UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

AN INVESTIGATION INTO THE CAUSES AND EFFECTS OF VEHICLE BREAKDOWN AND ROAD ACCIDENTS IN THE BOLGATANGA MUNICIPALITY

JOHN AKOLGO

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A Dissertation in the Department of MECHANICAL TECHNOLOGY EDUCATION, Faculty of TECHNICAL EDUCATION, submitted to the School of Graduate Studies, University of Education, Winneba in partial fulfillment of the requirements for the award of Master of Technology Education (Mechanical) degree.

DECEMBER, 2014

DECLARATION

STUDENT'S DECLARATION

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

SIGNATURE:…….....

DATE:…….....

SUPERVISOR'S DECLARATION

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

MR. STEPHEN K. AMOAKOHENE

SIGNATURE: .....……..

DATE:…….....

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Last but not the least, my appreciation goes to all loved ones who supported me in diverse ways throughout my education.

DEDICATION

This dissertation is dedicated first and foremost to the Almighty God, for protecting me throughout all my years of formal education and for making this Masters Programme a reality.

I also dedicate this dissertation to my parents, Mr. ADUGDOO and Madam ATIBIRE (both of the blessed memory), my children, EUSEBIUS and MELVYN and to all my relatives for their love and care that has brought me this far.

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ABSTRACT

The purpose of this study was to investigate the causes and effects of vehicle breakdown and road accidents in the Bolgatanga Municipality using purposive random sampling technique with emphasis on convenience sampling technique or method to sample out the various respondents for the study. Out of 100 respondents chosen for the study, only 96 respondents responded to the questionnaire. The objectives of the study were to determine the causes of frequent vehicle breakdown, assess the level of competence of vehicle mechanics, and how to reduce frequent vehicle breakdown. The result on the causes emerged that improper care of vehicles was the major cause of vehicular breakdown and accidents as many drivers do not check their vehicles daily before use, no respect for road safety regulations, high alcoholic intake of drivers, over speeding and driving whiles making or receiving calls, and overloading of passengers/goods were some of the discussed causes. On the level of competence of vehicle mechanics, the study revealed that many of the mechanics are not performing to satisfaction and must be certified by a higher authority before operating and be exposed to formal vocational or technical training on current technology and entrepreneurial skills. On how to reduce frequent vehicle breakdowns and accidents; vehicle drivers must comply with the road traffic laws, and perform routine maintenance of their vehicles. Finally the study recommends that, there should be Government/private partnership to train mechanics, provide heavy duty towing trucks to clear breakdown vehicles and the MTTU police and DVLA should be strict in their operations with more public education on the causes of vehicular breakdown and road accidents and penalties for infringement of traffic laws.

CHAPTER ONE

INTRODUCTION

This chapter gives the background information, problem statement, purpose/objectives of the study, research questions, significance of the study, limitations and finally ended with the organization of the study.

1.1 Background of the Study

Transportation is a vital function of human society. To a large extent, the economic and social development of nations is pivoted on transportation system. In fact, the realization of global trade objectives is also hinges on transportation and that the linkage between transportation and economic development will continue to be a cutting edge for global economic prosperity. Any transportation breakdown creates a memorable hardship in human life and hence has negative consequences on the socio-economic development of a nation (Harriet, Poku and Anin, 2013a; Kulash, 1999).

Realizing the importance of this sector, the Government of Ghana (GoG) has over the past decade continued to pursue comprehensive road infrastructure development and transport service progammes aimed at improving accessibility and mobility in the country as part of its poverty reduction strategy (Minister of Road and Transport Report, 2006).

The World Report on Road Traffic Injury Prevention (2010) indicated that without appropriate action, road traffic fatalities are predicted to increase by 67 percent between 2000 and 2020, and in low-income and middle-income countries deaths are expected to increase by as much as 80 percent.

The report further indicated that in the low and middle income countries including Ghana, the majority of such deaths and injuries are among "vulnerable road users" (VRU) thus the pedestrians, cyclists and motorcyclists. Without sufficient safety facilities on the road, urban junctions are the places where many crashes and traffic conflicts occur. However, the safety on most of the roads and their junctions has not been always considered sufficiently by people when planning cities or designing of roads.

Vehicular accident in this country has become one of the growing concerns to most Ghanaians in recent times. This is due to the tremendous effect of accidents on human lives, properties and the environment. Many researchers have come out with the causes, effects and recommendations to vehicular accidents. These causes include drink driving, machine failure and over speeding, Sagberg F. and Saetermo (1997), National Road Safety Commission (2009) and Adams (1982). Yet every year, the road safety commission, Ghana Statistical Service and other organizations would report an increase in vehicular accidents; Annual Report, National Road Safety Commission, Ghana (2009).

In Ghana, vehicular or road accidents have been identified as one of the major causes of deaths across the length and breadth of the country. Vehicle accident is classified as the second major cause of death in the country following malaria. According to the road traffic crashes in Ghana statistics for the year 2009 by Building and Road Research Institute, it shows that there were 12,299 road accidents for the year 2009 culminating from vehicle break down and related issues, Afukaar et al (2009). There were total of 18,496 casualties with 2,237 of them losing their lives, while 6,242 sustained serious injuries due to vehicle accidents. The results further

reveals that there was an average of 6 deaths everyday in Ghana which was caused by road accidents, as cited in (Oppong, R.A, 2012).

It is estimated that the population of Ghana stands at 24,223,431 and there are over 1,030,000 registered vehicles which ply on the various road network in the country. Apart from the Ghanaian registered vehicles there are other vehicles from the neighboring countries which moves in and out of the Ghana due to the various ports we have in the country. There are not less than 10,000 recorded road accidents annually in Ghana. These accidents cause over 1,600 people to lose their lives and more than 15,000 getting injured, Fletcher J.P., et, al. (2006), and this research will consider road accidents and its impact on human lives and properties in the entire ten regions of Ghana.

1.2 Statement of the Problem

The road accidents in this country seem to be in ascendency. These accidents have been categorized by the National Road Safety Commission as fatal, serious and minor. Day in day out people try to own cars and are not willing to go through the necessary training before using the them making it very easy for many of the cars to breakdown at the least fault. Most of the vehicles results at accidents even on minor mechanical faults which could have been addressed should the owners have little exposure to how to do little repairs on their vehicles. This issue is very common in the Bolgatanga Municipality where people are now competing to own cars many of the users easily get involved in accidents as they also over rely on most of the inexperienced mechanics within the Municipality . Again, indiscipline, drivers parking at undesignated bus stops and the activities of pedestrians, particularly at the

Central Business District (CBD), are also contributory factors to congestion which leads to accidents.

Bolgatanga Municipality has experienced a lot of accidents which agrees with (Lee, 2001), who indicated that it has been predicted that the rate of vehicle ownership rate will increase from about one vehicle for every four persons in the year 2000 to about two vehicles for every five persons in 2020.

In the Upper East Region like other parts of the country, the main cause of road accidents and its effects on human lives and properties have been associated with breakdown of vehicles, human errors and superstition. The purpose of this dissertation is to investigate into the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality on areas such as the causes of frequent vehicle breakdown, the level of competence of vehicle mechanics in the Bolgatanga Municipality , and finally assess what can be done to reduce frequent vehicle breakdown in the Bolgatanga Municipality .

1.3 Purpose of the Study

The main purpose of this study is to investigate the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality.

1.4 Research Objectives

The main aim of this research was to investigate the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality . The specific objectives of this study are to:

- Determine the causes of frequent vehicle breakdown in the Bolgatanga Municipality

- Assess the level of competence of vehicle mechanics in the Bolgatanga Municipality .
- Determine what can be done to reduce frequent vehicle breakdown in the Bolgatanga Municipality .

1.5 Research Questions

This research tries to find answers to the following questions:

- What are the causes of frequent vehicle breakdown in the Bolgatanga Municipality?
- What is the level of competence of vehicle mechanics in the Bolgatanga Municipality?
- What can be done to reduce frequent vehicle breakdown in the Bolgatanga Municipality?

1.6 Significance of the Study

The significance of this study is indicated below;

In the first place, this study will add to the existing knowledge in this subject matter on the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality and Ghana as a whole.

The study will also create an opportunity for further research work on other areas that are not catered for by this research.

Additionally, this dissertation will be a body of knowledge which will serve as a reference material to other researchers highlighting on areas in relation to the causes and effect of road accidents in the study area and Policy makers could come out with

strategies to reduce the numerous deaths caused by vehicular accidents to the bearest minimum within the Bolgatanga Municipality.

Finally, this study will also help to stimulate the activities of the stakeholders such as the DVLA, MTTU staff, and vehicle users within the Bolgatanga Municipality and the country at large to ensure smooth functioning of the various stakeholders.

1.7 Limitations of the Study

The study is limited in scope as it is limited to assessing the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality. This study is particularly limited to some selected people in the Bolgatanga Municipality since it was difficult for the researcher to consider all vehicle users in the study area due to time constraint, financial difficulty and the fact that the study was undertaken by an individual researcher and other requirements of the University that the researcher had to meet.

Finally, the researcher is also aware that the availability of road accident data in this country and Bolgatanga Municipality in particular is difficult to come by and even if it is obtained, the information on it is normally scanty. It is also believed that not all accidents are reported to the police for records to be made on them due to the human nature and the Ghanaian attitude towards dealing with issues of this kind. Also, it is possible that the police might not have filled the accident report form for all accidents which might have been reported to them and as such will have a negative impact on the study as far as data collection is concerned.

1.8 Organization of the Study

This study consists of six chapters. The first chapter consists of the background to the study, statement of the problem, objectives of the study and significance of the study, limitations of the study, and lastly the organization of the study.

Chapter Two provides a review of literature related to the causes and effects of vehicle breakdown on road accidents in the Bolgatanga Municipality by considering issues such as; the causes of frequent vehicle breakdown, the level of competence of vehicle mechanics, and what can be done to reduce frequent vehicle breakdowns and accidents within the Bolgatanga Municipality.

Chapter three provides the research methodology which consist the research design, research population, sampling technique/sample size adopted, research instrumentation, sources of data, data collection procedures and the procedure for data analysis. Chapter four deals with data presentation, chapter five talks about the discussion of data presented and chapter six involved the summary of findings, conclusions and recommendations of the study.

CHAPTER TWO

RELATED LITERATURE REVIEW

In this chapter, a search was conducted to review the works of other people in relation to the study. For this matter, the researcher gathered literature from varied sources some of which included journals, books, newspapers, and the internet. The understated objectives were carefully looked at in line with the existing literature of this study.

i) The causes of frequent vehicle breakdown,

ii) The level of competence of vehicle mechanics and

iii) What can be done to reduce frequent vehicle breakdowns and accidents in the Bolgatanga Municipality.

2.1 Related Definitions

Road accident is defined as any activity which distracts the normal trajectory of a moving vehicle(s), in a manner that causes instability in the free flow of the vehicle. The accident is that the vehicle(s) involved veer(s) off the road, collide, run over, vehicle on fire, etc. The national road safety commission describes casualties as persons killed, seriously injured and slightly injured. The word casualty in this dissertation shall be referred to any person involved in road accident. This will be grouped as casualties who survived and those who are killed in the road accident.

Vehicular accident has always been attributed to human errors such as high alcoholic content in the blood stream of the driver, over speeding, wrong overtaken among others. It has also been linked to poor road network, poor surfacing of the roads, witchcraft and the death-dying nature of some of the vehicles which ply the

roads. There are numerous suggested solutions, various interventions by government, nongovernmental organizations and other road stakeholders to curtail road accident and its replica effects on human lives and properties, it could be possible that these factors such as type and nature of the road, age and sex of casualty contribute casualty survival in road accidents in the country and have still not been considered. It is in view of this that this research seeks to identify if there is any relationship between the casualty survival in road accident and these factors.

2.2 The Causes of Frequent Vehicle Breakdown

According to Oppong (2012), **r**esearch shows that due to less time and knowledge, many motorists fail to take adequate measures to look after their cars, and have very little working knowledge of basic car maintenance. This can lead to vehicle breakdowns which could be avoidable with a little forward thinking and pre-planning.

Again, there is growing decline in car know-how and care among many vehicle users in the Bolgatanga Municipality **a**s many of the motorists prefer to rely on others to fix simple car problems rather than attempt to resolve the problem themselves. Linked to this attitudinal behaviour, some 71% of patrols believe that today's motorists take less care of their vehicle. They estimate that only one in five motorists conduct the recommended tyre, oil and water checks on a weekly basis. Similarly owners are less likely to read their car manual; in fact patrols believe a quarter of all call-outs could be prevented if the owner consulted their handbook.

