

TRAFFIC SAFETY STRATEGIES FOR MINIMIZING ROAD ACCIDENTS AMONG PUPILS IN GOMBE STATE.

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ABSTRACT

This paper focused is on traffic safety strategies for minimizing road accidents among pupils in Gombe state Nigeria. The study has two main objectives. Survey design was used for the study. Structured questionnaire was developed by the researchers and validated by three experts of automobile technology education, two from the Department of Technology Education, Modibbo Adama University of Technology Yola and one from Federal College of Education (Technical) Potiskum. The questionnaire tagged:Traffic safety strategies for minimizing road accidents among pupils in Gombe State (TSSFMRA).was used as an instrument for data collection. The population of the study consisted of 175 road traffic agents that comprises Federal Road Safety Corps (FRSC), Motor Traffic Department (MTD) and Vehicle Inspection Officers (VIO) in Gombe State. Two research questions were posed and two null hypotheses were formulated and tested at 0.05 level of significance. Mean and standard deviation were used to answer the research questions, while the Analysis of Variance was used to test the null hypotheses. The finding of the study among others revealed that pupils in Gombe State involved in all nature of accidents; suffered serious injuries, death and slight injuries. The findings also revealed that road traffic agencies played major roles in minimizing RTAs. The study also revealed no significant differences in the mean responses of FRSC, MTD and VIO on their roles in minimizing pupils' road accident rate in Gombe State; the study further showed no significant differences in the mean responses of FRSC, MTD and VIO on the suggested strategies to assist in minimizing pupils' road accident rate in Gombe State. The study recommended among others that road traffic agencies should not relent in their efforts in minimising road traffic accident involving pupils; use suggested strategies and explore more innovative ways to minimising road traffic accident involving pupils in Gombe State among others.

Key: Traffic Safety Strategies for Minimizing Road Accidents

INTRODUCTION

Background of the Study

The world's first road traffic death involving a motor vehicle is alleged to have occurred on 31 August, 1869. Irish scientist Mary Ward died when she fell out of her cousin's steam car and was run over by it (Independent Women Celeb News, 2008). Road traffic accidents occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree or utility pole. Road traffic accident may also be defined as anything that happens by chance, anything occurring unexpectedly and un-designed (Femi, 2013).

Road Traffic Accident (RTA) would rarely give warning, although reckless drivers should anticipate the consequences of their recklessness; human recklessness, carelessness or negligence should be avoided at all cost by road users. Road traffic accident has emerged as the single greatest source of human and material losses (Atubi&Gbadamosi, 2015). They further commented that, throughout the world at least half a million people are killed and about 15 million injured because of RTAs each year. The causality and fatality intensity vary significantly among different locations and it depends on specific factors in relation to different

environment, which include: population, traffic intensity, compliance to traffic regulation and the extent of preventive and remedial measures put in place in different countries (Gana& Emmanuel 2014).

Femi(2013) asserted that road transport users suffered various degree of accidents as they drive on the road. Dixey (1999) view road accidents as an issue of international concern. Road accidents emerged as the most prevailing and shocking causes of death all over the world (Porter, 2013). In developing countries where the number of motor vehicles relating to population is generally much lower than in the developed countries, more fatalities from automobile crashes are higher. The population density in Nigeria according to Federal Road Safety Commission (2014), varies between 51.7% and 48.3% in rural and urban areas respectively and translates to a population-road ratio of 860 persons per square kilometres indicating intense traffic pressure on the available road network.

Road traffic agencies are saddle with responsibilities of enforcement of road traffic laws and regulations. These road traffic agencies include Federal Road Safety Commission (FRSC), Motor Traffic Department (MTD) and Vehicles Inspection Officer (VIO). Observance and enforcement of road safety laws and regulations has contributed positively to the significant reduction of loss of lives and property on the roads. However, these laws and regulations have suffered violent abuses and misinterpretations from motorists and unscrupulous members of the public (Femi, 2013). These stakeholders have played significant roles in minimizing RTAs. Yet, effort made by law enforcement agencies and other stakeholders in enlightening, enforcing and sanctioning traffic offenders in order to curtail road traffic accident has proven abortive. Road transportation which has become such a dominant mode in Nigeria with patronage cutting across individual commuters, private, corporate and

government organizations serves as coordinating basis for all modes of transport system. The restrictive nature of the water ways, coupled with the near collapse of the rail system, and the high cost of air travels have further exerted a lot of pressure on the road

