

Knowledge and Compliance on Land Transportation and Traffic Code Among Tricycle Drivers in Bayombong, Nueva Vizcaya

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Date Submitted:

March 16, 2026

Date Accepted:

June 25, 2026

Date Published:

August 07, 2026

DOI:

10.5281/zenodo.21831407

ABSTRACT

This study determined the knowledge and compliance of tricycle drivers with Republic Act No. 4136, the Land Transportation and Traffic Code, in Bayombong, Nueva Vizcaya. A descriptive-correlational design was employed among 180 tricycle drivers selected through simple random sampling from six of the 12 Tricycle Operators and Drivers Associations operating around the Bayombong public market. Data were gathered using a researcher-adapted questionnaire that obtained a content validity index of 1.00 and a Cronbach's alpha of 0.969. Frequency, percentage, mean, standard deviation, Mann-Whitney U, Kruskal-Wallis H with Dunn-Bonferroni comparisons, and Spearman's rho were used. Respondents were predominantly male (92.8%), married (67.8%), and aged 42 years or older.

They were fully knowledgeable overall ($M = 3.84$), with traffic rules and regulations rated highest ($M = 3.87$), and fully compliant overall ($M = 3.84$), with driver licensing and traffic rules and regulations highest ($M = 3.85$ each). Knowledge and compliance did not significantly differ by age, but differed significantly by sex, civil status, and years of driving experience across all four regulatory domains. Knowledge was strongly and positively related to compliance ($r = 0.850$, $p < .001$). The findings support sustained traffic-law education, targeted refresher training for less experienced and single drivers, accessible registration and equipment guidance, and consistent enforcement to strengthen road safety.

Keywords: *tricycle drivers, Republic Act No. 4136, traffic-law knowledge, regulatory compliance, road safety, public transportation*

INTRODUCTION

Road traffic safety depends not only on infrastructure and enforcement but also on the knowledge and decisions of road users. Public utility drivers must understand licensing, vehicle registration, traffic rules, and equipment standards because their daily conduct directly affects passenger safety and traffic order. Global and regional road-safety frameworks therefore emphasize the combined contribution of education, enforcement, engineering, and a supportive safety culture (Morimoto et al., 2021; World Health Organization, 2022).

In the Philippines, tricycles remain an accessible form of public transportation, particularly in municipalities where larger transport services are limited. Their operational flexibility supports local mobility and livelihoods, yet the sector also faces challenges related to driver training, vehicle condition, traffic congestion, and uneven enforcement. Studies involving tricycle and other public-transport operators have shown that drivers may possess substantial awareness of traffic rules while displaying variations in actual compliance, especially in administrative and technical requirements (Aydinan, 2020; De Jesus & Villanueva, 2022; Elipe et al., 2023).

Republic Act No. 4136 provides the legal basis for motor-vehicle registration, driver licensing, traffic regulation, and vehicle-equipment requirements. Knowledge of these provisions is expected to support lawful driving, but knowledge alone may not always result in consistent practice. Compliance can also be shaped by enforcement visibility, perceived penalties, social expectations, accessibility of government services, and drivers' accumulated experience. This relationship is consistent with the Theory of Planned Behavior, which explains how attitudes, norms, and perceived behavioral control influence intention and action (Ajzen, 1991).

Bayombong, Nueva Vizcaya, relies on tricycles for local travel, particularly around the public market and nearby terminals. Despite the importance of these drivers to community mobility, localized evidence on their knowledge and compliance with RA 4136 remained limited. The study therefore assessed their demographic characteristics, knowledge and compliance across vehicle registration, driver licensing, traffic rules and regulations, and vehicle equipment; tested differences according to age, sex, civil status, and driving experience; and examined the relationship between knowledge and compliance. The evidence was intended to guide targeted education, monitoring, and enforcement measures that may improve road safety.