Hand in hand with this declining know-how goes car care. According to patrols, as many as 75% of motorists do not carry basic items such as spare water, oil, bulbs or fuses. Moreover, 88% of patrols express concern over the number of vehicles that are not equipped with a spare tyre. The fact that a punctured tyre is the most common

cause of many of the car breakdown related accidents (accounting for nearly 200,000 calls every year), suggests that this lack of time and planning may be partly responsible for the high figure.

It is also believed that, with today's hectic lifestyles and a 'disposable' attitude to consumer goods, people are much less inclined to spend time trying to repair their vehicles, and often neglect to undertake basic and essential car care only to leave this to the hands of unqualified mechanics. This is because many of the drivers within the Bolgatanga Municipality lack the basic car knowledge and willingness among motorists to investigate reasons for their vehicle breakdown themselves which is also at times attributed to illiteracy on the part of some vehicle owners to read or observe simple rules regarding driving and effective use of a vehicle.

Vehicular accident has always been attributed to human errors such as high alcoholic content in the blood stream of the driver, over speeding, wrong overtaken among others. It has also been linked to poor road network, poor surfacing of the roads, witchcraft and the death-dying nature of some of the vehicles which ply on the roads. There are numerous suggested solutions, various interventions by government, nongovernmental organizations and other road stakeholders to curtail road accident and its replica effects on human lives and properties, it could be possible that these factors such as type and nature of the road, age and sex of casualty contribute casualty survival in road accidents in the country and have still not been considered. It is in view of this that this research seeks to identify if there is any relationship between the casualty survival in road accident and these factors, Oppong, R. A, 2012).

Furthermore, there are a lot of social activities which are being carried out within the Bolgatanga Municipality day in day out such as funerals, marriage ceremonies, keep fit club activities on the road, and festivals many of which are

always performed at the week endings at times fuel up accident cases within the study area.

Cherney (2010), enumerated five common reasons vehicles or cars easily break down on our roads as discussed. Nothing can slow down a road trip like car trouble, and seeing that "check engine" light flash on the dashboard is a surefire way to put the brakes on a summer getaway. In preparation for the summer travel season, CarMD.com announced the five most common reasons for breakdowns as compiled by Automotive Service Excellence technicians, along with tips to help avoid roadside incidents this summer.

Evaporative emissions are caused by fuel volatility, or its tendency to change from liquid to gas. A rise in outside temperature can cause an increase in pressure in your gas tank, which must be vented to prevent the gas tank from deforming. They are vented from your gas tank into a charcoal canister on your vehicle, which absorbs the fuel vapour and stores it until the engine is started and the vapours can be purged. The evaporative system is much more than your gas cap; it's a network of hoses, valves and canisters that manage evaporative emissions from your vehicle. Vehicles today need to detect a leak that is 0.02 inches in diameter. If such a leak is detected, the "check engine" light must turn on. Although a loose gas cap is a common culprit, don't assume it's the cap. If your vehicle is older, you may have a cracked hose, which is in essence a fuel leak, Cherney (2010).

Cherney (2010) added that engine hesitation or surge: This problem may occur for a variety of issues, such as a dirty air filter, which can require the engine to work much harder and can cause drivability problems. In high heat and humidity, vehicles are prone to problems with exhaust gas recirculation, which sends a portion of the exhaust back through the engine to help reduce emissions. In the summer, this flow

can build up in your intake manifold, causing blockages and drivability problems. If not fixed, it can lead to expensive repairs. If you are getting your car ready for a trip, be sure the air filter is clean. If you are only halfway into your cross-country trip when this problem occurs, it's a good idea to get to the local repair shop. Think of your vehicle's air intake system as analogous to your lungs. Anything that is blocking or restricting flow causes you, or your engine, to have to work harder to get the same level of oxygen.

Some of the most common reasons cars and trucks overheat are a faulty cooling system or low fluid level. During hotter months, your vehicle's cooling system has to work harder to prevent engine overheating. Check your car's fluids, such as engine coolant, brake fluid, automatic transmission fluid, washer fluid and engine oil regularly. Do not wait until your dashboard warning light comes on or you find yourself pulled to the side of the road with a steaming hood. If you do wind up in this situation, turn off your air conditioning and turn on your heater. Although it's hot, it can help remove heat from the engine and use the additional fans to cool things down until you can get to safety, Charles Cherney (2010).

One of the most common culprits of road-trip delays is flat tires, which can be caused by wear and tear or over inflation in summer months caused by increased air pressure from the heat. While some newer vehicles have tire-pressure monitoring systems, most cars' computers will not detect this problem. A simple tire gauge will tell you if you need to add or let out air in your tires. Most service stations have a gauge on the air pump. Refer to your owner's manual or the label inside the driver's door for proper tire inflation levels.

Car batteries rarely signal failure ahead of time and often occur at the most inopportune time, such as during a getaway. Hot summer months are the worst

conditions for your battery. Make sure your vehicle has all of the plastic pieces that surround the battery. These pieces are engineered to keep your battery cool and divert fresh air across the battery to extend its life. The battery is used mainly for starting the vehicle. If it is taking a long time to start, check the battery. You can do this with a simple battery tester that plugs into your vehicle's 12-volt receptacle. A failed battery will cause the alternator/generator to work harder to charge it, and can lead to alternator failure if not cared for quickly. Take care of battery problems while it's just the battery. Another good preventive measure is to replace your battery every three years or as recommended by your manual, (Cherney, 2010).

Figure 2.1 Vehicle Breakdown

Source: Researchers Construct, (2014)

According to the World Health Organisation (2011) report the most affected of these consequences of road accidents is the people in the age bracket of 15 and 29.

Road accidents cost the world an amount of US$518 billion annually. It is estimated that if nothing is done globally to curtail the rampant nature of road accidents and most especially the causes of deaths of casualties before they are sent to hospitals then by the year 2020, 1.9 million people will be killed by road accidents in the world. Ayeboo (2009), identified that the numerous accidents on our road networks have been linked to various causes which include over speeding, drink driving, wrong over taking, poor road network and the rickety vehicles which ply on our roads.

Furthermore, the National Road Safety Commission (NRSC) has identified over twenty causes of road accidents in Ghana which include unnecessary speeding, lack of proper judgment of drivers, inadequate experience, carelessness, wrong overtaking, recklessness, intoxication, over loading, machine failure, dazzling and defective light, boredom, unwillingness to alight from motion objects (vehicles, motor cycles, human being and uncontrolled animals), skid and road surface defect, level crossing and obstruction. Other factors are inadequate enforcement of road laws and traffic regulations, use of mobile phones when driving, failure to buckle the seat belt and corruption, (National Road Safety Commission, 2007).

In spite of all these factors, Ocansey (2011) observed that poor vision of drivers could also be a major contributory factor to road accidents. It was obvious that the actual factors which may be influencing the traffic crashes in Ghana have not been identified since most of the factors stated above have not yet been tested with any mathematical and statistical tool to ascertain the truth or otherwise of their contributions.

Elsewhere, the causes of road accidents have also been linked to one or combination of the following four factors, equipment failure, road design, drivers‟ behavior and poor road maintenance. However, studies have shown that over 95% of

all road crashes are caused by the behavior of the driver and the combination of one or more of the other three factors, (Driving guidelines, undated).

Figure 2.2: Road crashes result in destruction of lives and property

Source: Road traffic accidents, (2014)

It has been established that over 90 per cent of road crashes are caused by human error and in Ghana, nearly all the human factors in road crashes are the result of the failure to make or apply one regulation or another, Road traffic accidents, (2014).

Increasingly, road traffic accidents resulting in injuries, disabilities and deaths are becoming a major issue of public health concern in this country. Unfortunately, we seem to talk about it only when it occurs and soon after, we all go to sleep. I wish we could give the same concerns and effort to road traffic accidents when they occur as we did for the Melcom disaster or the recent Nii Boi town building disaster, (Road traffic accidents, 2014).

Ayeebo [Email: xavi2275@yahoo.com] in contributing to the causes and effects of road traffic accidents indicated that, road accidents mostly happen as result of: Recklessness and carelessness by drivers; not respecting road safety regulations, jumping the red light, wrong overtaking especially on the highways, and in even the cities of Accra and Kumasi. Bigger truck drivers mostly do not give a dime whenever other road users need to access their fair share of the road they have also contributed in building. Lack of regular maintenance of the buses and local trotro. Most of these trotro buses, excuse me to say, are not even fit to be used to carry food stuffs, let alone human beings but they are being used each day to convey passengers from one end to another with impunity freely. Speeding with unworkable speedometers is another cause of vehicle breakdown. Most of the vehicles do have workable speedometers but when they get unto the road, they speed and speed without knowing what kilometers per hour the bus or vehicle is being travelled.

Again, overloading which has become normal and acceptable that buses that should take say five passengers on a row now takes six and some cases eight passengers instead which are live at stations like Kumasi, Bolga, Bawku station at Krofroum in Kumasi, Kumasi Race course and many other stations in the country. These unauthorized activities have been going on for so many years. If they do not overload at the station then they will pick up passengers on the way and put the money into their pockets, yet when the vehicles breaks down, it is the bus owner who does the maintenance. Drivers of Kingdom Transport Services who used to travel to the northern part of Ghana used to pick up passengers at Techiman, Kintampo, and other spots. Some were even reported to their station masters. No wonder, they the drivers have collapsed the Kingdom Transport Services. The same drivers had

collapsed Omnibus Transport Services, and the Tata Bus services, Ayeebo [Email: xavi2275@yahoo.com].

Furthermore, there are a lot of potholes on our roads that need maintenance but have been left to become death traps. Shoddy works by many contractors are the causes of these potholes, but still these potholes should be patched up professionally when they are noticed. Bad road construction, for instance there are some useless roundabouts where big trucks and big buses have difficulty in negotiating these roundabouts, Ayeebo [Email: xavi2275@yahoo.com].

Unprofessional mechanics is another major cause of road traffic accidents. The manner and ways of unprofessional activities by mechanics who repair and maintain vehicles in this country leave much to be desired. Are these mechanics being governed by any formal training that is of any world standards anywhere in any country in the world? Who checks and certifies that they can and are allowed to work on people's vehicles? You would be interested to know that if you take your car to a number of mechanics for a common problem, they are all likely to tell you a different story. It is try and error, they practice. Others just need money even if they know very well they can't handle the problem.

The fixing of artificial seats in cargo cars that have been turned into passenger buses in Ghana is one major contributing factor. We all know the stories of the popular and notorious 207 buses in Ghana. It has claimed more lives than expected, Ayeebo [Email: xavi2275@yahoo.com].

Bad police officers: Yes, the work of the police is very key to the development of every nation and Ghana is no exception. We have police officers on the roads daily to perform their duties dutifully and many are doing their best, however, there are some police officers who do not care whether, the driver has a valid licence, the

vehicle is overloaded, the driver is tipsy, the driver obeys other road safety regulations.

2.2.1 Effects of Road Traffic Accidents

The loss of innocent lives through road traffic accidents in Ghana is simply alarming. For every person who dies in a road traffic accident, many others are affected either permanently or temporarily. In addition to deaths, there are often many others who are either severely injured or disabled each time there is an accident on our roads.

Looking at the national statistics, the magnitude of road traffic accidents is simply mind boggling and affects all groups of ages. The most worrying is even the bigger impact these road traffic accidents and injuries have on the productive and young people.

According to the World Health Organisation (WHO), road traffic accidents affecting young and productive age is reported globally as the second cause of death followed by HIV/AIDS and Tuberculosis. This obviously must be of great concern to governments at large and public health practitioners in particular, Road traffic accidents, (2014).

2.2.2 Social, Economic Cost of Road Traffic Accidents

The biggest concern of road traffic accidents apart from death and disability is the social and economic costs. We may not necessarily have the statistics on cost of traffic injuries, but global statistics estimate that the cost of road crashes was approximately US$518 billion in 2000.

In 2013, WHO estimates that road traffic accidents cost to most countries between 1–3 per cent of their gross national product, while the economic impact on individual families has been shown to result in increased financial borrowing and debt, (Road traffic accidents, 2014).

The annual costs of road traffic crashes in low income and middle-income countries are estimated to be between US$65-100 billion, more than the total annual amount received in development aid (UN, 2008). The estimated costs as a percentage of the Gross National Product in most African countries range from about 0.8 per cent in Ethiopia, one per cent in South Africa to 2.3 per cent in Zambia and 2.7 per cent in Botswana to almost five per cent in Kenya.

2.2.3 The Effect of Road Traffic Accidents on the Gross Domestic Product (GDP) of Ghana

In 2007, National Road Safety Commission in Ghana estimated road traffic accidents to cost 1.6 per cent of GDP. This translated to US$165 million. Of the various kinds of vehicles involved, motorcycle accidents account for four per cent of all road traffic accidents in Ghana.