According to FRSC (2015) National Road Traffic Regulations (NRTR) (2004) Section 115 made pursuant to Sections 5 and 10 (10) of the FRSC (Establishment) Act 2007 provides for the establishment of safety units by all transport operators so as to bring professionalism into the industry, promote and develop rapid safe, efficient and convenient fleet transportation system in the country. It is this wholesome consideration and In keeping with the Commission's service compact with all Nigerians (SERVICOM), that the Federal Road Safety Commission introduced the Road Transport Safety Standardization Scheme (RTSSS). The scheme is therefore compulsory for all fleet operators (Private, Corporate and Government transport companies) with five (5) or more vehicles to register and regulate to improve the safety of the operations. Gombe State consists of 11 local Government Areas (LGAs). The LGAs are connected by five major Federal high ways: These are Gombe-Yola, Gombe-Bauchi, Gombe-Damaturu, Gombe-Darazo and Gombe-Biu. However, in the past three years, these roads have experienced heavy traffic than ever (FRSC, 2015). Consequently, the rates of road traffic accident have drastically increased in spite of the presence of road traffic agents on these highways. Hence, the researcher assessed the Traffic safety strategies for minimizing road accidents among pupils in Gombe State.

Statement of Problem

Road Traffic accidents have led to serious health, social and economic problem in Nigeria. Studies have revealed that road accident related injuries and sickness would rise to third position ahead

of such diseases as Tuberculosis and HIV/AIDS (Gana& Emmanuel, 2014).Federal Road Safety Commission report shows that out of the total of 55,195 RTAs reported in Nigeria from 2003-2007, 25,939 persons were killed and 29,256 others were injured in road traffic crash. FRSC(2015)also noted that between 2010 and 2014, alone 1,903 children were killed and 8,667 others sustained various degrees of injuries from various road accidents. Similarly, road traffic crash report of FRSC of January to May 2016 alone indicated that 14 pupils were injured while 61 others were killed in road traffic accident in Gombe State. Likewise, report from FRSC (2014) indicated that Yobe state have witnessed a colossal accident that involved 14 pupils and 4 teachers on 10th April 2014. Beside, loss of lives and impairment of people belonging to the productive age, properties worth billions of Naira were also lost annually due to RTAs. These create socio-economic losses to not only the individual involved in the accident but also to the nation at large (Femi, 2013).

This ugly situation necessitated so many questions in the mind of the researcher on whether enforcement agencies are living up to expectation. What efforts are being made by drivers and other road users to reduce road accident? What are the impacts of these stakeholders in ensuring that lives and properties are not lost through road accident? It is on this background the researchers intends to assess the Traffic safety strategies for minimizing road accidents among pupils in Gombe State.

Purpose of the Study

The purpose of this study was to assess the traffic safety strategies for minimizing road accidents among pupils in Gombe State. Specifically, the study sought to:

1. Ascertain the nature of accidents involving pupils in Gombe State.
2. Ascertain the degree of accidents involving pupils in Gombe State.

Research Questions

Two research questions guided the study:

1. What are the natures of accidents involving pupils in Gombe State?
2. What are the degrees of accidents involving pupils in Gombe State?

Hypotheses

Two null hypotheses were formulated and tested at 0.05 level of significance.

H₀₁ There is no significant difference in the mean responses of FRSC, MTD, and VIO on their role in minimizing pupils' road accidents rate in Gombe State.

H₀₂ There is no significant difference in the mean responses of FRSC, MTD, and VIO on the suggested strategies needed to minimize pupils' road accidents in Gombe State.

METHODOLOGY

Design of the Study

The design used for the study was a survey design. A survey is a systematic process of gathering information on a specific topic by asking questions of individuals and then generalizing the results to the groups represented by the respondents

Area of the Study

The area of study was Gombe State which is located on latitude 9°0'.30' and 12.20'N, longitude 8°0'.45' and 11°0'.45'E. It is in the centre of North-Eastern Nigeria. It consists of eleven local government areas and shares boundaries with Adamawa, Bauchi, Borno Taraba and Yobe States.

Population of the Study

The population of the study comprised of 175 members of VIO, FRSC, and MTD in Gombe State. See appendix I.

Sample and Sampling Technique

There is no sampling as the researcher used the entire population of the study. Hence, the population is not large

and is considered relatively manageable by the researcher.

