DRIVER PERCEPTIONS, PRACTICES, AND BEHAVIORS IN ORGANIZED COMMERCIAL ROAD TRANSPORT IN CROSS RIVER STATE, NIGERIA.

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ABSTRACT

Commercial road passenger transport companies in Nigeria battle with numerous operational and safety challenges which have been linked to drivers' driving behaviours. This study aimed to assess the perceptions of commercial drivers regarding operational efficiency and safety compliance, and how these perceptions influence actual driving practices. Using structured questionnaires, a cross-sectional survey was conducted among drivers from five major transport companies in Calabar metropolis. The findings revealed that most drivers hold generally positive perceptions regarding the importance of operational efficiency and safety compliance, with average mean scores of 3.54 and 3.70 respectively, leaning toward disagreement with negative statements. However, these perceptions do not always translate into consistent safe and efficient practices, pointing to gaps in awareness particularly regarding environmental impacts such as fuel consumption and emissions. The regression results demonstrated significant association between drivers' perceptions on safety compliance and operational efficiency on their actual behaviours ($R = 0.690$; $R^2 = 0.477$; $p < 0.001$), confirming that beliefs about operational efficiency and safety compliance together account for a substantial proportion of variance in driving behaviour. The study underscores the need for commercial transport companies to develop tailored, post-licensure driver training programs that not only address knowledge gaps but also incorporate feedback mechanisms to align drivers' perceptions with safe and efficient practices.

Keywords: Drivers' perception, drivers' safety compliance, drivers' driving/operational efficiency, drivers' behaviours, drivers' training.

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1 | Introduction

In Nigeria, commercial road passenger transport companies are faced with a myriad of challenges, from competition between companies providing same transport product (origin – destination), to high running cost of operating a transportation firm, to safety challenges that poses treat to both the environment and the company's vehicle assets. Transportation companies often face high costs from their day-to-day operations, and these expenses can become even greater when safety standards are not properly followed. Operational cost can be associated to fuel and maintenance cost, and while cost arising from lack of safety compliance can be associated to fines and loss of assets to road crashes, as such operational efficiencies and safety compliance are paramount components transportation companies need pay attention to in this

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competitive and challenging business environment. Commercial transport operations in Nigeria are classified into organized and non-organized operators. Organized operators, with standard terminals, are recognized by government, and noted for better safety and operational efficiency, unlike non-organized operators who lack such structures.

According to Gichaga (2017), traffic issues and accidents in all communities are largely caused by driving offenses, which are often linked to drivers' behaviours, health, and psychological factors which can be prevented through thorough and efficient training programs that addresses these underlying factors. Ajzen's (1991) theory of planned behaviour, explains that the way that people act are shaped by three main factors: what they expect will happen if they act in a certain way (outcome expectations), how much they feel others expect them to act that way (subjective norms), and how confident they are in their ability to do it (self-efficacy). Giving the study of Kan and Fabrigar (2017), people are more likely to adopt healthy behaviours when they perceive the outcomes of such behaviours as highly rewarding, and when prevailing social norms are supportive of such behaviours, and also when they believe in their own ability to perform the behaviours effectively. Drivers often view driving behaviours differently, and these views are shaped by their knowledge, their beliefs and attitudes, and the personal judgments or prejudices they hold, whether positive or negative.

Consequently, an understanding of the psychological and perceptual dimensions of drivers' beliefs is essential for developing effective interventions that not only enhance knowledge but also promote safer driving practices in commercial transport operations. Fors *et al.*, (2015), had suggested that understanding drivers' perceptions about efficient driving styles such as eco-driving style, and understanding drivers' perception about safety are essential to determining their behaviours towards operational efficiency and safety compliance respectively. With good knowledge on drivers' perceptions, interventions such as drivers training can better be developed and applied to positively enrich drivers' behaviours. Thus, this study aimed to achieve the following objectives:

a) To assess commercial drivers perception on safety compliance and operational efficiency.
b) To examine the relationship between drivers' perceptions of operational efficiency and safety compliance, and their actual driving practices.