In most of Africa for example, the rate of deaths due to injuries from a traffic accident is as high as 24.1 deaths per 100,000 inhabitants. This is an extremely worrying statistics. Considering the magnitude of effect, there is no doubt that road traffic accidents must be of public health concern to all of us and should deserve special attention and focus, (Road traffic accidents, 2014).

2.2.4 Public Health Issue on Road Traffic Accidents

As a major emerging public health issue, it is important that we, as a country, take pragmatic steps to stop the carnage on our roads by implementing laws that address road traffic accidents. We must vigorously disseminate national plans and policies that address the problem of road traffic accidents, (Awoonor-Williams (April 30, 2014) The Regional Director of Health Services, Upper East Region).

These should include traffic regulations and laws, road traffic accident prevention practices, improvement in road traffic infrastructure etc. For example, laws and regulations regarding speed limits, drunk–driving, use of motorcycle crash helmet, compulsory use of seat-belt, law on mobile phone use while driving, compliance with road signals, strict examination and licensing of drivers and riders, use of road worthy vehicles and motorcycles and bikes, etc are practices that must be strictly enforced. In many developed countries, what makes significant difference are not just the laws but the enforcement of these laws, policies and regulations.

According to (Awoonor-Williams (April 30, 2014) The Regional Director of Health Services, Upper East Region), it is unfortunate that in Ghana, where the incidence of road traffic accidents is high with huge economic consequences, such important and necessary road traffic laws, regulations and policies are rather not enforced, or given the needed attention, (Road traffic accidents, 2014). The enforcement of public policies such as reduction of speed limits on highways and reduction in the level of tolerance of blood alcohol concentration has drastically reduced the incidence of traffic accidents in many developed countries.

Accidents exert high cost on the society. With road traffic accident as a major public health issue competing with other health sectors priority interventions such as communicable diseases, that have been traditional favourites of many globally funded

programmes, it is imperative that policy makers, governments, public health practitioners and indeed stakeholders begin to formulate relevant road accident control policies backed with enforceable regulations that attract the needed national attention, voice and funding, Road traffic accidents, (2014), (Awoonor-Williams (April 30, 2014) The Regional Director of Health Services, Upper East Region).

2.2.5 Improve Road Infrastructure

The issue of improvements in road infrastructure is critically important since safer roads have a huge impact on road accident prevention. How good or poor a road is may be the difference between life and death. Vehicle standards is very important since the safer vehicles, the less likely it is for accidents to occur, (Road traffic accidents, 2014).

General public information, education and communication on dangers that road traffic accidents poses to the pedestrian, and public should be a major focus of our national campaigns to reduce accidents, death and injuries to the general populations. As one of the leading preventable causes of illnesses and premature deaths, implementation of effective road traffic policies and laws and improvement in road infrastructure and good transportation system can make a difference and reduce the menace of road traffic accidents, injuries and deaths in our country.

There is the need for concerted, multi-sectorial effort to combat the huge menace of road traffic accidents. It will be one important means to ensure that we save lives from needless road traffic accidents. Yes, together, we can save hundreds of lives, Road traffic accidents, (2014), cited in (Awoonor-Williams (April 30, 2014) The Regional Director of Health Services, Upper East Region).

2.3 The Level of Competence of Vehicle Mechanics

According to Donkor (2006), Motor Mechanics service includes, repair and overhaul mechanical parts such as engines, transmissions and suspension systems. Motor Mechanics service and repair petrol engine vehicles, however some specialise in diesel engines.

Ayeebo (2009), indicated that the way and manner of unprofessional activities by mechanics who repair and maintain vehicles in this country leave much to be desired and the Bolgatanga Municipality is no exemption. The question is, are these mechanics being governed by any formal training that is of any world standards anywhere in any country in the world? Who checks and certifies that they can and are allowed to work on people's vehicles? You would be interested to know that if you take your car to a number of mechanics for a common problem, they are all likely to tell you a different story. It is try and error that most of them always practice. Others just need money even if they know very well they can't handle the problem and the end result is usually to render the vehicles they worked on more prone to accidents.

The fixing of artificial seats in cargo cars that have been turned into passenger buses in Ghana is one major contributing factor. We all know the stories of the popular and notorious 207 buses in Ghana. It has claimed more lives than expected. Is anybody checking the activities of the mechanics or fitters as we call them in Ghana? Do they have the technical skills to fix and disassemble these buses and other vehicles? Do they have the needed tools for identifying and fixing any problem with these buses and other vehicles?.

Ayeebo added that it is true that these mechanics at Suame Magazine in Kumasi, at Abossey Okai in Accra are doing their best, but their activities must be certified by a higher authority before they are allowed to practice fitting in Ghana. I

do not know of any professional who does not have a certification but is able to practice without being punished. Accountants, Doctors, Lawyers, Engineers and all others well recognised professionals must get certification from higher authorities before they can practice. Why not the mechanic whose work is very important and helps builds the nation greatly and whose fixing and fitting of a vehicle could result in the death of other people who also contribute to the development of our dear nation be checked? The activities of spare drivers and drivers' mates should also be checked. They contribute greatly to road accidents in Ghana, Ayeebo (2009).

Donkor (2006) stated that in Ghana hundreds of thousands of young people are engaged as apprentices in the private or informal sector. However, virtually all apprentices and masters lack formal vocational or technical training. Other challenges they face include: lack of access to current technological information and upgrading; lack of knowledge about environmental issues; and lack of entrepreneurial skills to manage their shops. Government has now decided to partner the private sector to promote apprenticeship. Additionally, Government has launched the President's Special Initiative on Distance Learning (PSI-DL) and the Ghana ICT for Accelerated Development (ICT4AD) Policy. The PSI-DL has been extended to basic and second cycle levels and will soon cover TVET within formal and informal sectors. Built on the three moves/policies of the Government, the model envisages apprenticeship training to take place at workshops (on-site) and through DL (off-site). The off-site mode will employ mainly radio and television broadcasts, audio-tapes and video-cassettes. However, On-line delivery could target the few literates amongst them.

Accordingly, the latest labour force data show that in 2000, informal apprenticeship sector contributed over 70% of self-employed among the total labour force of over 7 million and there were 207,047 economically active people (15 years

and older) in apprenticeship training (Ghana Statistical Service 2005). Over three-quarters (76.8%) of the apprentices were aged 15 - 29 years; 18,006 (57%) were males and 89,041 (43%) were females. The males were mainly in auto-mechanics, carpentry, tailoring and driving while the females were primarily in dressmaking, hairdressing and catering, Donkor, 2006).

The modalities regarding apprenticeship in the informal sector in Ghana vary, and where entry requirements, if any exist, are generally low and not restricted by age, ethnicity or proof of literacy (ILO 1988). Depending on the trade, the master and the apprentice, apprenticeship may take from months to years. Working hours of apprentices are usually long, typically six days a week with weekly working hours ranging from 50 to 60. Some apprentices pay for their training while others forego income for the work they do. In some instances, they receive free board and lodging or some pocket money or occasional bonus. In some rare cases, apprentices are permitted to sell what they produce in their spare time with the materials and the equipment they find in the workshop (ILO 1988).

Abban and Quarshie (1993) noted that apprenticeship training progresses in phases. According to them, most apprentices start with an introductory phase during which the novice is taught and made to do menial jobs such as cleaning the workshop or running errands. The next phase consists of getting to know all tools of the trade and, as appropriate, the materials, the ingredients and the spare parts. Meanwhile, the apprentice is expected to observe and learn about the work. The master occasionally demonstrates a particular operation or directs an apprentice whose trials usually end in an error. Gradually the apprentice is introduced to more complex tasks and given increased responsibility such as supervising other apprentices, dealing directly with customers, and from time to time, looking after the shop in the absence of the master

(Abban & Quarshie 1993). Thus, skills, knowledge and attitudes are transmitted through observation, imitation and on-the-job experience.

The apprentices and their masters in Ghana face some challenges that the present conventional apprenticeship system does not address. Virtually all apprentices and masters lack any formal vocational or technical training. Out of the 207,047 apprentices in training in 2000, only 10,878 (5.3%) have had formal vocational or technical training (Ghana Statistical Service 2005). The apprentices and their masters also lack access to current technological information and upgrading. They lack knowledge about environmental issues and entrepreneurial skills to manage their shops.

With the present system of apprenticeship, masters teach their apprentices the way that they were taught and there has been little infusion of new technology and new designs (Ng'ethe & Ndua 1992). Thus, masters mostly pass on their skills and knowledge to apprentices, but rarely create new knowledge.

Apprenticeship, as offered in the formal and informal industry, is mainly by private initiative, although some state institutions offer limited apprenticeship schemes (Education Reform Review Committee 2002). A characteristic of apprentice training in Ghana is the lack of uniformity in training content, duration and certification.

The inability of the educational system to convey the requisite technical and vocational skills to the students as envisioned, made the products of the system unemployable by the formal sector. These were taking place at a time when urbanization and globalization were changing the economic, social and political landscape of Ghana.

As a survival strategy and coping mechanism for a good many of those who drop out at the Basic Education level, the best option has been learning a trade and settling in the informal economy. This obviously brought a new awakening and increased interest in the informal economy in Ghana especially the apprenticeship system (Fox and Gaal 2008).

As noted by Monk, Sandefur and Teal, (2008) traditional apprenticeships in West Africa are widespread. In Ghana, the practice has particularly been linked to the informal economy. The market for apprenticeships has gained a toe hold in Ghana and is especially common place in urbanizing areas. Although the system of entry are many and varied for a new entrant into the apprenticeship system, many authors have presented closely related yet different views as to what the entry requirements are. Donkor (2006) for instance noted that the modalities regarding apprenticeship in the informal sector vary. Entry is for the most part open for anyone who can pay the training fee: minimum education requirements are non-existent, and other necessary qualifications besides ethnic or clan identity are uncommon (Middleton et al., 1993).

The ILO brings a new dimension to the above when it highlights that entry requirements, if any exist, are generally low and not restricted by age, ethnicity or proof of literacy (ILO 1988). Analyses of the above is varied, yet related opinions suggest that there is fairly an easy entry into the informal apprenticeship system compared to the formal vocational or apprenticeship system where some formal training of a sort is required with basic passes in subjects such as English and Mathematics which are essential part of the selection criteria.

In addition to all the above, anecdotal evidence suggests that a written or oral agreement is made between the “master” or “mistress” and the parents/guardians of the potential apprentice.

Another key attribute of the informal apprenticeship system is that until recently when commercialization became a norm, the system was very much seen as a socialization process as much as it was training. This can be inferred from the expressions of authors such as Boehm (1995) that the apprenticeship system offered parents effective way of transferring skills or education directly from them or a master apprentice to an adolescent. In most cases, the master will receive a fee, but other times the apprentice will work for reduced (or no) wages. Some apprentices pay for their training while others train at the forfeit of their income for the work they do in lieu of payment for training.

Other apprentices who are fortunate receive free boarding and lodging or some pocket money or occasional bonuses. In some rare cases, apprentices are permitted to sell what they produce in their spare time with the materials and the equipment they find in the workshop (ILO 1988).

Abban and Quarshie (1993), observed that apprenticeship training proceed in phases. According to the authors, the process begins with an introductory phase during which the novice is coached on how to perform menial jobs such as tidying the workshop or running errands for the master and seniors. The next phase consists of getting to know all tools, equipment and materials needed for the trade. These include learning what constitutes appropriate tools for every job, the materials, the ingredients and the spare parts for the job. The nature of the training is sector-specific and often product-specific; apprentices may learn how to manufacture or repair only one item at a time (Frazer, 2006). They also learn trade-related skills such as how to handle tools and repair machines, as well as general business management skills like sourcing, pricing, and contracting. Skills transfer occurs mainly by watching and imitating the master (Johanson and Adams, 2004).

Depending on the trade, the master and the apprentice, training might take from months to years. Working hours of apprentices are usually long, typically six days a week with weekly working hours ranging from 50 to 60. Meanwhile, the apprentice is expected to observe and learn about the work. The master occasionally demonstrates a particular operation or directs an apprentice whose trials usually end in an error. Gradually the apprentice is introduced to more complex tasks and given increased responsibility such as supervising other apprentices, dealing directly with customers, and from time to time, looking after the shop in the absence of the master (Abban and Quarshie 1993). Thus, skills, knowledge and attitudes are transmitted through observation, imitation and on-the-job experience.

Relative to more formal vocational training, apprenticeships are much more flexible. Apprentices also have more relevant skills because they do hands-on work as opposed to classroom training, a feature that sets the informal apprenticeship system apart from the formal apprenticeship or vocational training. Although it is believed that nearly all apprentices want to set up their own business after their training is completed, as this is by far the most rewarding outcome, they are mostly constrained, (cited in Prince A. A and Samuel K. Afrane (2014).