Literature Review

Road Safety Education and Regulatory Knowledge

Traffic education develops the knowledge, skills, and motivation required for safer behavior. Effective programs connect concrete safety problems with expected behaviors, appropriate teaching strategies, and measurable learning goals. Fernandez et al. (2020) showed that mastery of traffic signs contributes to more reliable prioritization of accident factors, while the Asian Development Bank (2023) emphasized continuous driver education as part of sustainable transport and road-safety improvement.

Knowledge is especially important for public utility drivers because registration, licensing, traffic signs, speed rules, loading practices, and vehicle equipment are encountered in routine operations. The Land Transportation Office (2021) and the Land Transportation Franchising and Regulatory Board (2022) identify these requirements as central to lawful public-transport service. Bureau of Transportation Studies (2023) likewise noted that awareness initiatives should be adapted to rural and community contexts where access to formal instruction may be uneven.

Compliance, Enforcement, and Driver Behavior

Compliance is influenced by both understanding and the perceived consequences of violating rules. Cruz and Mendoza (2022) linked public-utility driver compliance to the clarity of regulations and regular monitoring, while Santos (2021) highlighted the role of enforcement and road-safety practices in shaping lawful behavior. Romero (2021) further reported that seminars and refresher training may strengthen compliance by improving drivers' interpretation of legal and operational requirements.

Enforcement is most effective when it is consistent, visible, and supported by accessible administrative services. Aydinan (2020) observed that tricycle drivers may know traffic regulations but apply them inconsistently. Similar findings among drivers in Occidental Mindoro showed high compliance alongside demographic and experiential variations (Elipe et al., 2023). These patterns suggest that education and enforcement should be coordinated rather than treated as separate interventions.

Tricycle Operations and Local Transport Safety

Tricycles serve as both a livelihood and a mobility service. Their importance is particularly evident in provincial communities, where they connect residential areas, markets, schools, and government centers. De Jesus and Villanueva (2022) described tricycle operators as an established occupational group whose legal and environmental practices are shaped by local conditions. Gungat et al. (2021) and Ajayi (2022) also demonstrated that public-transport behavior responds to changing risks, service conditions, and passenger expectations.

Road-safety outcomes are multidimensional. Mayo et al. (2022) found that enforcement-related transport policies can substantially affect road fatalities, whereas Marcillo et al. (2022) stressed that reliable safety interventions require high-quality information on driver behavior, vehicles, roads, and environmental conditions.

Tan et al. (2023) similarly illustrated that licensing policies should balance safety requirements with evidence-based assessment and driver awareness.

Demographic and Experiential Influences on Compliance

Driver characteristics can shape exposure to regulations, interaction with enforcement agencies, and familiarity with administrative procedures. Uriarte et al. (2021) found that older and more experienced tricycle drivers displayed greater awareness of environmental laws and ordinances, suggesting that repeated occupational exposure can strengthen regulatory familiarity. Philippine Statistics Authority (2024) data also provide context for understanding the age and sex composition of occupational groups in the country.

Experience may operate through repeated licensing, registration, inspection, and roadside encounters. At the same time, civil status and family responsibilities may influence risk perception and commitment to stable livelihood practices. These factors do not imply causality, but they can identify groups that may benefit from differentiated communication, training schedules, and compliance assistance. This study therefore examined demographic differences while treating knowledge and compliance as related but distinct constructs.