2 | Literature Review

In Nigeria, due to the severity of road traffic accidents, several studies have been conducted on drivers' behaviours, drivers education and training as part of measures to address the dilemma. For instance, the study of Nwadinigwe *et al*. (2018), employed the “Drivers' Road Safety Knowledge and Attitudinal Questionnaire (DRSKAQ)”, a specially designed and administered tool developed by the researcher to collect data and assess the “impact of road safety education on commercial drivers' knowledge and behaviour towards road traffic codes and safety driving”. The revealed that commercial drivers' attitudes towards road safety education programs were significantly influenced by their educational background, and that adequately educated drivers can significantly minimize the occurrence of accidents and fatalities on our roads. In a similar vein, Adenigbo (2024) employed exploratory factor analysis (EFA) to investigate the "effects of road users' education programs on driving behaviour in Nigeria", with particular emphasis on identifying the key impacts

of FRSC road user education initiatives on driver behaviour in relation to reducing road traffic accidents (RTAs) in Nigeria. The study revealed that "road user education programs have positively influenced driving behaviour by reducing poor driving practices, promoting proper vehicle maintenance, and encouraging adherence to road signs and signals" (Adenigbo, 2024).

To further address and remediate the fatalities, damages, and environmental impacts caused by inefficient and unsafe driving behaviours, researchers (Zhang *et al.*, 2016; Okafor *et al.*, 2014) have recommended regular post-licensure training to enhance drivers' knowledge and promote safer driving practices. Similarly, regulation 201 of the Nigeria National Road Traffic Regulation (NRTR) 2012 mandates all licensed commercial transport companies, associations, and unions to conduct periodic trainings for their drivers, covering defensive driving, speed limits, passenger limits, traffic signs, registration compliance, and pedestrian crossing. Post-licensure trainings, helps to reinforce and refine driving skills (Beanland et al., 2013; Bates *et al.*, 2018; Okafor *et al.*, 2014), however, the effectiveness of these trainings has yet to be fully evaluated, particularly in terms of their impact on drivers' beliefs and perceptions, as beliefs and perceptions are said to influence behaviours (Ajzen, 1991). With good knowledge on drivers' perceptions, interventions such as drivers training can better be developed and applied to positively enrich drivers' behaviours.

Sequel to the foregoing paragraph, the need for continuous or subsequent post-licensure drivers training cannot be over emphasized. Giving to studies conducted in developed countries, "the identification of human factors and the use of trainings to address and improve driving behaviours have been found to play a significant role in promoting safety compliances, and preventing and managing traffic accidents" (Nancy, 2021). However, despite the existence of this and several other related studies, there remains a significant gap in the literature, as most studies have not adequately explored drivers' perceptions of behaviours towards safety compliance and operational efficiency. In fact, only a handful of studies (Huang *et al.*, 2021; Wang *et al.*, 2024; Müller *et al.*, 2024) have delved into driving behaviours from the perspective of environmental impact, particularly in relation to increased fuel consumption and vehicular emissions. This oversight highlights the need for a study examining drivers' perceptions and how these perceptions influence their driving behaviour, recognizing that vehicles are tools whose outcomes (safety, operational or environmental) depend on the way they are operated by humans.

3 | Materials and Methods

3.1 | Research Methodology and Design

The study adopts a quantitative research approach, using a cross-sectional survey design to examine drivers' perceptions of safety and operational efficiency, as well as their driving behaviours, within organized commercial passenger transport companies in Nigeria.

3.2 | Study Area

Calabar metropolis, Cross River State, was chosen for the study due to its role as a major transport hub in southern Nigeria, with strong commercial links across the country and an international border with Cameroon, making it suitable for examining drivers' perceptions of safety, efficiency, and driving behaviours. Five of the top commercial passengers transport companies in the country were selected, and this included: ABC Transport Shuttle Service, Calculux Cruises Limited, Peace

Mass Transport, Young Shall Grow Transport, and Akwa Ibom Transport Company ((Finelib.com, 2025; BusinessList.com.ng, 2025.

3.3 | Sampling technique and sample size

The study adopts a multi-stage sampling techniques comprising of two stages. The first stage involves the use of purposive sampling to selectively identify commercial transport companies among the numerous companies which operations are inter-state and adhere to high-standard operating procedures. For this stage, five (5) transport companies were selected for the study and they include: ABC transport, Young Shall Grow transport, Peace Mass Transport, Calculux Transport Company, and Akwa Ibom Transport Company. The selection criteria was based on their years of operations, terminals size and the perception of researcher about their responsiveness to research activities. The second stage involved the use of simple random sampling to sample drivers employed by these companies.