Instruments for Data Collection

The instrument used for data collection was a structured questionnaire tagged: Traffic safety strategies for minimizing road accidents among pupils in Gombe State (TSSFMRA). The researcher designed the instrument on a five point rating scale consisting of 62 items, which elicited response from the road traffic agencies. Items 1 to 31 elicited response on the roles of road traffic agencies in minimizing RTA among pupils in Gombe State. While items 32 through 40 elicits information on the suggested strategies for minimizing RTAs in Gombe State.

Validation of the Instrument

The instrument was subjected to face validity. This was done by three experts of automobile technology from the Department of Technology Education, Modibbo Adama University of Technology Yola to establish face and content validity of the instrument. Corrections was made based on the comments of the validates before final draft of the questionnaire was produced.

Reliability of the Instrument

The test instrument was subjected to reliability test using 30 road traffic agents. Ten from each of these road traffic agencies: FRSC, VIO and MTD in Adamawa State. Cronbach's alpha was used to determine the reliability coefficient of the instrument. The reliability of the instrument was found to be 0.76, which was reliable.

Method of Data Collection

The researcher with the help of four research assistants administered the questionnaires to FRSC, MTD, and VIO in 11 Local Government areas of Gombe State. Two days after the distribution of

the questionnaires, the researcher and research assistants retrieved the questionnaires for data analysis.

Method of Data Analysis

Microsoft Excel was used to analyse the data. Mean and Standard Deviation was used to answer the research questions. The Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. Any item with a mean of 3.00 and above was considered agreed. Moreover, any item with a mean of less than 3.00 was considered disagreed. In addition, at 0.05 level of significant, null hypothesis was accepted when F-calculated value was less than the F-critical values, and otherwise, the null hypothesis rejected.

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the analysis of data. The presentation of results and discussion follow the manner in which the research questions and the hypotheses were presented.

Research question 1

What nature of accidents involving pupils in Gombe State?

The data analysis presented on table 1 page 32 answered research question 1. The analysis showed that most risky nature of accident involving pupils in Gombe state was accident when turning, followed by accident when crossing direction of travel. This was justifiable by the responds of the respondents on items 4 and 5. These items have grand mean of 3.58 and 3.57 with standard deviation of 0.90 and 1.14 respectively. The table also revealed that items 6, 3 and 9 among others are also risky. However, the respondents did not agreed with items 8 and 12 as their grand mean scores were less than 3.00.

Table 1: Mean and Standard Deviation on the Nature of Accidents Involving Pupils in Gombe State

S/N	Items	N = 75 \bar{X}_F	N = 50 \bar{X}_M	N = 50 \bar{X}_V	N = 175 \bar{X}_G SD _G	Remark
1	Rear collision	3.26	3.41	3.13	3.27 1.40	Agreed
2	Vehicle going in the same direction	3.28	3.21	2.75	3.08 1.19	Agreed
3	Head on collision when overtaking	3.56	3.43	3.35	3.45 1.10	Agreed
4	Accident when turning	3.54	3.50	3.70	3.58 0.90	Agreed
5	Crossing direction of travel	3.67	3.79	3.25	3.57 1.14	Agreed
6	Pedestrian crossing carriage way	3.54	3.64	3.50	3.56 1.01	Agreed
7	Pedestrian walking in or along carriage way	3.49	3.50	3.25	3.41 0.97	Agreed
8	Accidents involving ledges and slide.	2.82	3.00	2.75	2.86 1.14	Not agreed
9	Single vehicle off the road	3.31	3.29	3.50	3.37 0.96	Agreed
10	Single vehicle overturning in carriage way	3.15	3.29	2.88	3.12 1.05	Agreed
11	Collision with animals	3.28	3.00	3.38	3.22 1.14	Agreed
12	Other accidents	3.03	3.14	2.75	2.97 1.18	Not agreed

Key: \bar{X}_F =Mean of FRSC \bar{X}_M = Mean of MTD \bar{X}_V = Mean of VIO \bar{X}_G = Grand MeanSD_G= Grand Standard Deviation**Research question 2**

What degree of accidents involving pupils in Gombe State?

The degree of accidents involving pupils in Gombe State includes fatal, serious and slight injuries. Table 2 showed that most prevailing degree of accident involving pupils in Gombe state was a serious accident. This was indicated by response of the traffic agencies on item 14, which emerged highest with grand mean

of 3.73 and 1.01 standard deviation. While item 13 and 15 followed with grand mean of 3.25, 3.09 and standard deviation of 1.00 and 1.01 respectively. This showed that, pupils in Gombe State suffered fatal and slight injuries. Nevertheless, item 16 was disagreed with grand mean score of 2.72 and 1.21 standard deviation. Hence, pupils did not suffer any injury when involved in accident was disagreed.