Conceptual Framework

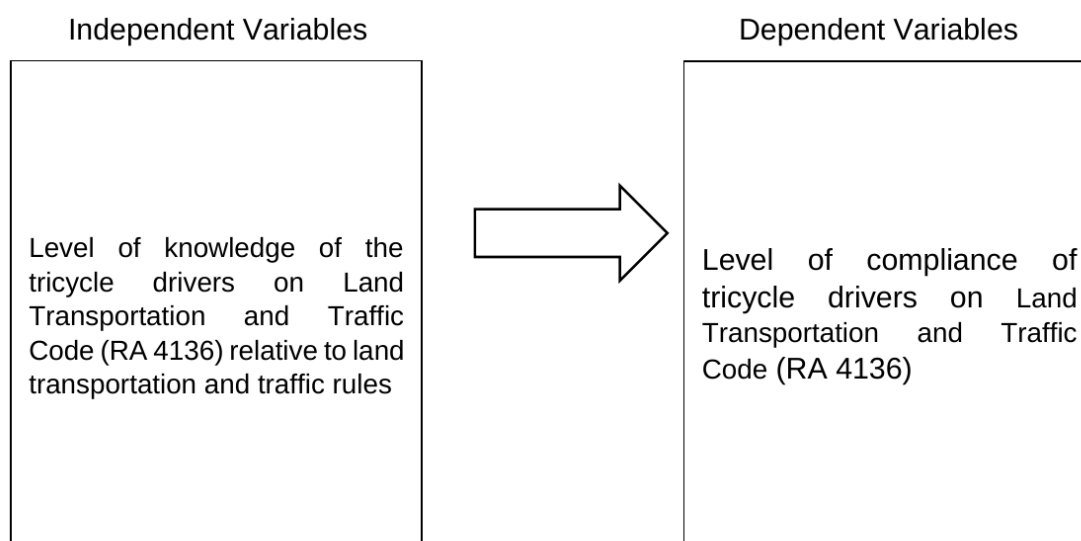


Figure 1. *Conceptual Framework of the Study*

METHODS

Research Design

The study employed a descriptive-correlational quantitative design. Descriptive procedures were used to summarize the respondents' demographic profile and their levels of knowledge and compliance. Comparative procedures examined differences across demographic groups, while correlational analysis determined the association between knowledge and compliance. The design described naturally occurring conditions without manipulating the study variables.

Research Locale

The study was conducted in the Municipality of Bayombong, Nueva Vizcaya, particularly among TODA terminals situated around the public market. Bayombong is the provincial capital and a local transport hub where

tricycles provide routine mobility for residents, workers, students, and market users. The area was selected because of its high tricycle activity, traffic volume, and relevance to local road-safety concerns.

Participants and Sampling Technique

The participants were 180 tricycle drivers from six of the 12 Tricycle Operators and Drivers Associations operating around the Bayombong public market. Simple random sampling was used to provide eligible drivers an equal chance of selection and to obtain representation across age, sex, civil status, and years of driving experience. Drivers actively operating within the selected TODAs constituted the study population.

Research Instrument

Data were collected through a structured questionnaire adapted, revised, and modified from instruments used in earlier studies of traffic education, knowledge, and compliance among tricycle drivers. The first part recorded age, sex, civil status, and driving experience. The succeeding parts measured knowledge and compliance in four domains: vehicle registration, driver licensing, traffic rules and regulations, and vehicle equipment. Responses were rated on a four-point scale. Scores from 3.24 to 4.00 indicated fully knowledgeable or fully compliant; 2.50 to 3.23, mostly knowledgeable or mostly compliant; 1.75 to 2.49, partially knowledgeable or partially compliant; and 1.00 to 1.74, not knowledgeable or not compliant. Five experts evaluated the instrument, producing a content-validity score of 1.00. A pilot test among 20 tricycle drivers in Santiago City yielded a Cronbach's alpha of 0.969.

Data Gathering Procedure

The researcher secured permission from the presidents of the selected TODAs before administering the questionnaire. Potential participants received an explanation of the study, instructions for completing the instrument, and a written informed-consent form. The researcher personally distributed and retrieved the questionnaires and reviewed completed forms for missing responses before encoding the data.

Data Analysis

Frequency and percentage described the demographic profile. Means and standard deviations summarized knowledge and compliance. Because the detailed analyses used nonparametric procedures, Mann-Whitney U tests compared two-group variables, Kruskal-Wallis H tests compared variables with more than two groups, and Dunn-Bonferroni tests identified significant pairwise differences. Spearman's rho tested the relationship between knowledge and compliance. Statistical significance was evaluated at $\alpha = .05$.

Ethical Consideration

Participation was voluntary. Respondents were informed of the study's purpose, their right to decline or withdraw, and the intended academic use of the data. Written consent was obtained before participation. No personally identifying information was reported, and completed questionnaires and encoded data were treated confidentially. The researcher minimized disruption to drivers' work and ensured that participation involved no penalty or loss of benefit.

