Eli

*“If they [visual campaigns] should come with story lines, they will be interesting.”*

Gail

- 3. Printed teaching and learning materials (TLM):** Participants suggested that learning of road signs should be incorporated into academic learning in the basic schools. Printed books, brochures and posters among others, were suggested could be used as teaching and learning materials for schools. Aside the schools, participants also suggested that a deliberate effort to educate road users can be carried out in partnership with driver unions and religious organisations where TLMs can be used to help people see the visual signs.

*“It should be part of the curriculum [for schools]. We can have a small book, [like] a life skills book from which those in schools would be taught [at all basic levels] for us to build on. By the time they get to SHS, they have an idea about some of these things holistically. I think it will help us [as a nation].”*

Nana

*“We should make it [education on road safety] collective. Someone’s child does not go to school but the child goes to a place of worship, so we can make the education collective and get everyone.”*

Eli

*“The reason why I endorse the [places of worship idea] is that there are people who can work the whole week but [on their day of worship], they are dedicated to go to their [place of worship]. So if during that [time] they can also make use of that opportunity to get the access and attention of such people, I think it will really work”*

Remy

4. **Advertising boards:** Participants suggested that advertising boards at vantage locations on roads and car stations would help with education and serve as reminders to road users about the desired behaviours they should engage on the roads.
  
5. **Legal enforcement:** Participants identified partnership between NRSA and other state agencies such as the police, judiciary and Drivers and Vehicle Licensing Authority (DVLA) to ensure legal enforcement as a key cog in institutionalising safe road practices. They suggested that lack of enforcement of road regulations allows unsafe practices to fester and more people adopting such behaviours. They postulated that the law must take its course to punish road safety offenders to discourage the growing breaches of regulations by road users. In doing so, participants also suggested that driver's licenses should only be given to those who have gone through the necessary training.

#### 4.4 Summary

The findings and results of the study are presented and analysed in this chapter. The visual materials used by the National Road Safety Authority of Ghana were ascertained in order to meet the first objective of the study. From NRSA's official website and social media platforms, pictures and videos of their events, activities, and campaign ads show different visuals used by them. The visuals include printed materials (e.g. stickers, posters, etc.), digital ads used on social media and in television ads, and adverts on advertising boards. The ads were made up of still images and videos. Road signs and campaign ads were evaluated to examine their effectiveness in communicating messages to road users in fulfilment of the second objective. Results from the focus group discussions were presented in the form of summaries, tables, a pie chart and sampled quotes. Participants' views, beliefs, experiences and suggestions offered insights into how respondents identified, interpreted and used information from the visual images in their behaviours on roads. It also offered insight into the effectiveness of the visual communication as to the importance of the messages to road users, and the extent to which they are regularly used.

Awareness of the intended messages of visual communication for to influence behaviours towards road safety practices were presented to satisfy the third objective. Participants' thoughts and experiences with visual communication were shared. Finally, participants'

suggestions on measures that NRSA can employ to maximize the use of visual communication were shared to fulfil the fourth objective. Generally, the effectiveness of the visual communication strategies were found to be low as awareness, knowledge, interpretation and use of road signs in taking decisions on roads were inadequate, according to the views and experiences of participants.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

The findings obtained from the study on examining the effectiveness of visual communication tools employed by the National Road Safety Authority of Ghana on behaviour change was discussed in the previous chapter. In this chapter, the findings are summarised in relation to concepts from the reviewed literature in Chapter 2, from where road safety was understood within the concepts of development, social learning and communication. Furthermore, recommendations, based on the findings, are outlined, as well as possible areas for further research. The chapter ends with a conclusion of the study.

#### **5.2 Summary**

The study was undertaken to examine the effectiveness of the visual communication tools employed by the National Road Safety Authority of Ghana on behaviour change. The research was carried out using qualitative research methods. A search through the website and social media pages of NRSA was used to identify the visual tools used by the Authority to communicate behaviour change messages. Interview was used to ascertain and explore the awareness of NRSA's visual communication tools, their effectiveness and measures to improve their impact on desired behaviours from the view of road users who happen to be the target of such visual messages. A set of semi-structured questions was used to generate discussions that allowed participants to express their perceptions and beliefs. It also allowed the researcher to explore their experiences and thoughts for more insights. The findings are summarised in fulfilment of the objectives of the study.