2.4 How to Reduce Frequent Vehicle Breakdowns

The Ghana Road Safety Authority (RSA) stated that to reduce frequent vehicle breakdowns driver's and owners of vehicles have a number of roles and responsibilities to perform in order to achieve this; generally, as a driver, by law, you must make sure that any vehicle he/she drives on a public road is maintained and used so that it is unlikely to cause a danger to anyone. The vehicle you are driving must: have a Certificate of Roadworthiness (Section 18 of the Road Traffic Act 1961) if it is

more than one year old; and comply with all Construction, Equipment and Use Regulations (Section 11 Road Traffic Act 1961) relating to key items including wheels, tyres, brakes, lighting, steering and suspension (see Key legal obligations, Appendix I).

A daily check is another practice that every driver of vehicle should observe. That if you briefly check specific items on your vehicle every day it will help you to identify obvious vehicle defects. If you discover any problem, you must report these to a competent person who is responsible for ensuring that the problem is fixed. This is a vital first step in an effective vehicle preventive maintenance system.

Again, if drivers check their vehicles every day, it will help to make sure that: you are complying with the law; the vehicle you are driving is safe for you and other road users; and you can complete your job on time and are not delayed because of breakdowns. That if a driver is stopped at a roadside check and it is found that your vehicle is defective or does not comply with the law, you can be taken to court, prosecuted and, if found guilty, can be fined, receive penalty points or be sent to prison and the vehicle can also be stopped from going ahead with its journey.

Some of the key responsibilities for drivers stated by the Ghana Road Safety Authority (RSA) are that;

- Drivers must make sure that the vehicle you are driving is roadworthy and is not likely to cause danger to anyone. If you fail to do so, you could be found guilty of a number of different offences [see Appendix 1].
- Compliance. The vehicles you drive must comply with the law, for example regarding tyres, lights and brakes.
- Drivers must also hold Valid Certificate of Roadworthiness. If the vehicle you drive requires, but does not have, a valid certificate of roadworthiness, you can

be summonsed directly to court and if found guilty, you could receive a fine, prison sentence and five penalty points on your license.

- Drivers must not also drive defective vehicles. According to the law, if a driver is found driving a dangerously defective vehicle, he/she can be summonsed to court and, if found guilty, you could receive a fine, prison sentence and five penalty points on your license.

Section 4 of the Ghana Road Safety Authority (RSA) act states that, in order for drivers to reduce the breakdown of their vehicles they should adopt preventative maintenance systems for their vehicles by ensuring the following;

1. Adequate level of maintenance and for your vehicle maintenance system to be adequate it must include these key elements:
   - Planned routine maintenance, by having a routine maintenance programme for every vehicle, carried out at fixed intervals of time or mileage, for example according to the manufacturer's instructions.
2. Daily and weekly checks. That is drivers should carry out basic safety checks before using the vehicles.
3. System for reporting, rectifying and recording and should have a system for reporting faults on the vehicle and associated equipment and rectifying defects. The driver can do this by recording vehicle defects as well as actual and planned maintenance activity as well as having regular vehicle maintenance inspections.
4. Drivers should also have a preventative maintenance programme for each vehicle which should be thorough, regular and frequent enough to meet the manufacturer's guidelines and common sense. The driver should also ensure that everyone involved in maintaining a vehicle is technically competent. Each routine vehicle maintenance inspection should include a full list of items to be

inspected and, or, replaced and the following basic safety checks: braking system and components; steering linkages and components; wheels and tyres; and lamps, lighting and markings.

Finally, the maintenance inspections of vehicles should include a check that structural parts of the vehicle and say trailer are free from any problems that could lead to the failure of safety-related equipment or systems on the vehicle or trailers. For example, the vehicle and trailer must be sound and free from: cracks; damage; faulty repairs or modifications; and corrosion.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research design, population, sample and sampling technique and procedure and type of data used for the study. It concludes with, data collection, an overview of the questionnaire design and data analysis.

3.1 Research Design

The term research design has been defined differently by different researchers one of which is Hellrieged et al, 2000 defined research design as a plan, structure and strategy of investigating intended to obtain answers to one or more questions. According to them research design includes everything the researcher will do during the period of project work from data collection through data analysis to report writing and to report preparation and submission.

The study employed a cross-sectional descriptive survey. This type of study enables an examination of large and small populations by selecting and studying samples chosen from the populations to discover the relative incidence, distribution and interrelations of sociological and psychological variables, Kerlinger (1986). The major variables in this study were the causes of frequent vehicle breakdown in the Bolgatanga Municipality, the level of competence of vehicle mechanics in the Bolgatanga Municipality, and what strategies can be adopted to reduce frequent vehicle breakdown in the Bolgatanga Municipality. The researcher used the descriptive research method to describe the current issues in relation to the questionnaire survey and structured interview which was used to enable the researcher

to ask a set of questions from the respondents in order to gather pertinent information in relation to the objectives of the study.

3.2 Population

The population or the total group of people under this study included all the vehicles owners and users within the Bolgatanga Municipality. The population for this study comprised drivers of all categories of vehicles (cars, SUVs, buses, trucks and motor cycles) and commuters within the Bolgatanga Municipal Assembly.

An important step in research is the means of selecting the sample of individuals who will participate (be observed, interviewed or questioned) in the process of the study and due to time constraints and other factors the researcher could not conduct the study to cover all the total group of people and as such, a sample size must be chosen for the study. The researcher chose 100 respondents who were administered with questionnaires to selected vehicles owners and 10 staff from the DVLA, MTTU Police, Car Mechanics and Health staff or workers within the Bolgatanga Municipality who would also be interviewed using purposive random sampling technique with emphasis on convenience sampling.

The purposive random sampling technique was used to enable the researcher get those who would be ready and more willing to assist or participate in the study.

3.3 Sampling Technique / Sampling Size

In order to ensure equal representation of the respondents, a multi-stage sampling technique was adopted through the use of purposive random sampling technique with emphasis on convenience sampling technique or method to sample out the various respondents for the study. For the purpose of this study, a sample size of

100 respondents were chosen from vehicles owners and users and 10 semi-structured interview conducted with the staff of DVLA, MTTU Police, Car Mechanics and Health staff or workers within the Bolgatanga Municipality.

3.4 Sources of Data

In this research work the researcher used qualitative and quantitative or the mixed method to collect data for this dissertation work. Basically, the data for this study was gathered using primary and secondary sources of data.

The Primary data source provide the researcher with first hand information directly from the teachers and parents, through the use of structured interview designed with closed and open ended questions to gather data from the staff of DVLA, MTTU Police, Car Mechanics and Health staff on the causes and effect of vehicular breakdown and road accidents within the Municipality. Questionnaire was used to gather data from the users of vehicles in the Bolgatanga Municipality.

The secondary data was gathered from Journals, Internet, the library, and other relevant published and unpublished research works relevant to the study.

3.5 Data Collection Procedure

The major data collecting tools or procedure for this study were questionnaire and structured interview guide.

Questionnaire was prepared and administered to the respondents to gather firsthand information for the study. The researcher found it appropriate to use the questionnaire to obtain information from selected vehicle users, vehicle mechanics, vehicles owners and users within the Bolgatanga Municipality. The questionnaire was self administered which composed of unrestricted or open-ended and closed ended

type of questions which sought for the respondent's own views in relation to the objectives of the study.

The researcher found it necessary to collect data through interview with the staff of DVLA, MTTU Police, Car Mechanics and Health staff on the study because interview allows the researcher to collect additional data that are on the minds of respondents through oral interaction and questioning. In this case, personal interviews would be conducted with the staff of DVLA, MTTU Police, Car Mechanics and Health staff of the study area to gather more information about the study.

3.6 Data analysis

The data analysis will be done after gathering the interviews and questionnaire from respondents. The observed data will be transcribed and content analysis done. The researcher will then look at the emerging patterns and make deductions in accordance with the purpose of the study at the time of developing the research plan.

The questionnaire data will be processed by editing, coding, classification and tabulation of collected data to enable easy analysis of the information received from the field work. In order to ensure an effective analysis of the data, both qualitative and quantitative data collected from the field work will be edited thoroughly, coded and analysed.

The coded response will then be computed using the Statistical Package for Social Scientists (SPSS) as well as Microsoft Office Excel to organize the data into figures and charts for easy understanding and interpretation. The Descriptive Analysis Unit of the SPSS is used to summarize the data, create appropriate tables, graphs, and

examined the relationship among the variables. This will facilitate interpretation of results and provide answers to the various research questions.

3.7 Research Validity

In this study, the research questions and interview guide were design according to the purpose of the study and administered to the staff of DVLA, MTTU Police, Car Mechanics and Health staff as well as car users, vehicle owners, which were randomly selected for the study. In order to obtain a valid data, the questionnaire and interview guide were designed carefully, cross-check by the researchers' supervisor as well as colleagues ensuring that they relate to the objectives of the study.

3.8 Research Reliability

In this study, the researcher chose a method for gathering data that will make the study more reliable. To achieve reliability the researcher first presented the research questions and interview guide to some colleagues to read through and help make corrections before submitting them to the supervisor for further corrections before administering the research instruments. The participants of the questionnaire were additionally treated with diplomacy and the questions carefully administered so that it will not have any effect on their response and compared the different opinions of participants to do the analysis.

3.9 Ethical Considerations

Ethical considerations are very vital in every research work and should not be overlooked when considering any research work. This is because in carrying out research work, institutional heads for that matter MTTU, DVLA and staff of the Ghana Police with regards to this study and individuals would be contacted before one gathers data, analyses of data and reports the information gathered. As a result, every research work should involve an express moral approval. In other words, a research work should be subjected to approval to ensure that the research conforms to acceptable standards of conduct.

In this research work therefore, respondents willingly took part in the study though they also had the right to have withdrawn from the research while ensuring that their confidentiality in relation with the provision of data was highly assured.

CHAPTER FOUR

PRESENTATION OF DATA

This chapter presents the analysis and discussion of the empirical aspects of the study. The data obtained using the research instruments are analyzed and presented in the form of tables and figures. The researcher further discussed the findings of the study and related it to the existing literature of the study. The sample population for the study was 100 which comprised of vehicle owners, drivers, and passengers who were administered with questionnaire and also conducted an interview with the staff of MTTU of the Ghana Police, DVLA, and some staff of the Health to enable the researcher compare their results with those who responded to the questionnaire.

Out of the 100 questionnaire administered, there were 96 respondents who responded to the questionnaire giving a response rate of 96%. This is because the researcher could not retrieve all the questionnaire from respondents.

4.1 Socio-Demographic Data of Respondents

This section presents the findings of the field research with respect to the demographic characteristics of the participants of the survey. Areas of particular interest to the researcher under this section were the sex of respondents, age group of respondent in years, marital status of respondent, and the highest education or professional attainment of respondent.

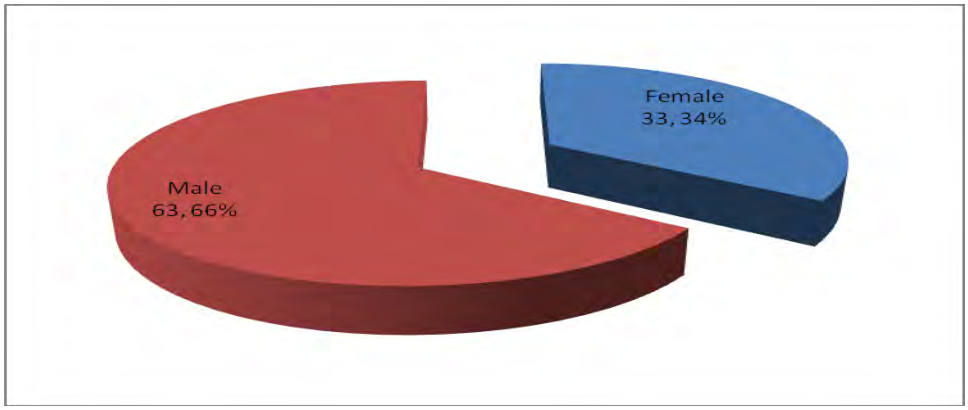

Figure 4.1 Sex of respondents

Source: Field Survey, (December, 2014)

With regards to the sex of respondents as shown by Figure 4.1, 63 respondents representing 65.6% were male and the remaining 33 respondents made of 34.4% were also female. This finding shows that there were more males who responded to the questionnaire than their female counterparts and has no significant relation with the main objective of the study.

Table 4.1 Age group of respondent in years

	Options	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Up to 20 years	5	5.2	5.2	5.2
	20-30 years	52	54.2	54.2	59.4
	31-40 years	28	29.2	29.2	88.5
	41-50 years	11	11.5	11.5	100.0
	Total	**96**	**100.0**	**100.0**	

Source: Field Survey, (December, 2014)

Table 4.1 displays the Age group of respondent in years. Out of the 96 respondents who responded to the questionnaires 52 respondents representing 54.2% indicated that they were between 20-30 years, 28 of them made of 29.2% were between 31-40 years, while 11 respondents constituting 11.5% indicated between 41-50 years and only 5 of them of 5.2% were up to 20 years meaning that all the respondents were qualified to drive and own a vehicle driving license.

