

## Traffic Safety Management to Reduce Foreigner Accidents

**Aat Eska Fahmadi<sup>1</sup>, Frans Tohom<sup>2</sup>, Ima Natria<sup>3</sup>**

<sup>1</sup>Lecturer, Automotive Technology Study Program, Polytechnic of Road Transportation Safety, Indonesia

<sup>2</sup>Lecturer, Engineering of Road Transport Systems study program, Polytechnic of Road Transportation Safety, Indonesia

<sup>3</sup>Head of language Unit, Polytechnic of Road Transportation Safety, Indonesia

### Abstract

The important parties must be concerned about Bali's high rate of accidents involving foreigners. One of the likely causes of the collision is the driver's personal component. Due to this, the purpose of this study is to describe the features of traffic accidents involving foreigners and determine the most effective safety measures to reduce such incidents. A quantitative descriptive method is used in this investigation. Simple random sampling with 90 respondents was the sampling strategy employed in this study. In-depth interviews and questionnaires were also used as data collection techniques. The findings indicated that some characteristics, such as drunk driving, going over the speed limit, infrastructure, running red lights, and operating a motor vehicle on icy roads when it is raining, are the main causes of traffic accidents involving foreign people. Furthermore, there were three approaches to traffic safety management according to respondents from the highest to the lowest percentage. The highest was traffic engineering (42%), education and training (30%), and law enforcement (28%).

**Keywords:** *Bali; Characteristics; Foreigner; Management; Traffic Accident*



This is an open access article under the CC-BY-NC license.

## INTRODUCTION

One of the most popular tourist attractions in Indonesia is Bali Island. The number of tourists, both domestic and foreign, increases as the tourism industry and the creative economy flourish in the province of Bali. 311 foreign tourists visited the island of Bali between October 2020 and October 2021, according to statistics published by the Central Statistics Agency (BPS) of Bali Province. Tourists are more likely to rent a car or motorcycle without a driver than to use the public transportation system, especially foreign tourists. The traffic in Indonesia still makes visitors from other countries feel awkward since it differs from the traffic in their own countries. For instance, the steering wheel is positioned differently in Europe, where it is on the right, and in Indonesia, where it is on the left. Some nations also have different driving lanes; some use the left lane, and some use the right.

Different traffic conditions in several countries have caused a number of foreign nationals to be involved in traffic accidents in Bali. The main factors that cause traffic accidents are individual, vehicle, and environmental factors. Individual factors refer to drivers, passengers, and pedestrians. Accidents caused by individual factors reach 43,000 cases per year or 67% of the total number of accidents. Foreign Citizens, in this case, fall into the category of individual factors. In addition, other

Corresponding author

Aat Eska Fahmadi, [aat@pktj.ac.id](mailto:aat@pktj.ac.id)

DOI: <https://doi.org/10.31098/cset.v2i2.581>

Research Synergy Foundation

common factors that cause accidents involving foreign tourists are lack of understanding of traffic signs, getting lost, going against the flow, not wearing a helmet, and driving at high speed.

This study attempts to explore foreigner perceptions regarding characteristics of accidents and recommend proper safety management in Bali. Essentially, two main research questions are sought:

1. What are the characteristics of traffic accidents involving foreigners in Bali?
2. What is the proper Safety Management to reduce traffic accidents involving foreigners in Bali?

The findings would help authorities, and local governments better understand foreigners' travel behavior. In addition, this research would contribute to better road safety management design in Bali. Furthermore, Studies about traffic management involving foreign nationals in Bali are still very limited. Findings from this study would promptly reveal key issues of traffic safety management to reduce traffic accidents.

### LITERATURE REVIEW

Morley et al. (2017), the researcher proposes three ways to traffic safety in this study: traffic engineering, law enforcement, and educational training. Engineering for traffic Using the facilities and technologies already in place, this strategy is used with the needed modifications. Data on roads that frequently serve as the scene of accidents, such as those relating to the road surface, lane width and area, and traffic markings and signs, are also collected as part of the traffic engineering strategy. These data will be utilized as suggestions for repairs.