RESULTS AND DISCUSSION

Profile of the Tricycle Drivers

Table 1. *Demographic Profile of the Respondents*

Variable	Category	f	%
Age	18–25	22	12.2
Age	26–33	23	12.8
Age	34–41	33	18.3
Age	42–49	52	28.9
Age	50 and above	50	27.8
Sex	Male	167	92.8
Sex	Female	13	7.2

Civil status	Single	44	24.4
Civil status	Married	122	67.8
Civil status	Widowed	8	4.4
Civil status	Separated	6	3.3
Driving experience	1–10 years	58	32.2
Driving experience	11–20 years	58	32.2
Driving experience	21–30 years	49	27.2
Driving experience	More than 30 years	15	8.3

The participants were predominantly male, married, and middle-aged. Drivers aged 42–49 constituted the largest group, followed closely by those aged 50 years and above. The concentration of respondents in the 11–30-year experience range indicates that tricycle driving was an established occupation for many participants. This pattern is broadly consistent with studies describing tricycle operations as a long-term livelihood among married male drivers (De Jesus & Villanueva, 2022; Elipe et al., 2023).

Knowledge and Compliance with RA 4136

Table 2. *Summary of Knowledge and Compliance by Regulatory Domain*

Domain	Knowledge Mean	Interpretation	Compliance Mean	Interpretation
Vehicle registration	3.84	Fully knowledgeable	3.83	Fully compliant
Driver licensing	3.83	Fully knowledgeable	3.85	Fully compliant
Traffic rules and regulations	3.87	Fully knowledgeable	3.85	Fully compliant
Vehicle equipment	3.83	Fully knowledgeable	3.84	Fully compliant
Overall	3.84	Fully knowledgeable	3.84	Fully compliant

The respondents were fully knowledgeable in all domains. Traffic rules and regulations obtained the highest knowledge mean, suggesting strong familiarity with traffic signs, speed limits, loading practices, pedestrian right-of-way, and other rules encountered in daily driving. Knowledge of registration, licensing, and equipment was also high. The results support the view that repeated exposure to regulations and transport-agency requirements strengthens driver awareness (Aydinan, 2020; Land Transportation Office, 2021).

Compliance was likewise rated fully compliant in all domains. Driver licensing and traffic rules and regulations received the highest means, while vehicle registration obtained the lowest mean, although still within the fully compliant range. Requirements that are routinely checked through licensing, checkpoints, and roadside enforcement may receive greater attention than less visible administrative processes. The result is consistent with literature emphasizing the combined influence of knowledge and consistent enforcement on driver behavior (Cruz & Mendoza, 2022; Romero, 2021).

Differences in Knowledge According to Demographic Profile

Table 3. *Tests of Differences in Knowledge Across the Four Domains*

Grouping Variable	Vehicle Registration	Driver Licensing	Traffic Rules	Vehicle Equipment	Interpretation
Age	H=8.766, p=.07	H=8.443, p=.08	H=6.183, p=.19	H=3.727, p=.44	Not significant
Sex	U=508.500, p<.001	U=713.500, p=.012	U=669.500, p=.002	U=676.000, p=.003	Significant
Civil status	H=27.359, p<.001	H=18.664, p<.001	H=19.397, p<.001	H=20.613, p<.001	Significant
Driving experience	H=16.956, p=.001	H=13.339, p=.004	H=14.501, p=.002	H=15.778, p=.001	Significant

Knowledge did not differ significantly by age in any domain. In contrast, significant differences were found by sex, civil status, and years of driving experience. Male drivers obtained higher mean ranks than female drivers in the four domains; however, the much smaller female subgroup requires cautious interpretation. Dunn-Bonferroni comparisons showed that single respondents differed from married, widowed, or separated groups in several domains. Drivers with 1–10 years of experience consistently obtained lower mean ranks than more experienced groups. These findings indicate that occupational exposure and repeated interaction with regulatory systems may be more influential than chronological age alone.