This finding shows that many of the people who responded to the questionnaire within the Bolgatanga Municipality were within the youth age group of 20-30 years.

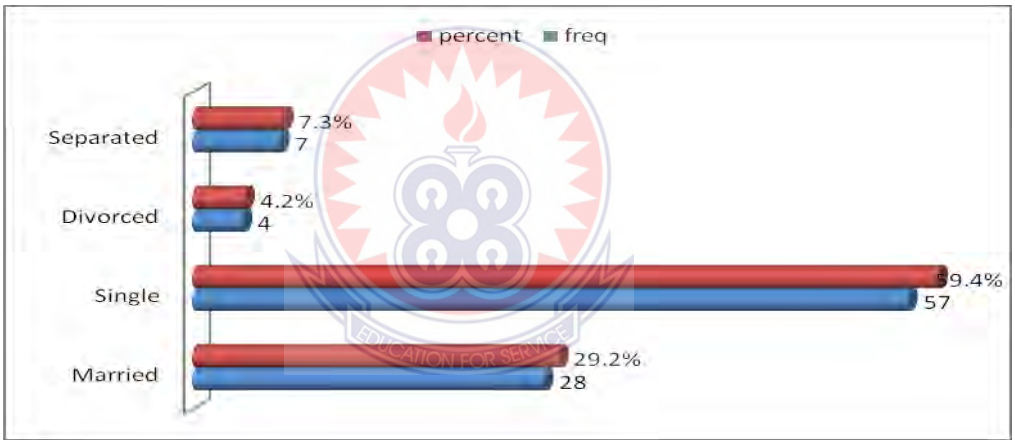

Figure 4.2 Marital status of respondent

Source: Field Survey, (December, 2014)

In determining the marital status of respondents, 57 of them made of 59.4% were Single, 28 of them representing 29.2% indicated Married, and 7 of them (7.3%) stated that they were Separated, while 4 of them constituting 4.2% indicated divorced.

Table 4.2 Highest Education or Professional Attainment of respondent

	Options	Frequency	Percent	Valid Percent
Valid	Basic/Senior High School or Technical	30	31.3	31.3
	Diploma/Higher National Diploma	33	34.4	34.4
	First Degree	22	22.2	22.2
	Masters Degree	11	12.1	12.1
	Total	**96**	**100.0**	**100.0**

Source: Field Survey, (December, 2014)

Table 4.2 presents the results on the Highest Education or Professional Attainment of respondent. It revealed that out of the 96 respondents 33 respondents representing 34.4% were Diploma/Higher National Diploma certificate holders, 30 of them made of 31.3% had Basic/Senior High School or Technical certificate as their highest educational qualification, 22 respondents made of 22.2% were First Degree holders and 11 of them (12.1%) were Masters Degree holders.

The result shows that almost all the respondents had Basic education with 34% holding Higher National Diploma.

The findings agrees with Oppong (2012), **r**esearch that shows that due to less time and knowledge, many motorists fail to take adequate measures to look after their cars, and have very little working knowledge of basic car maintenance.

4.2 The Causes of Frequent Vehicle Breakdown and Accidents

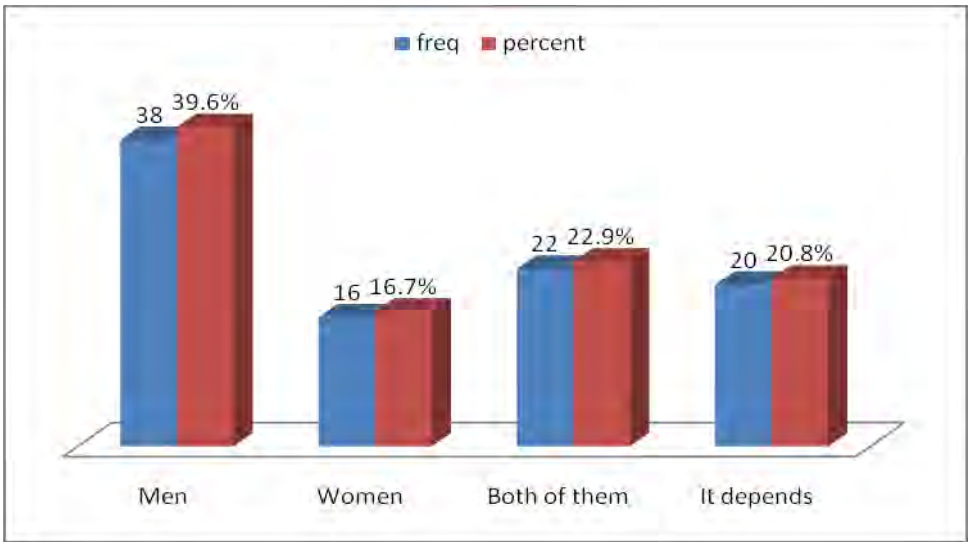

Figure 4.3 Those who are mostly involved in vehicular breakdowns and accidents

Source: Field Survey, (December, 2014)

Figure 4.3 shows those who are mostly involved in vehicular breakdowns and accidents. It was clear from the results that 38 respondents representing 39.6% indicated that men are mostly those who are involved in vehicular breakdowns and accidents, 22 of them made of 22.9% stated both of them, 20 respondents representing 20.8% indicated that it depends, and only 16 of them representing 16.7% were of the view of that women are mostly those who are involved in vehicular breakdowns and accidents. It can therefore be deduced from the above finding that about 40% of the respondents indicated that men are mostly those who are involved in vehicular breakdowns and accidents within the study area.

Table 4.3 What is the major cause of vehicular breakdown and accidents in the study area

	Options	Frequency	Percent
Valid	Improper care of cars or vehicles	45	46.9
	Due to little working knowledge of basic car maintenance	43	44.8
	Due to mechanical faults	12	12.6
	Total	**96**	**100.0**

Source: Field Survey, (December, 2014)

On what is the major cause of vehicular breakdown and accidents in the study area, table 4.3 shows that 45 respondents representing 46.9% indicated due to improper care of cars or vehicles, 43 of them made of 44.8% stated due to little working knowledge of basic car maintenance, and 12 respondents representing 12.6% stated due to mechanical faults.

Figure 4.4 Breakdown of a vehicle with mechanics working on it in Bolga

Source: Field Survey, (December, 2014)

The result revealed that 45 respondents representing 46.9% indicated that due to improper care of cars or vehicles was the major cause of vehicular breakdown and accidents in the study area, followed by 43 respondent made of 44.8% who stated that due to little working knowledge of basic car maintenance, and 12 respondents representing 12.6% stated due to mechanical faults.

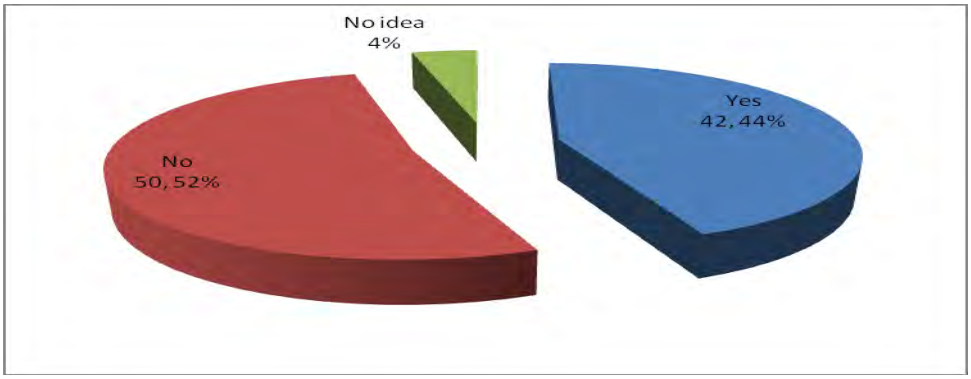

Figure 4.5 Most drivers usually check their vehicles daily before use

Source: Field Survey, (December, 2014)

Figure 4.4 displays views of respondents on whether most drivers usually check their vehicles wheels, tyres, brakes and other parts of the vehicle daily before use. Out of the total number of respondents, 50 respondents representing 52.1% disagree that most of the drivers in the study area usually check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use, 42 of them representing 43.8% indicated Yes most drivers usually check their vehicles wheels, tyres, brakes and other parts of the vehicle daily before use, and 4 respondent made of 4.2% stated No idea.

This result meant that out of the total number of 96 respondents, 52.1% of them disagree that most of the drivers in the study area usually check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use.

Table 4.4 There is growing decline of car know-how and care among vehicle users

	Options	Frequency	Percent	Valid Percent
Valid	Yes	59	61.5	61.5
	No	28	29.2	29.2
	No idea	9	9.4	9.4
	Total	**96**	**100.0**	**100.0**

Source: Field Survey, (December, 2014)

Table 4.4 sought the views of respondents on whether there is growing decline of car know-how and care among vehicle users and 59 respondents representing 61.5% stated Yes there is growing decline of car know-how and care among vehicle users, 28 of them made of 29.2% said No to the question and 9 respondents representing 9.4% indicated No idea. The result meant that about 62% of the respondents are of the view that there is growing decline of car know-how and care among vehicle users in the Bolgatanga Municipality.

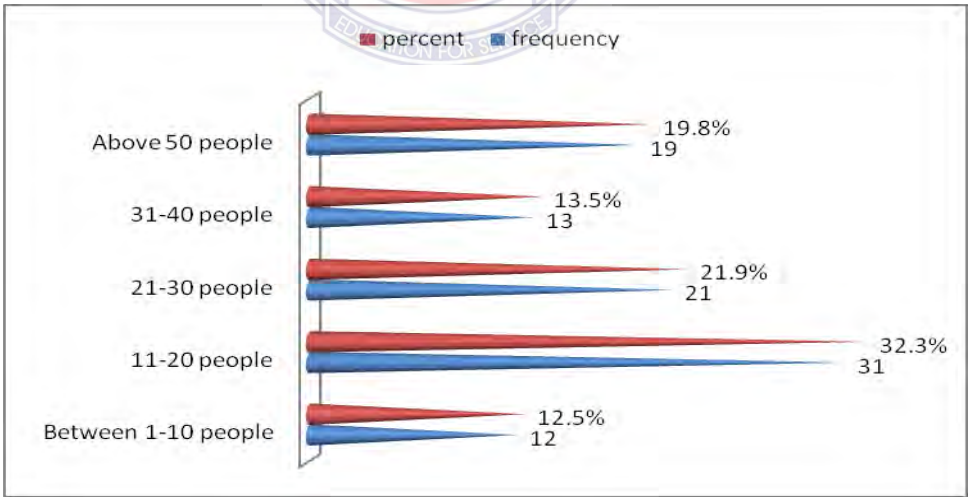

Figure 4.6 Number of people who suffered from vehicle breakdown and accident related cases for the past year

Source: Field Survey, (December, 2014)

Figure 4.5 presents views on the number of people who suffered from vehicle breakdown and accident related cases for the past year. The result revealed that 31 respondents representing 32.3% indicated between 11-20 people, 21 respondents made of 21.9% stated between 21-30 people, and 19 respondents representing 19.8% indicated that the number of people who suffered from vehicle breakdown and accident related cases was above 50 years. It further revealed that 13 respondents made of 13.5% stated between 31-40 years and 12 respondents constituting 12.5% indicated between 1-10 people.

It is therefore clear from the above results that 32% of the respondents indicated between 11-20 people suffered from vehicle breakdown and accident related cases for the past year.

Table 4.5 The effect of road traffic accidents on the youth and productive is very high in the study area

	Options	Frequency	Percent	Valid Percent
Valid	Strongly disagree	4	4.2	4.2
	Disagree	10	10.4	10.4
	Neutral	4	4.2	4.2
	Agree	32	33.3	33.3
	Strongly Agree	46	47.9	47.9
	Total	**96**	**100.0**	**100.0**

Source: Field Survey, (December, 2014)

Table 4.5 displays results on the effect of road traffic an accident on the youth and productive is very high in the study area. Out of the 96 participants who responded to the questionnaire 46 of them made of 47.9% Strongly Agree that the effect of road traffic accidents on the youth and productive is very high in the study area, 32 respondents representing 33.3% Agree to the question, whiles 10 respondents made of 10.4% Disagree and 4 (4.2%) Strongly disagree and 4 respondents representing 4.2% were Neutral to the question. The result shows that about 81% of the respondents agree that the effect of road traffic accidents on the youth and productive is very high in the study area.