In Australia, Wilks et al. (1999) examined various issues regarding driving in unfamiliar environments for international visitors. It was found that road safety problems are related to driving in unfamiliar surroundings. Five road safety issues were summarized: side of the road driven on in the home country, miles of road in the home country, blood alcohol limit in the home country, seat belt wearing laws, and other differences in home countries such as road signs.

According to Nutsugbodo (2018), when choosing their mode of transportation sooner or later, tourists will realize their safety when driving on the highway. In addition, Dewa Made et al. (2019) found that traffic accidents by foreign nationals because they do not know traffic rules, the physical condition of the body, carelessness, vehicle condition, and road conditions. From the data compiled by the Bali Police Traffic Directorate in the last four years, the number of foreign nationals (foreigners) who experience traffic accidents is still quite high. Here are the data

Table 1. Traffic accidents involving foreigners during 2018-2021

No.	Traffic Accidents	The Number of Victims			
		2018	2019	2020	2021
1.	Minor injuries	87	42	39	29
2.	Serious Injury	8	4	3	0
3.	Die	10	13	6	5
	<b>Amount</b>	<b>105</b>	<b>59</b>	<b>48</b>	<b>34</b>

Source: Bali Police Traffic Directorate 2021

Other studies from Joewono et al. 2015; Susilo et al. (2015) have examined various psychological and psychosocial factors that influence the behavior of motorized vehicle drivers of local residents. Besides, Dewa Made et al. (2019) Studies that examine driving safety for foreign nationals are still limited, especially in Bali. He analyzes the perception of motorists on the speed limit regarded with traffic accidents consequences.

## **RESEARCH METHOD**

### Questionnaire design

The questionnaire survey was used as a means of data collection in the present study. The survey consists of two sections. Section one asked respondents to recommend which one is the best option for tourists in traffic management accidents in Bali. The respondents were given three options: traffic engineering, law enforcement, and educational training. While the second option was an open question related to the characteristics of accidents which has frequently happened to the foreigner in Bali

### Research approach

This study used a quantitative descriptive approach where data from the questionnaire results will be tabulated and processed according to the percentage of responses from respondents. For data sources, this study used primary and secondary data sources. The primary data sources in this study were obtained from field observations by giving questionnaires to foreign nationals who were on vacation in Bali and in-depth interviews with a credible and prominent figure who was concerned about handling traffic accidents in Bali. She is from the Sub-Directorate of Guidance and Law Enforcement of the Bali Police Traffic Directorate. The secondary data in this study is data from the Bali Police in the form of traffic accident data involving foreigners in Bali for the last four years and the factors that cause accidents to foreign nationals.

The validity test of the data used is method triangulation and source triangulation. In method triangulation or known as multi-method triangulation, researchers used questionnaires and in-depth interviews. It was because more instruments provided more detailed and layered information about the phenomenon under study. In source triangulation, researchers combined qualitative data from in-depth interviews and a little quantitative data from questionnaires.

### Data collection

A simple random sampling, representing 28% of Bali's tourist population in 2020, was the sampling technique utilized in this study. The author chooses random sampling because the respondents come from a homogeneous background. Meanwhile, based on statistical information gathered over the past year by the Provincial Central Statistics Agency (BPS) (2020-2021), 311 tourists from other countries came to Bali Island. Then, 90 responses were successfully gathered for this survey.

In-depth interviews and questionnaires were also used as data collection techniques. The questionnaire was submitted both offline and online. Communities of foreign nationals (WNA) who have settled in Bali are sent the online survey link. At the same time, an offline survey was handed out to tourists from abroad visiting Bali. Four separate districts, Denpasar, Gianyar, Jembrana, and Badung, each with a prominent location where international tourists congregate, were the sites of offline interviews.