Both Roscoe's (1975) rule of thumb and Taro Yamane's (1967) was used to determine the sample size of the population. With a population of 300 drivers, Yamane's (1967) formula yielded a sample population of 171.43 approximately 172. And using Roscoe's (1975) rule of thumb the sample size was 130. To ensure a more robust sample size in achieving consistent and reliable results, 200 questionnaires were administered to drivers of the selected commercial transport companies, out of which 144 were retrieved and deemed valid for analysis.

3.4 | Method for Data Collection

Structured questionnaire consisting of two sections was used for data collection. Section A was constructed to retrieve information that pertain to the drivers' demographic information. The second section on the other hand had sub-split which targeted the various latent variables of the study which included: drivers' perception of operational efficiency and safety compliance, drivers' behaviours' towards safety, and drivers' behaviours towards operational efficiencies. Five research question was developed to measure perception about safety compliance and another five questions to measure perception about operational efficiency. Additionally, ten questions were developed to measure drivers behaviours on the steering. The questions were asked using negative wordings, as such reverse coding was used where: Strongly agree = (1), Agree = (2), Neutral = (3), Disagree = (4), and strongly disagree = (5). Furthermore, the study employed multiple linear regression analysis. In the model, drivers' beliefs about operational efficiency and safety compliance were adopted as independent variables (X1 and X2), and their actual driving practices/behaviours as the dependent variable (Y).

3.5 | Data Analysis

Descriptive statistics, including frequencies and means, were employed alongside linear regression to analyse the data and test the hypothesis.

4.0 Results

4.1 Descriptive Analysis of Objective

Table 1 aim to show drivers responses to questions asked on “driver's perception about safety compliance.” The five assessment questions used were negatively worded, giving greater weight to negative responses, and lower to positive responses. The average mean of 3.70 which is shown in Table 1 represents the average of the means of drivers' responses to the five questions. This average mean lean towards “disagree” that is

Table 1 | Descriptive analysis of drivers perception about safety compliance

Indicators	Strongly agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)	Sum	Mean	AVG Mean
Following traffic laws does not necessarily ensure road safety	1 (0.69%)	8 (5.56%)	28 (19.44%)	75 (52.08%)	32 (22.22%)	144 (100%)	3.90	
Ignoring road safety laws has no serious consequences	1 (0.69%)	10 (6.94%)	47 (32.64%)	55 (38.19%)	31 (21.53%)	144 (100%)	3.73	
As a driver, I do not have full responsibility to comply with road safety laws	1 (0.69%)	13 (9.03%)	39 (27.08%)	65 (45.14%)	26 (18.06%)	144 (100%)	3.71	3.70
Occasionally violating road safety laws has little to no impact on safety	0	13 (9.03%)	52 (36.11%)	64 (44.44%)	15 (10.42%)	144 (100%)	3.56	
A driver's driving style does not affect their own safety or the safety of others	2 (1.39%)	19 (13.19 %)	35 (24.31%)	68 (47.22%)	20 (13.89%)	144 (100%)	3.59	

four (4), and is indicative of the fact that most drivers have a positive perception about complying with road safety rules.

Furthermore, Table 2 provides summary of the findings for drivers' perception about operational efficiency. Five (5) negative worded questions, measured on a five point Likert scale were used to assess driver's perception about operation efficiency. The descriptive statistics as presented in Table 2 reveals that most drivers understand the importance of efficient driving practices for operational performance. This is true considering that the average mean score of drivers responses which dwells at around 3.5 indicative of a general tendency to disagree with the negative worded statements. It suggest that drivers have a relative low but positive perception about operational efficiency.

4.2 | Test of hypothesis

Table 2 | Descriptive Statistics of Drivers' Perception About Operational Efficiency

Indicators	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Sum	Mean	AVG Mean
Driving style has no impact on vehicle fuel efficiency	5 (3.47%)	19 (13.19%)	34 (23.61%)	56 (38.89%)	30 (20.83%)	144	3.60	
Training does not significantly improve efficient driving habits	1 (0.69%)	13 (9.03%)	37 (25.69%)	65 (45.14%)	28 (19.44)	144	3.74	
Driving style has effect on vehicle wear, tear, and maintenance costs	4 (2.78%)	30 (20.83%)	50 (34.72%)	39 (27.83%)	21 (14.58%)	144	3.30	3.54
High fuel consumption does not contribute to increased CO_2 emissions	1 (0.69%)	18 (12.5%)	42 (29.17%)	62 (43.06%)	21 (14.58%)	144	3.58	
Vehicle maintenance has minimal impact on operational efficiency	6 (4.17%)	18 (12.5%)	48 (33.33%)	48 (c	24 (16.67%)	144	3.46	