Table 4.6 Respondents ratings on the causes of vehicle breakdown and accidents in the Bolgatanga Municipality

QUESTIONNAIRE ITEMS	Strongly Agree & Agree	Neutral	Strongly Disagree & Disagree	Mean	Ranks
Most vehicle breakdown in the Municipality are due to unqualified mechanics	47(49%)	12(12.5%)	37(38.5%)	3.26	10th
Vehicular accidents has always been attributed to human errors such as high alcoholic intake of drivers	89(92.7%)	4(4.2%)	3(3.1%)	4.35	3rd
Vehicles get involved in accidents due to poor road network, poor surfacing of the roads, and witchcraft practices	68(70.8%)	7(7.3%)	21(21.9%)	3.74	8th

Most road breakdowns of vehicles are as a result of poor maintenance of vehicles	73(76.1%)	10(10.4%)	13(13.5%)	4.01	7th
Evaporative leak caused by fuel volatility	56(58.3%)	16(16.7%)	24(25%)	3.09	11th
Engine hesitation or surge due to dirty air filter	68(70.8%)	12(12.5%)	16(16.7%)	3.71	9th
Overheating due to faulty cooling system or low fluid level	72(75%)	15(15.6%)	9(9.4%)	4.06	6th
Flat tire/blowout caused by wear and tear or at times over inflation	92(95.8%)	4(4.2%)	-----	4.48	1st
Inadequate enforcement of road laws and traffic regulations	72(75%)	8(8.3%)	13(13.5%)	4.08	5th
Failure to make or apply one regulation or another of road traffic regulations	79(82.3%)	8(8.3%)	9(9.4%)	4.11	4th
Not respecting road safety regulations, like jumping the red light, and wrong overtaking	92(95.8%)	------	4(4.2%)	4.44	2nd

Source: Field Survey, (December, 2014)

Table 4.6 above shows the ratings of respondents on the causes of vehicle breakdown and accidents in the Bolgatanga Municipality; using 5=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree.

On whether Flat tire/blowout caused by wear and tear or at times over inflation with a mean of 4.48 revealed that 92 respondents constituting 95.8% agree that Flat tire/blowout caused by wear and tear or at times over inflation was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality and only 4 respondents made of 4.2% were neutral.

Again, whether Not respecting road safety regulations, like jumping the red light, and wrong overtaking was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality road , it registered a mean of 4.44 with 92 respondents representing 95.8% agree or strongly agree to the question and only 4 respondents made of (4.2%) disagree or strongly to the question.

As to whether vehicular accidents has always been attributed to human errors such as high alcoholic intake of drivers it recorded a mean of 4.35 with 89 respondents made of 92.7% agree or strongly agree that vehicular accidents has always been attributed to human errors such as high alcoholic intake of drivers was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality , 3 of them (3.1%) disagree or strongly disagree and 4 respondents made of 4.2% indicated neutral to the question.

Concerning whether failure to make or apply one regulation or another of road traffic regulations was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality and having a mean of 4.11 shows that, 79 respondents representing 82.3% agree or strongly agree to the question, 9 of them (9.4%) disagree and the remaining 8 (8.3%) stated neutral.

Furthermore, on whether Inadequate enforcement of road laws and traffic regulations it recorded a mean of 4.08 where 72 respondents made of 75% agree or strongly agree that enforcement of road laws and traffic regulations was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality, 13 respondents made of 13.5% disagree to the question and 8 of them of (8.3%) were neutral to the question.

On whether overheating due to faulty cooling system or low fluid level is revealed 4.06 mean square value, 72 out of the 96 respondents representing 75%

agree or strongly agree to the question, 9 respondents of (9.4%) disagree and 15 of them made of 15.6% were neutral to the question.

With regards to whether most road breakdowns of vehicles are as a result of poor maintenance of vehicles, it gave a mean value of 4.01 of 73 respondents representing 76.1% agree or strongly agree to the question, 13 respondents made of 13.5% either disagree or strongly disagree with the question and 10 respondents representing 10.4% indicated neutral.

On whether vehicles get involved in accidents due to poor road network, poor surfacing of the roads, and witchcraft practices it registered a mean of 3.74 where 68 respondents representing 70.8% agree or strongly agree that vehicles get involved in accidents due to poor road network and poor surfacing of the roads, 21 of them made of 21.9% disagree or strongly disagree and 7 of them made of 7.3% were neutral to the question.

Furthermore, on whether engine hesitation or surge due to dirty air filter was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality, it gave out a mean of 3.71 and 68 respondents made of 70.8% agree or strongly agree that engine hesitation or surge due to dirty air filter and was a cause of vehicle breakdown and accidents in the Bolgatanga Municipality.

Finally, majority of the respondents indicated that most vehicle breakdown in the Municipality due to unqualified mechanics and that it was one of the causes of vehicle breakdown and accidents in the Bolgatanga Municipality.

The views of the respondents on the other causes of vehicle breakdowns and accidents in the Bolgatanga Municipality which confirmed with those interviewed included the following that;

- the drivers who are not educated and cannot notice the terrific light, speed ramps and other road signs.
- over speeding of vehicles, overloading of goods/passengers, conversation while driving and wrong overtaking by some drivers is another cause of road accidents in the study area as shown by figure 2.4.

Figure 4.7An overloaded breakdown truck in Bolga town

Source: Field Survey, (December, 2014)

- lack of basic knowledge on basic vehicle maintenance.
- Where there is no culture of maintenance among vehicle owners and users
- Drivers who drive while drunk
- Failure on the part of some drivers to use light indicators appropriately when negotiating a curve or parking/overtaking.
- Parking breakdown vehicles at an appropriate places
- Unlicensed drivers and riders which ply on the roads and at times drive or ride carelessly, with little working knowledge of basic car maintenance and reckless driving on roads,

- Most of the road users especially the motor riders are unlicensed and do not care about the proper use of the road.

4.3 The Level of Competence of Vehicle Mechanics

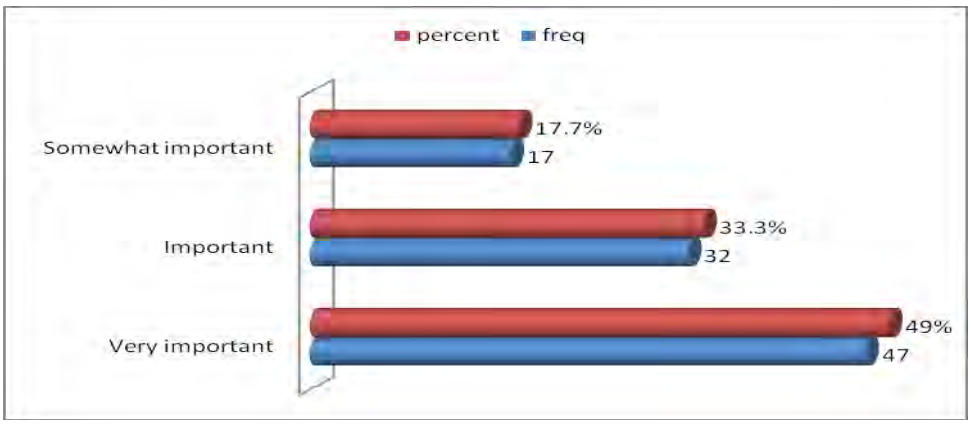

Figure 4.8 The level of competence of Motor vehicle Mechanics is importance in reducing vehicle breakdowns

Source: Field Survey, (December, 2014)

Figure 4.6 displays the views of respondents on whether the level of competence of Motor vehicle Mechanics is important in reducing vehicle breakdowns and accidents. Out of the 96 respondents 47 respondents made of 49.0% stated that the level of competence of Motor vehicle Mechanics is important in reducing vehicle breakdowns and accidents was very important, 32 of them representing 33.3% indicated important and 17 of them made of 17.7% indicated that it was somewhat important to consider the level of competence of Motor vehicle Mechanics is important in reducing vehicle breakdowns and accidents.

Table 4.7 How would you rate the level of competence of motor vehicle mechanics in the study area

	Options	Frequency	Percent	Valid Percent
Valid	Very good	13	13.5	13.5
	Good	35	36.5	36.5
	Somewhat	43	44.8	44.8
	Bad	5	5.2	5.2
	Total	**96**	**100.0**	**100.0**

Source: Field Survey, (December, 2014)

Table 4.7 shows respondents ratings on the level of competence of motor vehicle mechanics in the study area, 35 of the respondents representing 36.5% indicated Good, while 13 of them also representing 13.5% stated that the level of competence of motor vehicle mechanics in the study area was very good, and 43 respondents made of 44.8% which constituted majority of the respondents indicated somewhat, and 5 of them representing 5.2% stated that the level of competence of motor vehicle mechanics in the study area was bad.

The result meant that most of the respondents of 43 respondents representing 44.8% indicated that the level of competence of motor vehicle mechanics in the study area was not satisfactory per their rating.

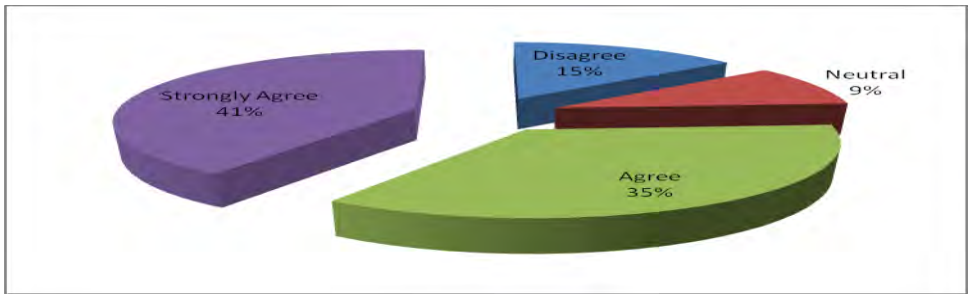

Figure 4.9 All motor mechanics must be certified by a higher authority before they are allowed to practice fitting in Ghana

Source: Field Survey, (December, 2014)

Figure 4.7 sought the views of respondents on whether all motor mechanics must be certified by a higher authority before they are allowed to practice fitting in Ghana and the result revealed that; 39 respondents made of 40.6% Strongly Agree, 34 of the respondents made of 35.4% Agree to the question, while 9 respondents representing 9.4% were Neutral and 14 respondents made of 14.6% Disagree that all motor mechanics must be certified by a higher authority before they are allowed to practice fitting in Ghana.

The above finding shows that almost all the respondents made of 76% agree that all motor mechanics must be certified by a higher authority before they are allowed to practice fitting or mechanics in Ghana.

Table 4.8 All mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills

	Options	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	79	82.3	82.3	82.3
	No	4	4.2	4.2	86.5
	Not sure	13	13.5	13.5	100.0
	Total	**96**	**100.0**	**100.0**	

Source: Field Survey, (December, 2014)

Table 4.8 sought the views of respondents on whether all mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills and 79 respondents

representing 82.3% indicated Yes to the question, 13 of them 13.5% were Not sure, and only 4 respondents representing 4.2% stated No to the question.

The above results clearly show that 82% of the respondents are of the view that all mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills.

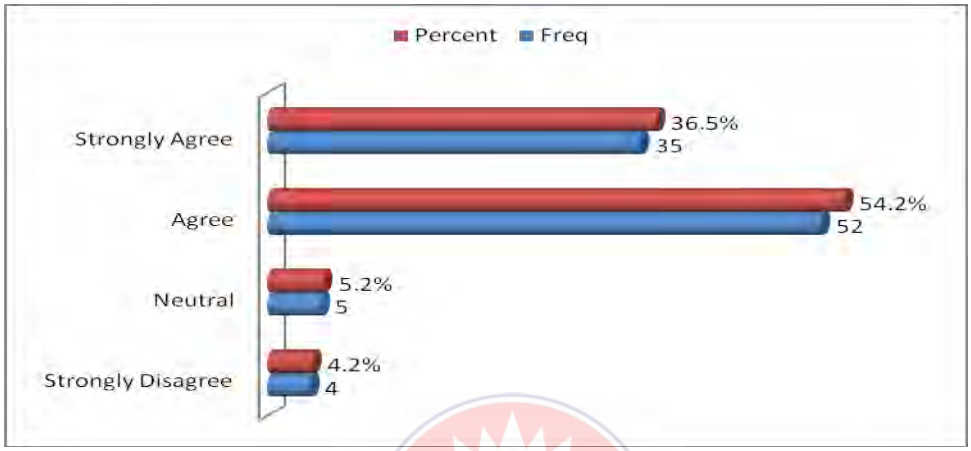

Figure 4.9 Government should partner with the private sector to promote mechanics apprenticeship training in the country

Source: Field Survey, (December, 2014)

Figure 4.9 display the results of respondents on whether the Government should partner with the private sector to promote mechanics apprenticeship training in the country. The results revealed that 52 respondents made of 54.2% Agree to the question, 35 respondents also made of 36.5% strongly agree that the Government should partner with the private sector to promote mechanics apprenticeship training in the country, 5 respondents (5.2%) indicated Neutral and only 4 of them representing 4.2% Disagree to the question.