## **FINDINGS AND DISCUSSION**

Out of 90 respondents, at least 28 (31%) have been involved in a motor vehicle collision while driving, and each involved a motorbike. In addition to being simple to operate, motorcycles are the first option for international tourists who wish to drive. To ride the desired motorbike, tenants only need to pay the agreed-upon amount and present a form of identification verification in Bali. It is undoubtedly very risky, especially for foreign visitors from Europe or America who are not accustomed to using motorcycles for daily transportation. The initial experience of riding a motorbike in Bali might be a surprise for individuals who are not accustomed to doing so. Driving fatalities might result from ignorance of traffic laws and transit systems that differ from those in their home country. 28 foreign nationals, or 31% of the sampled respondents, reported having an accident while visiting Indonesia, which is quite a significant percentage.

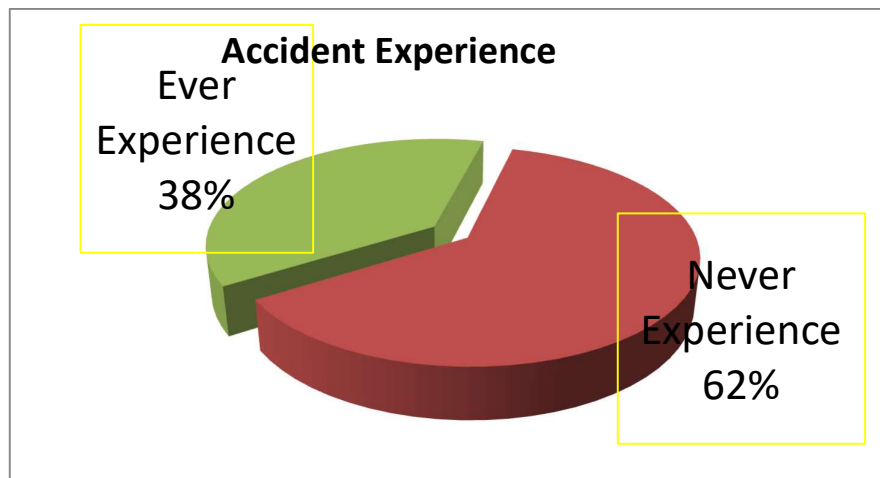


Figure 1. Percentage of foreigners who have experienced an accident

### **Characteristics of Traffic Accidents Involving Foreigners**

The authors have gathered a number of traffic accident features that are the primary causes of road accidents among foreign nationals from the data of 28 foreigners who had these incidents. Figure 2 below shows data on the percentage of features of foreigners who experience an accident in Bali.