##### **5.2.1 Ascertaining the types of visual communication tools used by NRSA**

To identify the types of visual tools used by NRSA, the researcher set out to find those visuals that are used to communicate desired behaviours to road users in order to ensure their safety as more roads are constructed to improve Ghana's development. The development of roads, for all the good intents to enhance movement and economic activities, as well as improve the well-being of Ghanaians, had also become more deadly than the global COVID-19 pandemic. Communication plays an important role in sustaining development. NRSA is tasked to promote and enforce practices that curb the widespread behaviours that endanger the lives of roads

users, having been made and authority instead of a commission to be more effective in its role. NRSA is use uses communication as a tool to create awareness, educate and inform people about safe behaviours and to engage road users on safe road practices as part of sustaining development. Visual tools are used as part of NRSA's communication strategy. These visual tools are those that use images to communicate planned messages. Different visual tools were identified. They included both still images and videos. They were either printed or used digitally and were made up of pictures, illustrations and designed artworks that focused on specific messages and behaviours. They are used to create awareness, educate and inform road users. The visuals have presence in the traditional media, on bill boards, and on social media. Participants attested to having seen visual ads by NRSA, either solely or in collaboration with other development partners.

### **5.2.2 Visual Strategies to communicate behaviour change**

NRSA uses road signs to communicate expected behaviours that ensure their safety. The signs communicate messages to both motor vehicle drivers and pedestrians. They are situated at vantage points to serve as cues to road users while they are on the road. Aside road signs, NRSA embarks on campaigns to improve awareness of road safety behaviours, educate road users and inform them about new developments and safe practices, such as how to navigate newly constructed roads. Visuals are used to communicate various planned messages to users during campaigns and to engage them to adopt safe practices. As in other road safety campaigns, the messages involve colour codes and images that communicate specific ideas to observers. Some visuals are complemented by text or oral narrations, as in videos. This research focused still images with minimal text. During campaigns, specific behavioural problems are addressed. The visual messages are printed on stickers for drivers who post them on their cars, are advertised on billboards, shown on television or posted on the social media pages of NRSA to reach the tech savvy people and have them talking.

### **5.2.3 Exploring level of awareness of messages**

Visual messages were limited to road signs and campaign ads. For the purpose of this study, video messages were not included in the visual messages. 10 Sampled road signs and 5 campaign ads were drawn from the Arrive Align Campaign (3), Easter Campaign (1) and Don't drink and ride campaign. It was observed that the participants of the focus group discussions possessed some knowledge of road signs. Respondents interpreted and better understood the

informatory signs than the regulatory and warning signs. Signs such as the traffic light ahead, zebra crossing and bus stop signs were easily identified by participants. Participants were unsure of or misinterpreted the meanings of some signs, mostly the warning and regulatory signs. Participants were unsure of the colour coding of road signs and almost had no idea about the meanings of the shapes. These demonstrated a low level of impact of visual communications by NRSA that also reflected in the behaviours of respondents on the road.

Participants displayed a much better appreciation of the campaign messages, howbeit, most had not seen any of the ads. In total, only 8 out of 23 had seen at least one of the ads. The less than average awareness of campaign ads by respondents was a reflection of the finding that NRSA had very few people following them on social media, liking, commenting and sharing their post. The low patronage of the pages indicated that few people are reached by the visual messages. Respondents were able to analyse the images used in the campaign ads, identify errors in the visual messages and proffer suggestions on measures to enhance the effectiveness of NRSA's visual communication tools for behaviour change.

#### **5.2.4 Measures that can be taken by NRSA to maximise impact of visual communication on behaviour change in road safety**

Participants offered suggestions on measures that can be implemented by NRSA to make visual communication more impactful on road users' engagement of road safety behaviours. The suggestions included NRSA consciously using and increasing its presence and visuals on social media; strategically engaging road users through creative educative visuals at peak times in the traditional media, especially on television; developing printed teaching and learning materials (TLM) to be used as part of academic learning in the basic schools and in partnership with driver unions and religious organisations in campaigns; and regular advertising of safe road practices on advertising boards installed at vantage locations. It was also suggested that NRSA partners with and other state agencies to use legal enforcement as a supporting drive to discourage the social learning of unsafe practices that currently go unpunished and appear to be catching up with many people. These would also encourage the adoption of recommended behaviours.