Differences in Compliance According to Demographic Profile

Table 4. *Tests of Differences in Compliance Across the Four Domains*

Grouping Variable	Vehicle Registration	Driver Licensing	Traffic Rules	Vehicle Equipment	Interpretation
Age	H=3.764, p=.44	H=5.961, p=.20	H=5.019, p=.29	H=3.877, p=.42	Not significant
Sex	U=789.000, p=.030	U=655.500, p=.001	U=827.500, p=.048	U=697.500, p=.004	Significant
Civil status	H=20.103, p<.001	H=27.398, p<.001	H=19.689, p<.001	H=17.703, p<.001	Significant
Driving experience	H=21.293, p<.001	H=17.449, p=.001	H=21.424, p<.001	H=13.747, p=.003	Significant

Compliance followed the same general pattern as knowledge. There were no significant differences by age, but significant differences occurred by sex, civil status, and experience. Married and separated drivers generally had higher mean ranks than single drivers, while drivers with more than 10 years of experience generally exceeded those with 1–10 years. The result supports the interpretation that repeated licensing, registration, inspection, and enforcement encounters reinforce practical compliance. Targeted instruction remains important for less experienced drivers and groups with lower mean ranks, while universal refresher programs are needed to prevent complacency among highly experienced operators.

Relationship Between Knowledge and Compliance

Table 5. *Relationship Between Knowledge and Compliance*

Variables	Spearman's r	p-value	Decision	Interpretation
Knowledge and compliance	0.850	<.001	Reject H0	Strong positive relationship

Knowledge and compliance were strongly and positively related ($r = 0.850$, $p < .001$). Drivers who reported greater understanding of registration, licensing, traffic rules, and equipment requirements also reported more consistent compliance. The finding supports education as a central road-safety strategy, while also recognizing that knowledge must be reinforced through visible enforcement, accessible government services, and routine monitoring. Similar evidence has linked stronger regulatory awareness with safer and more compliant driving behavior (Asian Development Bank, 2023; Santos, 2021; World Health Organization, 2022).

CONCLUSION

The study established that the tricycle drivers of Bayombong, Nueva Vizcaya were fully knowledgeable and fully compliant with the examined provisions of Republic Act No. 4136. Knowledge was highest in traffic rules and regulations, while compliance was highest in driver licensing and traffic rules and regulations. Vehicle registration and equipment requirements received slightly lower, though still high, ratings, indicating areas where administrative guidance and technical monitoring can be strengthened.

Age did not significantly differentiate knowledge or compliance. However, significant differences emerged according to sex, civil status, and years of driving experience. The consistently lower mean ranks of drivers with 1–10 years of experience point to the value of occupational exposure and repeated engagement with

regulatory processes. Most importantly, the strong positive relationship between knowledge and compliance confirms that traffic-law education is closely associated with lawful driving practice. The study contributes localized evidence for designing road-safety education and enforcement initiatives for tricycle operators.

Recommendation

The Land Transportation Office, Land Transportation Franchising and Regulatory Board, local government, and TODA officers should institutionalize periodic refresher seminars on RA 4136, with practical modules on registration schedules and documents, professional-license renewal, traffic signs and road markings, BLOWBAGETS inspection, lighting, mirrors, plate visibility, passenger limits, and lawful loading and unloading.

Targeted orientation and mentoring should be provided to drivers with 1–10 years of experience and to single drivers, whose mean ranks were generally lower than those of more experienced and married groups. Training schedules should be accessible to working drivers and may combine short terminal-based sessions, printed materials, visual guides, and mobile-friendly resources.

Enforcement agencies should maintain consistent checkpoints and equipment inspections while also simplifying access to current information on registration, licensing, and local operating requirements. TODAs may keep compliance records, conduct peer reminders, and coordinate with government agencies before renewal periods.

Future research should include more municipalities, a larger number of female drivers, direct observation or administrative compliance records, and qualitative interviews explaining why drivers comply or fail to comply. Longitudinal or intervention studies may evaluate whether refresher seminars produce sustained improvements in knowledge, documented compliance, and road-safety outcomes.

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