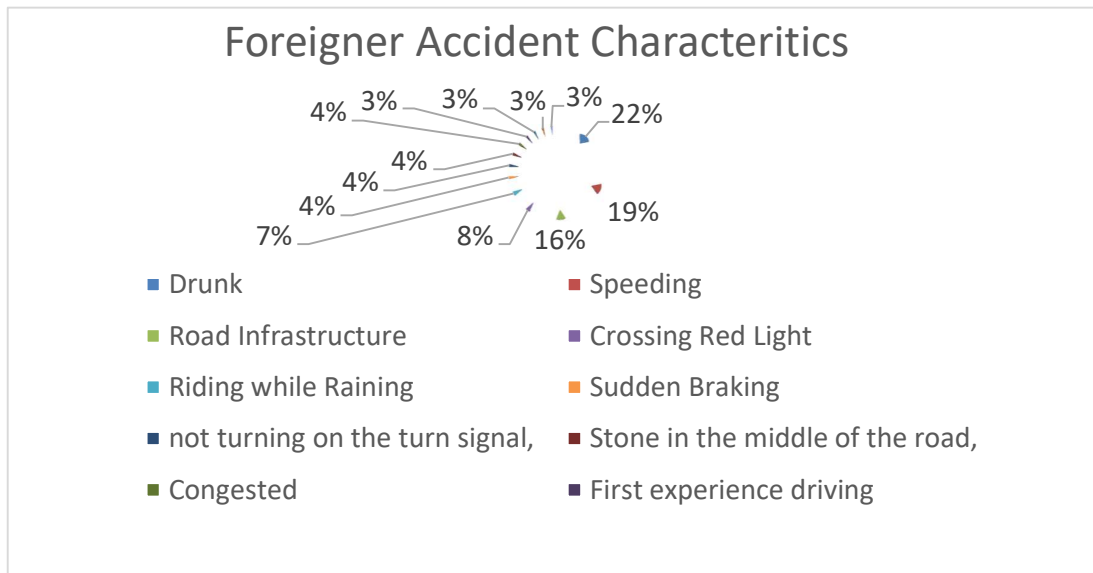


Figure 2. Traffic Accident Factors involving foreigners

In Figure 2, it is clear that riding a motorbike while drunk was the leading cause of traffic accidents, accounting for six incidences or 21% of all responses. When Europeans visit Bali, which has a distinct urban transportation system than other European nations, they are unable to break their habit of drinking wine or liquor. Similarly, foreign nationals from European nations are not accustomed to riding motorcycles in their daily activities and instead use buses or trains as public transportation. Contrary to Bali, where motorbikes are the primary mode of transportation for carrying out the everyday activities of indigenous people, this is not the case.

Speeding or exceeding the posted speed limit is the second trait. This factor comes second with five accident incidents or 18% of all respondents. Inadequate knowledge of safe driving techniques and a lack of social awareness of other road users are among the factors that contribute to drivers speeding. Drivers who frequently exceed the speed limit are selfish because they do not realize that their actions could endanger the lives of people nearby. In this instance, individual considerations are the primary reason that indigenous people's activities

The following characteristic is related to the existing road infrastructure on the island of Bali, especially in two locations currently favorite destinations for foreign tourists, namely Canggu and Uluwatu areas. Four accidents occurred in these two locations. The factors were due to potholes and uneven road surfaces. It is due to the lack of maintenance of existing road facilities and infrastructure in the two locations, so local government should be more observant to see the problems on the highway. Furthermore, two characteristics that are equally 2 times (7%) are the cause of traffic accidents for foreign nationals, namely crossing red lights and riding a motorcycle when it is raining, which makes the roads slippery and dangerous to pass. These two characteristics are more due to individual factors. Motorists should stop at a red light instead of going through it because this can endanger other road users. Similarly, when it rains, this situation can also endanger motorcyclists. Apart from limited visibility, road infrastructure is also slippery.

The other ten characteristics, namely, braking suddenly, which causes the driver behind you not to have enough time to brake, not turning on the turn signal when you are about to turn, causing other drivers to brake suddenly, and crashing into a rock that is suddenly in the middle of the road, passing through a bumpy road. Besides, it also because going uphill, impatient when traffic jams or

facing congested roads, just having the first experience of riding a motorbike in Indonesia, truck drivers who are careless and unable to control their emotions, dogs crossing suddenly in the middle of the road, and puddles when heavy rain so that it makes motorcyclists fall in the water and it is difficult to control the vehicle. The ten characters mentioned above each cause one case of traffic accident involving foreign nationals.

**Traffic Safety Management For Foreigners In Bali**

In this study, the researcher presents three approaches to Traffic Safety, as revealed by Morley et al. (2017): Traffic Engineering, Law Enforcement, and Educational Training. Technically, these three approaches are further specified into sub-sections referring to the social realities that exist around the island of Bali.