The above results meant that almost all the respondents about 91% of them agree that the Government should partner with the private sector to promote mechanics apprenticeship training in the country.

Respondents added that the stages involved in training mechanic apprentices in the Bolgatanga Municipality are;

- The stages involved in training mechanic apprentices begin from people who attain age 18 to 30 years.
- Basic theory, apprenticeship work and mentorship. And that the apprenticeship training should be not less than three years, at least five years.

On how the training of apprentices can be done to enhance their skill acquisition and development in the study area includes the following; the training should be practically oriented to enhance their skills development in the Municipality. Special orgainse training on basic maintenance skills, like the Police and the DVLA authority and also organise seminars of trainees of motors.

The old aged vehicles should be regularly sent to the mechanic shop for maintenance, regular seminars and workshops should be organized for them to improve upon their technical knowledge.

The training of apprentices can be done by putting them into groups and creating the importance of why this training is needed, little education should either be given by DVLA official or technical advice and by internship to enhance their skill acquisition and development.

4.4 How to Reduce Frequent Vehicle Breakdowns and Accidents

Table 4.9 Respondents Ratings of the measures to be adopted to reduce vehicle breakdown and accidents in the Bolgatanga Municipality

QUESTIONNAIRE ITEMS	Strongly Agree & Agree	Neutral	Strongly Disagree & Disagree	Mean Value
Drivers must make sure that the vehicle you are driving is roadworthy and is not likely to cause danger to anyone	87(90.6%)	-----	9(9.4%)	4.55
All vehicles drivers must comply with the law, for example regarding tyres, lights and brakes	92(96.9%)	------	4(4.2%)	4.60
Drivers should adopt preventative maintenance systems	77(80.2%)	15(15.6 %)	4(4.2%)	4.03
Planned routine maintenance, by having a routine maintenance programme for every vehicle	88(91.6%)	3(3.2%)	4(4.2%)	4.29

Source: Field Survey, December, 2014

Table 4.7 presents respondents ratings of the measures to be adopted to reduce vehicle breakdown and accidents in the Bolgatanga Municipality; using 5=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree.

On whether drivers must make sure that the vehicle you are driving is roadworthy and is not likely to cause danger to anyone with a mean of 4.55 shows that 87 respondents representing 90.6% agree or strongly agree to the question, and only 9 respondents (9.4%) disagree to the question.

With regards to whether all vehicles drivers must comply with the law, for example regarding tyres, lights and brakes it recorded a mean of 4.60 with 92 respondents made of 96.9% agree or strongly agree that all vehicles drivers must comply with the law, for example regarding tyres, lights and brakes, and only 4 of them representing 4.2% disagree or strongly disagree to the question.

The question on drivers should adopt preventative maintenance systems has a mean of 4.03 where 77 respondents constituting 80.2% agree or strongly agree to the question that drivers should adopt preventative maintenance systems, 4 respondents (4.2%) disagree or strongly disagree and 15 respondents made of 15.6% were neutral.

Finally on whether drivers should have planned routine maintenance, by having a routine maintenance programme for every vehicle, it recorded a mean of 4.29 where 88 respondents made of 91.6% of the total number of respondents agree or strongly agree that drivers should have planned routine maintenance, by having a routine maintenance programme for every vehicle and only 4 of them (4.2%) disagree or strongly disagree to the question and 3 respondents (3.2%) were neutral.

The researcher further sought the views of respondents on other ways to reduce vehicle breakdown and accidents in the Bolgatantaga Municipality some of which are that;

- Drivers should not be over speeding where there are speed ramps, and should not also be on the car driving for more than 24 hours.
- Drivers should stop overloading their vehicles as well as stop conversations when driving.
- There should be sufficient Government heavy duty towing trucks to patrol our roads particularly the high ways to convey breakdown vehicle for free movement.

The above findings from respondents to the questionnaire and key stakeholders like the DVLA and MTTU unit of the Ghana police confirmed Section 18 of the Road Traffic Act 1961 where the roles and responsibilities of vehicle and other road users are spelt out.

CHAPTER FIVE

DISCUSSION OF RESULTS

The previous chapter presented the findings of the survey gathered from the chapter that presents the data to investigate the causes and effects of vehicle breakdown and road accidents in the Bolgatanga Municipality while this chapter discussed the results of the study by drawing relations with relevant literature.

5.1 Socio-Demographic Data of Respondents

This section presents the findings of the field research with respect to the demographic characteristics of the participants of the survey. Areas of particular interest to the researcher under this section were the sex of respondents, age group of respondent in years, marital status of respondent, and the highest education or professional attainment of respondent.

With regards to the sex of respondents the finding shows that there were more males who responded to the questionnaire than their female counterparts and many of the people who responded to the questionnaire within the Bolgatanga Municipality were within the youth age group of 20-30 years.

In determining the Highest Education or Professional attainment of respondents, the result shows that almost all the respondents had Basic education with 34% holding Higher National Diploma.

5.2 The Causes of Frequent Vehicle Breakdown and Accidents in the Bolgatanga Municipality under Research Question One

This section answers the first objective of the study which sought the views of respondents on the causes of frequent vehicle breakdown and accident in the Bolgatanga Municipality.

The result revealed by about 40% of the respondents indicated that men are mostly those who are involved in vehicular breakdowns and accidents within the study area. And on what is the major cause of vehicular breakdown and accidents in the study area, about 47% of the total number of respondents indicated due to improper care of cars or vehicles and little working knowledge of basic car maintenance.

This result further revealed that out of the total number of 96 respondents, 52% of them disagree that most of the drivers in the study area usually check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use. Again, about 62% of the respondents are of the view that there is growing decline of car know-how and care among vehicle users in the Bolgatanga Municipality.

It was also clear from the results that 32% of the respondents indicated between 11-20 people suffered from vehicle breakdown and accident related cases for the past year in the study area.

The result shows that about 81% of the respondents agree that the effect of road traffic accidents on the youth and productive is very high in the study area.

The results further shows that flat tire/blowout caused by wear and tear, drivers not respecting road safety regulations like jumping the red light, and wrong overtaking, accidents attributed to human errors such as high alcoholic intake of drivers, inadequate enforcement of road laws and traffic regulations, poor

maintenance of vehicles, poor road network, poor surfacing of the roads, and witchcraft practices and the activities of unqualified mechanics were some of the causes of vehicle breakdowns and accidents in the Bolgatanga Municipality.

The above results of the respondents on the causes of vehicle breakdowns and accidents in the Bolgatanga Municipality confirmed with the interview results which revealed that;

- the drivers who are not educated and cannot notice the terrific light, speed ramps and other road signs.
- over speeding of vehicles, overloading of goods/passengers, conversation while driving and wrong overtaking by some drivers is another cause of road accidents in the study area.
- lack of basic knowledge on basic vehicle maintenance.
- Where there is no culture of maintenance among vehicle owners and users
- Drivers who drive while drunk,
- Failure on the part of some drivers to use light indicators appropriately when negotiating a curve or parking/overtaking.
- Parking breakdown vehicles at an appropriate places
- Unlicensed drivers and riders which ply on the roads and at times drive or ride carelessly, with little working knowledge of basic car maintenance and reckless driving on roads and finally,
- Most of the road users especially the motor riders are unlicensed and do not care about the proper use of the road.

5.3 The Level of Competence of Vehicle Mechanics within the Bolgatanga Municipality under Research Question Two;

The result meant that most of the respondents of 43 respondents representing 44.8% indicated that the level of competence of motor vehicle mechanics in the study area was not satisfactory per their rating.

The finding also shows that almost all the respondents made of 76% agree that all motor mechanics must be certified by a higher authority before they are allowed to practice fitting or mechanics in Ghana.

The results clearly show that 82% of the respondents are of the view that all mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills.

Again, almost all the respondents about 91% of the respondents agree that the Government should partner with the private sector to promote mechanics apprenticeship training in the country.

On the stages the stages involved in training mechanic apprentices in the Bolgatanga Municipality the study revealed that;

- The stages involved in training mechanic apprentices begin from people who attain age 18 to 30 years.
- Basic theory, apprenticeship work and mentorship. And that the apprenticeship training should be not less than three years, at least five years.

On how the training of apprentices can be done to enhance their skill acquisition and development in the study area includes the following; the training should be practically oriented to enhance their skills development in the Municipality. There should also be special training on basic maintenance skills for apprentices, by

the Police and the DVLA authority as well as organise seminars for motor vehicle mechanics.

The old aged vehicles should be regularly sent to the mechanic shop for maintenance, regular seminars and workshops should be organized for them to improve upon their technical knowledge.

The results further revealed that the training of apprentices can be done by putting them into groups and creating the importance of why this training is needed, little education should either be given by DVLA official or technical advice and by internship to enhance their skill acquisition and development.

The above findings on the level of competence of mechanics confirm Ayeebo (25th March, 2009), who indicated that the way and manner of unprofessional activities by mechanics who repair and maintain vehicles in this country leave much to be desired.

5.4 How to Reduce Frequent Vehicle Breakdowns and Accidents within the Bolgatanga Municipality under Research Question Three;

The findings revealed that 91% of the respondents agree that drivers must make sure that the vehicles they drive is roadworthy which recorded a mean of 4.55.

Additionally the results shows that almost all the respondents which is about 97% agree that all vehicles drivers must comply with the law, for example regarding tyres, lights and brakes and should also adopt preventative maintenance system of their vehicles.

The study also revealed that about 92% of the total number of respondents agrees that drivers or vehicle owners should have planned routine maintenance of their vehicles.

The study further revealed the views of respondents on other ways to reduce vehicle breakdown and accidents in the Bolgatantaga Municipality some of which are that;

- Drivers should not be over speeding where there are speed ramps, and should not also be on the car driving for more than 24 hours.
- Drivers should stop overloading their vehicles as well as stop conversations when driving.
- There should be sufficient Government heavy duty towing trucks to patrol our roads particularly the high ways to convey breakdown vehicle for free movement.

The above findings from respondents to the questionnaire and interview results of the key stakeholders like the DVLA and MTTU unit of the Ghana police confirmed Section 18 of the Road Traffic Act 1961 where the roles and responsibilities of vehicle and other road users are spelt out.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of the main findings of the study, conclusions and recommendations and areas that may call for further research or study.

6.1. Summary of Findings

The objectives of the study were to; determine the causes of frequent vehicle breakdown in the Bolgatanga Municipality, assess the level of competence of vehicle mechanics in the Bolgatanga Municipality, and then to determine what can be done to reduce frequent vehicle breakdown in the Bolgatanga Municipality.

To achieve this, the first research objective sought to determine the causes of frequent vehicle breakdown in the Bolgatanga Municipality. It emerged that 38 respondents representing 39.6% indicated that men were mostly involved in vehicular breakdowns and accidents, followed by 22 of them made of 22.9% stated both of them, that due to improper care of cars or vehicles was the major cause of vehicular breakdown and accidents in the study area as many vehicle users in the study area has little working knowledge of basic car maintenance.

The study also revealed that most of the drivers in the study area do not check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use and 59 respondents representing 61.5% are of the view that there is growing decline of car know-how and care among vehicle users in the Bolgatanga Municipality.

The result further revealed that majority of the respondents indicated that between 11-20 people, suffered from vehicle breakdown and accident related cases over the last year.

The fact that most drivers are not respecting road safety regulations, like jumping the red light, and wrong overtaking is one of the causes of vehicle breakdown and accidents in the Bolgatanga Municipality.

The findings also shows that vehicular breakdown and road accidents in the study area have been attributed to human errors such as high alcoholic intake of drivers, failure to apply one regulation or another of road traffic regulations and inadequate enforcement of road laws and traffic regulations by most drivers.

Most road breakdowns of vehicles is also attributed to poor maintenance of vehicles by drivers and the fact that some of the drivers who are not educated and cannot notice the traffic light, speed ramps and other road signs jump the traffic light wrongly causing accidents.

Lastly over speeding and overloading of passengers/ goods, making or receiving of calls by drivers while driving and non culture of maintenance among vehicle owners and drivers are some of the causes of vehicle breakdown and accidents.

The second research objective sought to assess the level of competence of vehicle mechanics. Out of the 96 respondents 47 respondents made of 49.0% stated that the level of competence of Motor vehicle Mechanics is important in reducing vehicle breakdowns and accidents was very important and is a serious matter that should be looked at to improve upon their performance since most of them are not satisfactory or fairly.

The results further revealed that most of the respondents made of 73 respondents representing 76% agree that all motor mechanics must be certified by a higher authority before they are allowed to practice mechanics or fitting in Ghana.

