FACTORS ASSOCIATED WITH THE ATTITUDE OF DRIVERS TOWARD ROAD SAFETY: A STUDY AMONG COGNITIVE SCIENCE STUDENTS AT UNIVERSITI MALAYSIA SARAWAK (UNIMAS)

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ABSTRACT

Increasing support for the relationship between drivers’ attitude and accident led to research focusing on the determinants of factors associated with the attitude of drivers toward road safety. The purpose of this study was to determine the factors associated with the attitude of young drivers toward road safety. The dependent variable in this study was attitude of drivers while the independent variables were gender, emotion, personality traits and role-modeling. The study utilized a survey methodology, and questionnaire as an instrument were carried out among 115 students at Universiti Malaysia Sarawak (UNIMAS) from Faculty Cognitive Sciences and Human Development (FCSHD). In the questionnaire, the participants completed measures of positive attitude (e.g. responsible, alertness) and negative attitude (e.g. risky driving, distracted driving, drink and drug driving) and also factors influence drivers’ attitude toward road safety. The result of the finding showed there was a significant relationship between emotion, personality traits, role-modeling and drivers’ attitude toward road safety. However, the finding of this study showed that there was no difference between male and female drivers in term of their attitude toward road safety. Recommendations of the study were also suggested.
**ABSTRAK**

CHAPTER ONE
INTRODUCTION

In many developed and developing countries, the greatest concern and a big problem nowadays is road accident. The number of road accidents has continuously increased from year to year. There is an increase in the number of road accidents in tandem with the vehicle population. According to World Health Organization’s (WHO) 2013 report, Malaysia has the highest deaths on the road with 25 deaths per 100,000 population compared to other nations in the world including India, Russia and China (Liew, 2014). Hence, this is a great opportunity to understand this phenomenon.

This study is aimed at investigating the attitude of drivers toward road safety and the factors that influence this attitude. This study is conducted among Cognitive Science students in Universiti Malaysia Sarawak (UNIMAS). Factors associated with drivers’ attitude toward road safety include gender, emotions, personality traits and role-modeling. Attitudes of drivers can be divided into either positive or negative attitudes toward road safety.
Background of the study

Road accidents are reported daily in Malaysia. With the current positive growth of the economy, more people can afford to buy vehicles, such as cars and motorcycles for personal use and work convenience. However, the increase in vehicle population has also led to an increase in road accidents. Ji (2014) stated that there were 6,915 deaths from 6,308 fatal accidents in 2013 in Malaysia, which meant there was an average of 18.9 deaths per day in 2013.

Issues contributing to road accidents in Malaysia have been identified. Factors associated with attitude which influence performance of drivers while they were driving were identified as increasing the risk of road accidents. Gender of the drivers was one of the factors that influenced the drivers’ attitude toward road safety. Assum (1997) found that female license holders had a higher accident risk at 9.4 accidents per million kms compared to male license holders at 7.2 accidents per million kms. Although female license holder have better attitude compared to the male counterparts, female license holder have a higher accident risk because of their lesser driving skills.

Hu, Xie, and Li (2012) found that emotion was another contributing factor that influenced drivers’ attitude toward road safety. According to Cherry (2014), emotions rule our daily lives into making decisions based on our feelings, such as stress, happy, anger, sad and fatigue. These emotional and physical factors can lead to unsafe driving and collisions. For example, when a driver drives in anger, he or she is an unsafe driver because emotions can cause the driver to take risks and chances, as well as speed and drive without control (Emotions, 2014).

In addition, Bianchi and Summala (2003) found role-modeling as another factor associated with the attitude of drivers toward road safety especially younger drivers. Parents as models to their children demonstrated their own driving modes
and attitude towards traffic laws. According to the Bianchi and Summala (2003), parents’ role is important in decisions because it may affect their children’s car use and expose them to driving-related risks. Taubman, Ari, Katz, and Ami (2012) found that parents who always planned ahead would not be pressed for time, will obey traffic laws, drive safely and show a good model to their children to influence their thinking and become a safe driver. Children through model learning look at their parents driving and learn to drive with their parents (Bianchi & Summala, 2003). Thus, if parents show a negative attitude, then their children will follow what their parents do because parents’ driving records affect sons’ and daughters’ driving records similarly (Bianchi & Summala, 2003).