Table 2. Safety Management for Foreigners in Bali

<b>TRAFFIC ENGINEERING</b>	
I. Infrastructure	<ul style="list-style-type: none"> <li>a. Provision of city maps at hotels and tourism offices, showing the best routes to major destinations, and available alternative public transport services.</li> <li>b. Provision of resources to improve road signs on open roads and urban areas. Use a language other than Indonesian for road signs (specifically: English).</li> <li>c. Improve public transport in urban areas, and publicize these services more effectively to tourists.</li> <li>d. Improved road infrastructure: Rest and service areas as well as ring roads.</li> </ul>
II. Technology	<ul style="list-style-type: none"> <li>a. Vehicle-related technology (vehicle design and installed technology), for example: Seat belts, airbags, Advanced Braking System (ABS); Alcohol interlocks; Black box device.</li> <li>b. Infrastructure-related technologies (technology used on roads), for example: Advanced radar and speed cameras, point-to-point systems; camera tailgating; Modifiable Message Alerts (CMS); Variable Speed Limit (VSL) sign.</li> </ul>
<b>TRAINING AND EDUCATION</b>	
I. School	Education Road safety education in driving schools everywhere to promote a better understanding of traffic rules/rules for local and foreign drivers.
II. Training	A training course to improve the skills and behavior of road users by making them more aware and careful of local road conditions and the driving environment in Indonesia.
III. Campaign	Safety and law enforcement campaigns to raise awareness and motivate behavior change for foreign drivers.
<b>LAW ENFORCEMENT</b>	
I. Effective Law	<ul style="list-style-type: none"> <li>a. use of seat belts should be mandatory for both front and rear seat passengers.</li> <li>b. The use of seat belts must be mandatory for front and rear seat passengers.</li> <li>c. Where motorized traffic mixes with pedestrians, cyclists and motorcyclists, the speed limit must be below 30 km/h.</li> <li>d. Legislation should prohibit the use of mobile phones</li> </ul>

	<ul style="list-style-type: none"> <li>e. Laws should be based on blood alcohol concentration limits (BAC): For adult drivers BAC limit (<math>\leq 0.05</math> g/dl), for young drivers BAC limit (<math>\leq 0.02</math> g/dl).</li> <li>f. There should be laws that clearly prohibit the use of drugs.</li> <li>g. There should be a clear law regarding SOPs for renting motor vehicles at vehicle rentals in Bali</li> </ul>
II.Effective Sanctions	When a law has been observed to have been violated, there are a number of penalties and enforcement sanctions that can be applied including monetary fines, loss of points demerit, suspension or disqualification of license, educational program or detention

As seen in Figure 3, the respondents' top preference for reducing traffic accidents in Bali was the traffic engineering strategy. Of the total responses, 38 respondents, or 42%, said they wished for infrastructure and traffic engineering upgrades. Then, 16 respondents expressed a desire to contribute resources to enhance street signs in cities and on open roadways. For road signage, use a language other than Indonesian (specifically: English). It is deemed necessary, considering Bali is one of the favorite tourist destinations in Indonesia. So road signs, billboards, or things related to road transportation information must be combined using English. Still related to traffic engineering, seven respondents want the improvement of public transportation in urban areas and to publicize this service more effectively to tourists. And the last point of road transportation engineering is the improvement of road infrastructure: rest and service areas and ring roads. A total of 15 respondents wanted an increase in the infrastructure. As mentioned earlier, one of the characteristics of traffic accidents involving foreign nationals is uneven road conditions and the presence of potholes on the highway. Four respondents had an accident because of this condition. Regular checking and repair of road conditions can certainly reduce the number of accidents.