Out of the 96 respondents, 79 of them representing 82.3% indicated that all mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills and that the Government should partner with the private sector to promote mechanics apprenticeship training in the country.

The third objective of the study sought to determine how to reduce frequent vehicle breakdowns and accidents and the results revealed that; all vehicles drivers must comply with the law, for example regarding tyres, lights and brakes as well as daily checking of their vehicles road worthiness before use, drivers should have a routine maintenance programme for their vehicles, make sure that the vehicle they are driving is roadworthy and is not likely to cause danger to anyone. In addition to that, drivers should not be over speeding especially where there are speed ramps, and should not be driving for more than 24 hours; instead they should make use of spare drivers where necessary.

Again, the study revealed that drivers should stop overloading their vehicles with passengers and goods as well as stop making or receiving calls whiles driving.

There should be sufficient Government and private partnership heavy duty towing trucks to patrol our roads particularly the high ways to convey vehicles that breakdown on the roads for free movement of other vehicles.

6.2 Conclusions

The following conclusions were drawn from the objectives of the study: On the causes of frequent vehicle breakdown and accident in the Bolgatanga Municipality the study revealed that;

i) men are mostly those who are involved in vehicular breakdowns and accidents.

ii) improper care of cars or vehicles and little working knowledge of basic car maintenance.

iii) most of the drivers in the study area usually check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use.

iv) between 11-20 people suffered from vehicle breakdown and accident related cases for the past year in the study area.

v) that the effect of road traffic accidents on the youth and productive is very high in the study area.

vi) inadequate enforcement of road laws and traffic regulations, poor maintenance of vehicles, poor road network, poor surfacing of the roads, and

vii) witchcraft practices and the activities of unqualified mechanics were some of the causes of vehicle breakdowns and accidents in the Bolgatanga Municipality.

On the level of competence of vehicle mechanics within the Bolgatanga Municipality, the results revealed that;

(i) the level of competence of motor vehicle mechanics in the study area was not satisfactory per their rating.

(ii) motor mechanics must be certified by a higher authority before they are allowed to practice fitting or mechanics in Ghana.

(iii) that all mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills, and that

(iv) the respondents agree that the Government should partner with the private sector to promote mechanics apprenticeship training in the country.

With regards to how to reduce frequent vehicle breakdowns and accidents within the Bolgatanga Municipality;

(i) It was revealed that about 91% of the respondents agree that drivers must make sure that the vehicles they drive is roadworthy and must comply with the law regarding tyres, lights and brakes and should also adopt preventative maintenance system of their vehicles.

(ii) Again, drivers or vehicle owners should have planned routine maintenance of their vehicles.

(iii) the level of competence of vehicle mechanic apprentices and their masters must be carefully looked at and should be giving formal education.

(iv) Government should intervene to certify and control the activities of drivers in the country and finally

(v) Government and private sector agencies in charge of road safety regulations should team up so as to reduce frequent vehicle breakdowns and accidents in the Bolgatanga Municipality and the country as a whole.

6.3 Recommendations

From the above findings and conclusions, the following recommendations have been made.

i) On the causes of the causes of frequent vehicle breakdown in the Bolgatanga Municipality, the study recommends that drivers should check their vehicles wheels, tyres, brakes and other parts of their vehicles daily before use.

ii) The MTTU police personnel and DVLA should be strict in their operations ensuring that all drivers or other road users found not respecting road safety regulations, like jumping the red light, wrong overtaking, drunk while driving or high alcoholic intake of drivers among others are fined heavily and if possible laid behind the bars for traffic offence which would serve as deterrent to others.

iii) There should be more public education on the causes of vehicular breakdown and road accidents and penalties for infringement of traffic laws starting from organized drivers unions and the general public on radio and Television discussions and other public forums.

iv) With regards to the second objective that assessed the level of competence of vehicle mechanics in the study area, the study recommends that; all motor mechanics must be certified by a higher governing authority before they are allowed to practice as mechanics or fitting in Ghana.

v) Again, that all mechanic apprentices and their masters should be exposed to some formal vocational or technical training on current technological information and entrepreneurial skills and lastly, the Government should partner with the private sector to promote mechanics apprenticeship training in the country which would make their certificates recognised by other formal institutions for employment.

vi) In addition to that, the study indicated that apprenticeship work and mentorship training should not be less than three years, it should be about five years after one has graduated from Junior High School or the Polytechnic and also make the training more practically oriented to enhance their skills development in the Municipality.

vii) The study also recommends that there should be special training on basic maintenance skills organized by the Police and the DVLA authority as well as organise seminars for trainees of motors mechanics in the study.

viii) Finally, the study recommends that the training of apprentices can be done by putting them into groups and creating the importance of why this training is needed, little education should either be given by DVLA official or technical advice and by internship to enhance their skill acquisition and development.

6.4 Suggestions for further Studies

The research recommends the following for future researchers who may wish to do further research on the topic under study;

In the researchers view, for future studies, the scope of the study should be broaden to capture more data thus by broadening the number of respondents in the study area and extend the same to every part of the country which would give room for any generalization on the study.

Finally, the sample size of the study should also be increased to cover many vehicle users and car owners in the Bolgatanga Municipality and if possible it should cover all the three Northern Regions since the incidence of vehicle breakdowns is claiming many lives in the study area, the three Northern Regions and the country as a whole.

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APPENDIX I

QUESTIONNAIRE TO VEHICLE OWNERS, DRIVERS. AND PASSENGERS

Dear respondent, the researcher is a student of the University of Education, Winneba and is seeking your views on the causes and effects of vehicle breakdown and road accidents in the Bolgatanga Municipality . You are highly assured that any information you provide will be treated with the utmost confidentiality and that this is purely for academic purposes.

Please tick [√] the appropriate response(s) or give your views to the questions below.

SECTION A-SOCIO-DEMOGRAPHIC DATA OF RESPONDENTS

1. Sex of respondent A. Male [ ] B. Female [ ]

2. Age group of respondent in years

A. [ ] Less than 20 B. [ ] 20-30 C. [ ] 31-40 D. [ ] 41-50

E. [ ] Above 50 years

3. Marital status of participant

A. Married [ ] B. Single [ ] C. Divorced [ ] D. Separated [ ]

4. Highest Educational or Professional Attainment

A. [ ] No Formal Education B. [ ] Basic/Senior High School or Technical

C. [ ] Higher National Diploma (HND) D. [ ] First Degree E. [ ] Masters Degree F. [ ] Others {please specify}…….

SECTION B: THE CAUSES OF FREQUENT VEHICLE BREAKDOWN AND ACCIDENTS

5. Which of the following are mostly involved in vehicular breakdowns and accidents in the Bolgatanga Municipality ? [ ] Men [ ] Women [ ] Both of them [ ] It depends

6. What would you say is the major cause of vehicular breakdowns in the Bolgatanga Municipality [ ] improper care of cars or vehicles [ ] Due to little working knowledge of basic car maintenance [ ] Due to mechanical faults

7. Most drivers usually check their vehicle wheels, tyres, brakes, lighting, steering, and other parts of the vehicle daily before use. [ ] Yes [ ] No [ ] No idea

8. There is growing decline in car know-how and care among many vehicle users in the Bolgatanga Municipality . [ ] Yes [ ] No [ ] No idea

9. On the average, how many people would you say suffered accident related cases in the Bolgatanga Municipality ? [ ] Between 1-10 people [ ] 11-20 people [ ] 21-30 people [ ] 31-40 people [ ] Above 50 people

10. Road traffic accidents affecting the youth and productive is very high in the Bolgatanga Municipality [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

11. Rate the following causes of vehicle breakdown and accidents as applicable to the Bolgatanga Municipality ; using 5=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree

QUESTIONNAIRE ITEMS	5	4	3	2	1
Most vehicle breakdown in the Municipality are due to unqualified mechanics					
Vehicular accidents has always been attributed to human errors such as high alcoholic intake of drivers					
Vehicles get involved in accidents due to poor road network, poor surfacing of the roads, and witchcraft practices					
Most road breakdowns of vehicles are as a result of poor maintenance of vehicles					
Evaporative leak caused by fuel volatility					
Engine hesitation or surge due to dirty air filter					
Overheating due to faulty cooling system or low fluid level					
Flat tire/blowout caused by wear and tear or at times over inflation					
Inadequate enforcement of road laws and traffic regulations,					
Failure to make or apply one regulation or another of road traffic regulations					
Not respecting road safety regulations, like jumping the red light, and wrong overtaking					

12. Please specify other causes of vehicle breakdown in the Bolgatanga Municipality

……..……

……

……..…

SECTION C: THE LEVEL OF COMPETENCE OF VEHICLE MECHANICS

13. The level of competence of Motor vehicle Mechanics is of great importance in reducing vehicle breakdowns [ ] Very important [ ] Important [ ] Somewhat important [ ] Not important

14. What would you say about the level of competence of Motor vehicle Mechanics in the Bolgatanga Municipality ? [ ] Very good [ ] Good [ ] Somehow [ ] Bad

15. All motor mechanics must be certified by a higher authority before they are allowed to practice fitting in Ghana. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

16. All mechanic apprentices and masters should be exposed to formal vocational or technical training on current technological information and entrepreneurial skills [ ] Yes [ ] No [ ] Not sure

17. Government should partner with the private sector to promote apprenticeship training in the country [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

18. Please indicate the stages involved in training mechanic apprentices in the Bolgatanga Municipality ……

……

19. How can the training of apprentices be done to enhance their skill acquisition in the Bolgatanga Municipality ? ……

……

……

SECTION D: HOW TO REDUCE FREQUENT VEHICLE BREAKDOWNS AND ACCIDENTS

20. Rate the following measures that could be used to reduce vehicle breakdown and accidents as applicable to the Bolgatanga Municipality; using 5=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree

QUESTIONNAIRE ITEMS	**5**	**4**	**3**	**2**	**1**
Drivers must make sure that the vehicle you are driving is roadworthy and is not likely to cause danger to anyone					
All vehicles drivers must comply with the law, for example regarding tyres, lights and brakes					
Drivers should adopt preventative maintenance systems					
Planned routine maintenance, by having a routine maintenance programme for every vehicle					

21. Other ways to reduce vehicle breakdown in the Bolgatanga Municipality (please specify) ……..

……

……..

STRUCTURED INTERVIEW GUIDE FOR STAFF OF DVLA, MTTU AND THE POLICE

Dear respondent, the researcher is a student of the University of Education, Winneba and is seeking your views on the causes and effects of vehicle breakdown and road accidents in the Bolgatanga Municipality. You are highly assured that any information you provide will be treated with the utmost confidentiality and that this is purely for academic purposes.

APPENDIX 2

Please tick [√] the appropriate response(s) or give your views to the questions below.

SECTION A-SOCIO-DEMOGRAPHIC DATA

1. Sex of respondents A. Male [ ] B. Female [ ]

2. Age group of respondents in years

A. [ ] Less than 20 B. [ ] 20-30 C. [ ] 31-40 D. [ ] 41-50

E. [ ] Above 50 years

3. Marital status of participants

A. Married [ ] B. Single [ ] C. Divorced [ ] D. Separated [ ]

4. Highest Educational or Professional Attainment

A. [ ] No Formal Education B. [ ] Basic/Senior High School or Technical

C. [ ] Higher National Diploma (HND) D. [ ] First Degree E. [ ] Masters Degree F. [ ] Others {please specify}……

5. Current rank/position in the organization ……

……

SECTION B: THE CAUSES OF FREQUENT VEHICLE BREAKDOWN AND ACCIDENTS

6. What would you say is the major cause of vehicular breakdowns in the Bolgatanga Municipality ? [ ] improper care of cars or vehicles [ ] Due to little working knowledge of basic car maintenance [ ] Due to mechanical faults

7. What are the other causes of vehicle breakdown and accident in the Bolgatanga Municipality ?……

……

……

SECTION C: THE LEVEL OF COMPETENCE OF VEHICLE MECHANICS

8. What would you say about the level of competence of Motor vehicle Mechanics in the Bolgatanga Municipality ? [ ] Very good [ ] Good [ ] Somehow [ ] Bad

9. What would you suggest should be done to improve upon the level of competences of Motor vehicle Mechanics in the Bolgatanga Municipality ? ……

……

……

10. Please, state the stages you think should be involved in the training of motor mechanic apprentices in the Bolgatanga Municipality …….

……

…….

11. How can the training of apprentices be done to enhance their skill acquisition in the Bolgatanga Municipality ? ……

……

……

SECTION D: HOW TO REDUCE FREQUENT VEHICLE BREAKDOWNS AND ACCIDENTS

12. What would you suggest to reduce vehicle breakdown and accidents in the Bolgatanga Municipality (please specify) ……

……

……..

THANK YOU