## 5.4 Conclusion

The study set out to explore the effectiveness of the visual tools employed by the National Road Safety Authority of Ghana. This was against the backdrop that even though road projects had increased to better the lives of Ghanaians, road accidents had become rampant and increasingly fatal, making the phenomenon more dangerous than the COVID-19 global pandemic. The new status of NRSA from being a commission was to empower them to take more effective decisions to ensure the promotion and enforcement of road safety practices. The research focused on the visual tools used by NRSA to communicate messages that are intended to get road users to engage behaviours that make the roads safe for all users. A visit to the website and social media platforms revealed that visuals used by NRSA include pictures and illustrations that are presented as either still images or in videos to create awareness, educate, and inform road users about safe road practices. The visuals are either printed or saved in digital formats and displayed in both traditional and new media. NRSA was found to use road signs and engage in campaigns to communicate safe road practices to road users.

It was established that knowledge of some road signs, such as traffic light ahead, zebra crossing and bus stop signs which are among other inforamatory signs was high among road users. However, warning and regulatory signs were not as understood as inforamatory signs. They were either misinterpreted or participants were unsure of their meanings. Participants also demonstrated a good ability to analyse images used in campaign ads and could identify how some aspects effect unintended meanings in the ads. However, most had not seen them before. They attested to the fact that texts complement the images used in the visual ads. Generally, the visual tools were not very effective in shaping the behaviours of road users as they were not observed in all instances. Participants did not express very good knowledge, understanding and application of road signs. They were unsure of the exact meanings of messages and their awareness of the campaign ads being spread on social media by NRSA was virtually low as well. The experiences shared by respondents were mostly negative, emphasising that the visual messages were not achieving much results.

Measures to maximize the positive impact of using of visual communication tools were explored, among which increased activities on social media, development and use of creative visuals in the traditional media, use of well-designed teaching and learning materials in partnership with schools and religious organisations, utilising advertising boards and forming

partnerships with other state agencies to ensure legal enforcement of road safety regulations were outlined.

### **5.3 Recommendations**

From the results of the study, it was found that even though NRSA uses visuals to communicate messages to influence the behaviours of road users through awareness creation, education and information, there are many challenges that hinder the effectiveness of the visual messages. In view of the above and taking into consideration the need for a holistic approach to ensure road safety practices through recommended behaviours by NRSA among road users, the following are recommended by the researcher:

Firstly, a deliberate effort must be made by NRSA to educate road users of all categories and levels on how to identify and interpret road signs. The education should be widened to include more road signs that are taught in schools. Campaign messages should also target specific institutions, e.g. religious institutions to make the efforts of NRSA sustainable. Teaching of road signs and road safety behaviours should be integrated and consistent in the curricula of basic schools so that they become aware of the signs and what they mean from a young age.

Secondly, road signs must be installed on roads and be made conspicuous. This will help road users to see them often and identify them. Destroyed installations should be replaced in a timely manner and where other activities or elements make installed signs less conspicuous, those impediments should be removed. Faded road markings should be worked on to help road users take notice of them while they use the roads.

Thirdly, NRSA should make their presence in the media space felt so that more Ghanaians can take notice of their activities and follow them. The visual messages, for instance, can be boosted so that they are often seen on social media by users. Catchy and very interesting ads with well couched messages will attract the attention of viewers. They can serve as effective cues to help road users identify recommended behaviours and engage them.

Fourthly, images used in the campaign ads should be localised. Elements used in the ads and the messages communicated should reflect what pertains to Ghana. This will help observers to identify with the messages and learn rightly. Attention should be paid to how the images used

are designed and presented. They should be clear and draw on the experiences of the target audience.

Fifthly, education and communication of appropriate road safety tools and practices should be complemented by law enforcement to check behaviours of road users and control social learning. Lack of enforcement leaves room for the perpetuation of unacceptable and dangerous behaviours on roads. The prevalence of inappropriate road safety practices set examples for other road users who also perpetuate them. They also subdue the education and efforts that are deliberately carried out by NRSA. NRSA should use its authority status to coordinate with state institutions to ensure that bad practices are punished to discourage continuity and spreading of such behaviours.

#### **5.4 Suggestions for Future Studies**

The researcher suggests further studies into the challenges associated with the visual communication strategy of NRSA, assessment of the impact of road safety campaigns in Ghana and the evaluation of supporting activities engaged by NRSA to ensure the positive impact of road safety campaigns.

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3.3.1	Exploring participants' level of awareness with respect to the intended messages of visual communication for behaviour change in road safety
3.4	<b>Measures National Road Safety Authority can undertake to maximize the positive impact of visual communication</b>
3.4.1	Identification of various measures NRSA can undertake to maximize the positive impact of visual communication
3.4.2	Discussion of various measures NRSA can undertake to maximize the positive impact of visual communication

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