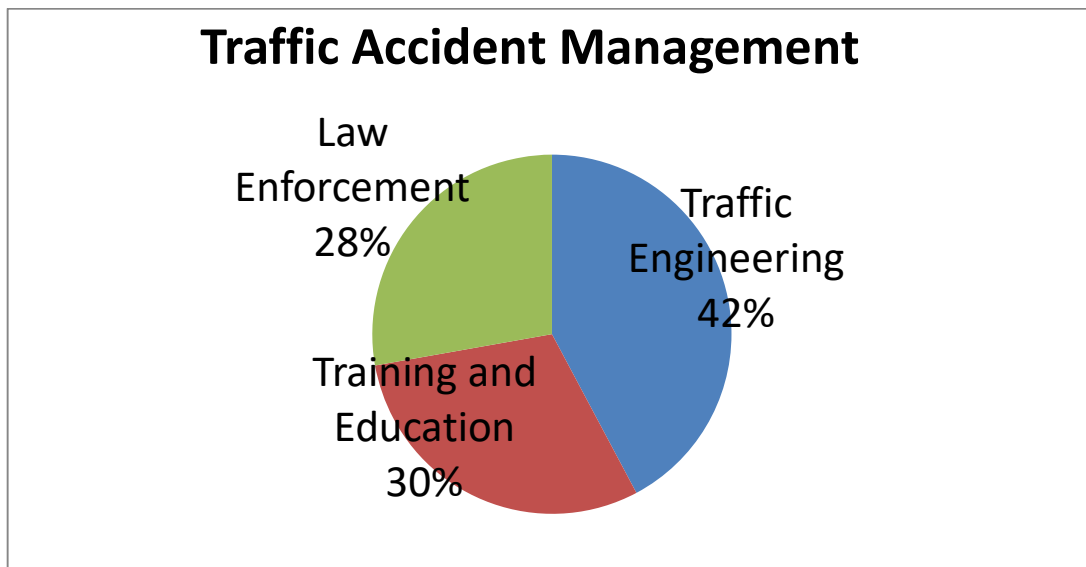


Figure 3. Percentage of accident management according to respondents

Traffic safety management which has the second highest percentage, is education and training. In total, there were 27 respondents (30%) who want improvement in the sector. Furthermore, education and training are divided into three specific sub-themes, namely school education, training and campaigns. A total of 16 respondents wanted a training course to improve

the skills and behavior of road users by making them more aware and careful of local road conditions and the driving environment in Indonesia. It is deemed necessary considering the different backgrounds of the existing transportation systems in their countries. Training courses also need to be implemented for foreign nationals who want to stay in Indonesia for a long time. Motorcycle rentals in Bali can carry out short courses on how to drive a correct and safe vehicle so that they also take part in reducing the number of accidents involving foreign nationals in Bali. The next sub-theme is about campaigns. As many as six respondents wanted a safety and law enforcement campaign to raise awareness and motivate changes in the behavior of foreign drivers. Five respondents wanted road safety education in driving schools to promote a better understanding of traffic rules/rules for local and foreign drivers.

For traffic management, the lowest percentage was law enforcement, which was 28% or 25 respondents. All respondents at this point wanted that when a law has been passed and violated, there are a number of penalties and enforcement sanctions that can be applied including monetary fines, loss of demerit points, suspension or disqualification of licenses, educational programs, or detention. In terms of law enforcement, the police have a vital role. Then the integrity and responsibility of the police will make a lot of changes.

### **Validity Test**

In this study, the researcher used triangulation of sources and methods. Data sources were obtained from two sources that have different backgrounds. A foreign citizen currently in Bali and representatives from a Police, The results of 28 respondents who have experienced traffic accidents in Bali, drunkenness is the characteristic cause of the highest traffic accidents in Bali. It is in line with what was conveyed by the police. According to her, drinking alcohol and liquor habits is still a trend among tourists in Bali. It is because the culture of drinking liquor is a natural thing. It is inherent and difficult to change.

### **CONCLUSION**

Based on the analysis's findings, it can be said that driving while intoxicated, going above the speed limit, driving recklessly, running red lights, and operating a motor vehicle on wet roads all contribute to the features of traffic accidents involving foreign people. The three strategies for managing traffic accidents involving foreign nationals—traffic engineering, education and training, and law enforcement—can be observed from the percentage of respondents who gave the best answers. According to research on accident characteristics, the majority of them are caused by individual circumstances. Therefore, it requires participation from linked parties and individual awareness. One of them is renting motorcycles. The number of accidents involving foreign nationals in Bali might be decreased by motorcycle rentals in Bali offering brief driving instruction on correct and safe driving technique