Table 2: Mean and Standard Deviation on the Degree of Accidents Involving Pupils in Gombe State

S/N	Items	N = 75 \bar{X}_F	N = 50 \bar{X}_M	N = 50 \bar{X}_V	N = 175 \bar{X}_G	SD _G	Remark
13	Pupils are mostly killed in RTAs in Gombe State.	3.54	3.71	3.25	3.50	1.00	Agreed
14	Pupils mostly suffer serious injuries in RTAs in Gombe State.	3.87	3.93	3.38	3.73	0.89	Agreed
15	Pupils mostly suffer slight injuries in RTAs in Gombe State.	3.28	3.36	2.63	3.09	1.01	Agreed
16	Pupils did not suffered any injury in RTAs in Gombe State.	2.67	2.86	2.63	2.72	1.21	Disagreed

Key: \bar{X}_F = Mean of FRSC \bar{X}_M = Mean of MTD \bar{X}_V = Mean of VIO \bar{X}_G = Grand MeanSD_G =

Grand Standard Deviation

Hypothesis 1

There is no significant difference in the mean responses of road traffic FRSC, MTD and VIO on their role in minimizing pupils' road accidents rate in Gombe State. The test of the null hypothesis 1 was presented on table 6. The analysis revealed that at 0.05 level of significance, 2 and 172 degree of freedom, F ratio table (F-critical) was 2.99. While, the F-calculated value was 0.0173. This showed that F-calculated value was less than the F-critical Value. Based on decision rule the null

hypothesis was accepted, since F-calculated value is less than F-critical value. This followed that the null hypothesis which stated that: there is no significant difference in the mean responses of road traffic FRSC, MTD and VIO on their role in minimizing pupils' road accidents rate in Gombe State was upheld. This means members of the road traffic agencies have similar view on their role in minimizing pupils' road accident in Gombe State.

Table 3: ANOVA on the Role of Road Traffic FRSC, MTD and VIO in Minimizing Pupils' Road Accidents Rate in Gombe State

Sources of Variation	df	SS	MS	F-cal.	F-crit.	Decision
Between Group	2	0.005	0.0025			
Within Group	172	24.850	0.1440	0.0173	2.99	Accepted
Total	174	24.855				

Key: df = Degree of Freedom; SS = Sum of Square; MS = Mean of Square**F-cal. = Calculated F ratio value; F-crit. = F Table value****Hypothesis 2**

There is no significant difference in the mean responses of road traffic agencies on the suggested strategies needed to minimize pupils' road accidents in Gombe State.

This null hypothesis was tested and presented on table 7. Based on the analysis, F-critical value was 2.99 at 0.05 level of significance, 2 and 172 degree of freedom.

While, F-calculated value was 0.0185. The test of the hypothesis revealed that F-calculated value is less than the F-critical value. The decision rules that: accept the null hypothesis if F-calculated value is less than F-critical value, and otherwise, reject the null hypothesis. Consequently, the null hypothesis was accepted. Hence, the null hypothesis, which stated there is no significant difference in the mean responses of FRSC, MTD and VIO on the

suggested strategies needed by road traffic agencies in minimizing pupils' road accident was upheld. This means that members of the road traffic agencies have

significantly agreed with all the nine suggested strategies formulated by the researcher.

Table 4: ANOVA on the Strategies Formulated to Assist Road Traffic Agencies in Minimizing Pupils' Road Accident

Sources of Variation	df	SS	MS	F-cal.	F-crit.	Decision
Between Group	2	0.0093	0.0047			
Within Group	172	43.2500	0.2514	0.0185	2.99	Accepted
Total	174	43.2593				

Key:df = Degree of Freedom; SS = Sum of Square; MS = Mean of Square;
F-cal. = Calculated F ratio value; F-crit. = F Table value

Findings of the Study

The findings of this study emerged from the analysis of the research questions and the test of the null hypotheses at 0.05 level of significance. The major findings of this study include:

1. Pupils in Gombe State involved in all nature of accidents. Accident when the vehicle is turning and crossing the directional road are the most risky nature of accidents involving pupils in Gombe State.
2. Pupils in Gombe State suffered various degree of accidents, which include serious injuries, death and slight injuries.
3. There is no significant difference in the mean responses of FRSC, MTD and VIO on their roles in minimizing pupils' road accidents rate in Gombe State.
4. There is no significant difference in the mean responses of FRSC, MTD and VIO on the strategies formulated to assist road traffic agencies in minimizing pupils' road accident in Gombe State.