Table 3 | Regression analysis model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.690[a]	.477	.469	.528

a. Predictors: (Constant), DPOSC, DPOOE

H_0: There is no association between drivers' perception about operational efficiency and safety compliance, and their actual driving practices

H_1: There is association between drivers' perception about operational efficiency and safety compliance, and their actual driving practices

To test the statistical significance of the hypothesis, the study employed multiple linear regression analysis. In the model, drivers' beliefs about operational efficiency and safety compliance were adopted as independent variables (X1 and X2), and their actual driving practices (behaviours) as the dependent variable (Y). The statistical analysis was conducted on SPSS and the findings are presented in the Table 3. According to Table 3 the model summary report informs about the two very important indices the R and R Square values. The multiple correlation coefficient (R) value at 0.69 suggest a strong positive relationship between the dependent variable (drivers' behaviours) and the independent variables, insinuating that drivers belief about operational efficiency and safety compliance predicts driving behaviours. The Coefficient of Determination (R^2) value of 0.477 implies that about "47.7 percent" of the variance in driving behaviours is explained by the two independent variables. Similarly, the Adjusted R square value of 0.469 signifies that approximately 46.9 percent of the variance in the dependent variable is explained by the model.

In addition, Table 4 gives insight into the analysis of the variance (ANOVA) which test for the significance of the regression model. The ANOVA results for the regression model indicate that the predictors (independent variables), drivers' perception on safety compliance (DPOSC) and drivers' perception on operational efficiency (DPOOE), significantly explain variations in driver behaviours (outcome variable), with an F-statistic of 64.175 which is significant at p-value < 0.001, below the 0.05 acceptable significant level. These demonstrate that the regression model provides a better fit to the data than a model without predictors. Also, the significant F-value confirms that drivers' perceptions regarding safety compliance and operational efficiency together reliably predict their actual driving behaviours, leading to the acceptance of the alternate hypothesis and rejection of the null hypothesis.

Furthermore, Table 5 provides insight into the

Table 4 | Regression analysis ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	35.806	2	17.903	64.175	.000[b]
Residual	39.336	141	.279		
Total	75.142	143			

a. Dependent Variable: Driver behaviours

b. Predictors: (Constant), DPOSC, DPOOE

Table 5: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.831	.255		3.264	.001
DPOOE	.463	.092	.453	5.047	.000
DPOSC	.309	.097	.286	3.190	.002

a. Dependent Variable: Driver behaviours

regression coefficients, showing that both drivers' perception of operational efficiency (DPOOE) and safety compliance (DPOSC) are significant positive predictors of driving behaviours, while the intercept (B = 0.831, p = .001) indicates that the expected behaviour score remains positive even when both belief measures are at their lowest or held constant. The coefficient of belief about operational efficiency and belief about safety compliance at 0.463 and 0.309 respectively indicates that for every one point increase in belief about operational efficiency 0.463 is gained to drivers' behaviours and for every one point increase in belief about safety compliance, behaviours is increased significantly by 0.309. Additionally, it can be deduced from the Table 5 that the two predictors are significant at .000 for drivers' belief about operational efficiency and .002 for drivers' belief about safety compliance.

5 | Discussion

The study aimed to assess drivers' beliefs (perception) and on-road behaviours in commercial passengers transport operations in Nigeria. The result of the findings showed that the average mean score of 3.54 across all items related to drivers' perceptions of operational efficiency indicates that most drivers recognize the importance of responsible driving habits, proper training, fuel consumption awareness, and regular vehicle maintenance in enhancing operational efficiency. However, since the average mean score across the questions does not strongly lean toward towards the full scale (5), it could be an indication that drivers are not very conscious of the impact of their driving style on the environment and operational efficiency. Drivers' perception significantly influences their behaviours, and as Nègre and Delhomme (2017) argued, for motorists to adopt efficient driving style, they need to understand the reasons and methods behind it. Also, they must be able to assess whether their driving actions align with the acceptable driving efficiency principles or rules.