### **REFERENCES**

- Law of the Republic of Indonesia Number 12 of 2006 concerning *Citizenship Republic of Indonesia*.  
Law of the Republic of Indonesia Number 6 of 2011 concerning *Immigration*.  
Akarametagul, Patcharaphong. 2018. *Safety Management for Foreigners to Prevent and Mitigate the Damage Caused by Traffic Accidents*. Journal of Advances in Social Science, Education and Humanities Research, 191, 29-37.  
Arikunto, S. 2006. *Research Procedure (A Practical Approach)*. Jakarta: Rineka Cipta.  
Azwar, S. 2005. *Human Attitude: Theory and Its Measurement*. Yogyakarta: Student Library.  
Claret, P Lardelli, JD Luna del Castillo, JJ Jiménez Moleón, A Bueno Cavanillas, M García Martín, R Galvez Vargas. 2020. *Influence of driver nationality on the risk of causing vehicle collisions in Spain*. Journal of Epidemiology and Community Health, 56(5), 394-398.



- Choocharukul k. and Sriroongvikrai k. 2016. *Road Safety Awareness and comprehension of road sign from international tourist's perspectives: a case study of Thailand*. Transportation Research Procedia 25 (2017) 4518-4528. Pp 2-3.
- Hadi, Sutrisno. 1991. *Research methodology*. Yogyakarta: Andi Offset
- Interrisk Asia. (2017). *Causes of accidents*. Retrieved from [http://www.interriskthai.com/file\\_download/2016-06-03\\_16\\_002\\_Causes\\_Factors\\_of\\_Road\\_Accident\\_TH.pdf](http://www.interriskthai.com/file_download/2016-06-03_16_002_Causes_Factors_of_Road_Accident_TH.pdf)
- Joewono, TB, Vandebona, U. and Susilo, YO 2015. *Behavioral Causes and Categories of Traffic Violations by Motorcyclists in Indonesian Urban Roads*. Journal of Transport Safety and Security, 7(2), pp. 174-197.
- Lertputtaraka, S., Lobob, D., Yingyonga, T. 2014. Identification of the factors that impact Russian tourists in Thailand. *Procedia - Social and Behavioral Sciences*, 144 pp. 133 - 142.
- Morley, A., Morris, A., Semaan, MA, Hancox, G. 2017. *A guide for policy makers: on reducing road fatalities*. Retrieved from <https://www.pwc.com/m1/en/publications/road-safety-pwc-guide-on-reducing-road-fatalities.pdf>
- Nutsugbodo, RY, Amenumey, EK and Mensah, CA 2018. *Public Transport Mode Preferences of International Tourists in Ghana: Implications for Transport Planning*. Travel Behavior and Society, 11, pp. 1-8.
- Ruseffendi, HET (2010). *Educational Development*. Jakarta: Open University.
- Sherry, M. K., Mossallam, M., Mulligan, M., Hyder, A. A., Bishai, D. 2015. Rates of intentionally caused and road crash deaths of US citizens abroad. *Injury Prevention*, 21, pp.e10-e14
- Sugiyono. 2010. *Quantitative and qualitative research methods and R&D*. Yogyakarta.
- Sugiyono. (2017). *Research Methods*, and R&D Bandung: Alfabeta.
- Wedagama, Dewa Made Priyantha, I Made Kariyana, Andyka Kusuma. 2019. *Responses From Local Residents And International Tourists Driving Motorized Vehicles In Bali Towards Speed Limits On National Roads*. Journal of Indonesia Road Safety, 2(2), 65-75.
- Wilks, J., Watson, B., Faulks, I.J. 1999. International tourists and road safety in Australia: developing a national research and management programme. *Tourism Management*, 20: pp. 645-654.
- World Health Organization. *Global Plan for the Decade of Action for Road Safety 2011-2020*, WHO, 2011.