Discussion

The findings of this study were discussed based on the research questions and the hypotheses in line with the findings. The study revealed that, the most risky nature of accidents involving pupils in Gombe State were: accident when the vehicle is turning, crossing direction of

travel, pedestrian crossing among others. This finding agreed with works of Paz, Copeland, Maheshwari, Gunawan and Tafazzoli (2015) who found out that pedestrian and driver crashes are increasing at an alarming rate due to technological advancements and human errors.

The study also revealed various degrees of accidents involving pupils in Gombe State. Based on the analysis on table 2, serious, fatal and slight injuries are the degree of accidents involving students in Gombe State. The fatality and serious injuries as the degree of accident among pupils in Gombe State confirmed the work of Okeniyi, J., Oluwadiya, K., Ogunlesi, T. Oyedeji, O. Oyelami, O., Oyedeji, G. & Oginni, L. (2004) whose work showed that most accidents involving children mostly resulted to serious injuries and death.

The third and fourth findings, gave the test of significance of the first and the second hypotheses. The test of the hypotheses based on ANOVA proffered the mean agreed on the opinions of FRSC, MTD and VIO on their roles in minimizing pupils' road accident rate in Gombe State. The analysis of variance also proffered mean agreement of FRSC, MTD and VIO on suggested strategies formulated that will assist in minimizing pupils' road accidents rate in Gombe State. These findings are in agreement with the works of Ohakwe, Iwueze and Chikezie (2011) which have reported that there is no significant

differences on need for more strategies to be formulated to assist road traffic management. The findings also concur with the findings of Paz, Copeland, Maheshwari, Gunawan and Tafazzoli (2015) who found out that there is a need to improve existing driver education programs and strategies to mitigate the chances of crashes.

Summary

Road traffic accident has been the major source of human and property lost in Nigeria. Road traffic accidents' statistics in Nigeria reveal a serious and growing problem with absolute fatality rate and causality figure rising rapidly. The severity and fatality of accident varies from one location to the other. This variation depends on some factors. These factors may include: population, traffic intensity, compliance to traffic regulation and the extent of preventive and remedial measures put in place in different countries. Although, pupils are not among the most risk-prone participants of road traffic, but yet, from the long term point of view it is important to concentrate due attention on this group. The share of pupils killed in road traffic from the total number of traffic accident victims in the in Nigeria is on increase. This necessitates the stakeholders in road transport system to devote more time on prevention of child injury rate in road transport.

The main objective of the study was to assess the impact of road traffic agencies in minimizing pupils' road accidents rate in Gombe State. Specifically, the study identified strategies to be used by road traffic agencies in minimizing pupils' RTAs; ascertained the types and the degrees of accidents involving pupils.

The study was conducted in Gombe State Nigeria. The population of this study consisted of 175 members of road traffic agencies across Gombe State.

The major findings emerged from the study includes: Pupils in Gombe State involved in all nature of accidents; pupil in Gombe State also suffered various degree of accidents that include serious injuries, death and slight injuries. The findings also showed that FRSC, MTD and VIO have played significance roles in minimizing pupils' road accidents rate in Gombe State. The study further revealed that school bus is the safest mode of conveying pupils, while pupils trekking are vulnerable to RTAs.

Conclusion

In conclusion, the study confirmed that pupils in Gombe State involved in all nature of accidents; suffered serious injuries, death and slight injuries. The study also confirmed measures used by road traffic agencies in minimizing RTAs.

Implication of the Study

The implication of this finding is that road traffic agencies should not relent in their measures in minimising road traffic accident and devise more strategies that will minimize pupils RTAs. Road traffic agencies should encourage the use of safest mode of transporting pupils to and from school. This will help in securing the lives of future leaders and human resources to boost the economy of the nation.

Recommendations

Based on the findings of the study, the following recommendations were proffered:

1. Road traffic agencies should not relent their effort in minimising road traffic accident.
2. Road traffic agencies should use the suggested strategies and explore more innovative ways to minimising road traffic accident involving pupils across the nation.
3. Parents and school managers should use school bus

intransporting pupils to and from schools.

Suggestion for Further Studies

The researcher suggested the following topics for further studies:

1. Effects of road traffic education in minimizing road traffic accidents among Nigerian primary school pupils.
2. Time and season with high record of road traffic accidents involving pupils in Nigeria

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