Similarly, the results for drivers' perception of safety compliance revealed an average mean of 3.70, which leans toward the full scale value five (5), indicating that most drivers have a positive perception about complying with road safety rules. However, walking the talk is another factor that should be pulled into analysing drivers' perception on safety compliance. Studies have debated that the way drivers perceive the consequences of neglecting traffic rules can have a profound impact on their willingness to comply with those rules (Allen *et al.*, 2017). That is, if drivers believe that disregarding traffic regulations will lead to severe repercussions they are more likely to comply with safety rules, and if they believe that the consequences are minimal or unlikely to happen, they may be more inclined to take risks and disregard the rules. Mustapha et al. (2024),

observed that the level of safety awareness in drivers are high but the level of compliance to this safety rules and regulations is very poor among commercial drivers. Therefore, it is essential for commercial transport companies to assess and understand the perceptions their drivers hold regarding safety compliance. This periodic assessment can aid in the design and implementation of targeted training programs that specifically address any misconceptions or negative attitudes. This strategic approach not only enhances the effectiveness of training but also contributes significantly to improving overall compliance with safety standards and reducing road related risks.

Furthermore, the study used regression analyses to examine the hypothesis that there is no association between drivers' beliefs about operational efficiency and safety compliance, and their actual driving practices such as obeying traffic regulations, maintaining safe driving speeds, minimizing risky manoeuvres, and following procedures that enhance both safety and operational efficiency. The result of the regression analysis which yielded an intercept (B) of 0.831, and a P-value of 0.001 lead to the rejection of the null hypothesis (H_0) which state that "there is no association between drivers' perception about operational efficiency and safety compliance, and their actual driving practices." And conversely, the alternate hypothesis (H_1) which state that "there is association between drivers' perception about operational efficiency and safety compliance, and their actual driving practices" was accepted. Additionally, the coefficients further revealed that belief about operational efficiency (B = 0.463, p = .000) and belief about safety compliance (B = 0.309, p = .002) are both statistically significant predictors of driving behaviour. These findings indicate that commercial drivers' perceptions of safety compliance and operational efficiency significantly influence their driving behaviour, reinforcing the argument by Eboli et al. (2017) that drivers' misjudgement of risk is a major factor contributing to road incidents. Even minor dismissals of safety instructions often justified with phrases like "it doesn't matter" can greatly increase the likelihood of road incidents, underscoring the critical role of perception in shaping safe driving practices. A correct perception about road safety regulations and efficient driving techniques will enable a driver to easily comply with safe and efficient driving styles with or without supervision or enforcement contributing to both improvement on the safety of roads and the environment. Notwithstanding, Rolim and Baptista (2018) noted that drivers' inability to "precisely evaluate their driving skills contributes significantly to poor driving performance, and analysis of drivers perceptions about their driving behaviours and style allows drivers to be aware how they perform and if their perception about their driving is correct." Despite the influence of perception on behavioural intentions, Lauper *et al.* (2015) found that the link between intention and actual behaviour among drivers is often weak. This suggests that even when drivers intend to drive safely and efficiently, these intentions do not always translate into practice. In light of this, Rolim and Baptista (2018) recommended "combining educational tools with real-time feedback to equip drivers with the necessary knowledge and awareness to adopt and consistently apply more efficient and safe driving techniques."

6 | Conclusions

This study sets out to assess the relationship between drivers' perceptions and their actual on-road driving behaviours within the context of commercial passenger transport operations in Nigeria. The findings confirmed a significant association between drivers' beliefs about

operational efficiency and safety compliance and their actual driving practices, leading to the rejection of the null hypothesis. This affirms that driver perception plays a crucial role in shaping on-road behaviour, aligning with the popular maxim that "we act the way we think". Nevertheless, the literature and empirical findings alike point to a persistent disconnect between intention and action, indicating that while many drivers understand and even endorse safe and efficient driving principles, these intentions often fail to translate into real world practices, particularly when drivers underestimate the risks or consequences of non-compliance. Therefore, continuous efforts are needed to close this perception and behaviour gap. Commercial transport companies must engage in regular assessments of driver attitudes and tailor training programs that go beyond raising awareness to include feedback mechanisms and practical reinforcement strategies. Such interventions can enhance drivers' self-evaluation, correct misperceptions, and foster a culture of accountability and safety, as improving drivers' perception accuracy and behavioural consistency is not only essential for road safety but also critical to promoting environmental sustainability and operational efficiency in Nigeria's commercial transport sector. The study recommends commercial transport companies develop tailored, post-licensure driver training programs that not only address knowledge gaps but also incorporate feedback mechanisms to align drivers' perceptions with safe and efficient practices. Additionally, the study recommends that the successful completion of training programs and behavioural assessments should be a key requirement for determining drivers' eligibility for promotion and remuneration. This will ensure that safety, competence, and professionalism are rewarded within the organization.

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