Another factor associated with attitude of drivers toward road safety is personality traits of the driver (Khani, Shariat & Atashpour, 2013). Refahi, Rezaei, Aganj, and Birgani (2012) noted that personality-traits is a combination of generic, cultural and personal features which lead humans to a regular, constant and special type of behavior considered by personality psychologists. They stated that personality characteristics such as aggression, anxiety, social deviations and personal differences will affect a person’s perception and environment evaluation. It may be very dangerous because it may lead to risky behaviour in driving.

The factors discussed above affect the attitude of a driver towards road safety. Therefore, an attitude of the drivers also plays an important role to understand the road safety. Assum (1997) noted that attitudes can be divided into positive attitude and negative attitude. Positive attitude decreases risks of driving but negative attitudes will increase the risks. Sense of responsibility is the most important attitude for every driver while they are driving. Responsible drivers are not only responsible to their passengers but also take responsibility towards other road users. Assum (1997) noted
that responsible drivers have fewer accidents compare to irresponsible drivers. Drivers who are irresponsible show higher accident risk than responsible drivers.

Besides sense of responsibility, a driver’s sense of alertness is also important. If drivers have a low sense of alertness, the possibility of road accident will increase because they did not make an intelligent choice regarding the destination and path they chose to drive. In addition, alert drivers usually use their car mirrors to be aware of other vehicles around them that might contribute to possible hazards (Road Safety for Life, 2013).

Risky driving and distracted driving behaviours, as well as driving under the influence (DUI) of alcohol and drugs show negative and dangerous driving attitudes of a driver (Iversen, 2004). Risky driving behaviour such as speeding is very dangerous because it may cause the lost of a life in any second or minutes. Studies by Governors Highway Safety Association (2013) show fifty percent of male drivers likely to report driving over the posted speed limit compare to females. It showed that male drivers were more likely to drive riskily compared to female drivers.

Similarly, distracted driving is dangerous, mainly because drivers’ attention is distracted by other things while they are driving. Examples of distraction include texting messages, talking on cell phone, reading prints, applying make-up, eating or even smoking. According to Parkview Trauma Centers (2011), 23% of the individual drives involved in car crash were more likely due to texting or reading messages while driving. It takes an average of three minutes for a driver to be distracted and to be involved in a car crash (Parkview Trauma Centers, 2011).

Besides this, driving under influence of alcohol and drug also display the negative attitude of the driver and can contribute to road accidents (Assum, 1997). Horwood and Fergusson (2000) noted that drivers who drive under the influence of
alcohol recorded 2.6 times higher rates of active road accident than those who did not
drive under influence.

Problem Statement

Malaysia recorded the highest death by road accidents. The accident rates
have been on the increase annually. Gender, emotional status, role modeling and
personality traits were identified as among the factors that contribute to the accidents.
All these factors affect the drivers’ attitudes while on the road. The attitudes of the
drivers bring forth both positive and negative outcomes. A driver with a positive
attitude is often responsible and alert, while a driver with a negative attitude has the
tendency to drive in a risky and distracted manner, and also perhaps might have the
tendency to drive under the influence of alcohol and drug. This study hopes to extend
existing findings from other research and establish a relationship between the factors
mentioned above and the attitudes of young drivers, who are Cognitive Science
students in Universiti Malaysia Sarawak.

There are many studies done on factors leading to accident occurrence.
However, there are few studies that researched on the impact of drivers’ attitude
 toward road safety. This study will attempt to fill this gap as it explores variables
possibly related to the attitude of drives toward road safety. Specifically, this study is
designed to answer these questions:

a) What are the young drives’ attitudes toward road safety?
b) What are the factors associated with attitude of young drivers toward road safety?

Objective

General objective

The general objective of the study is to determine the attitude of driver toward road
safety and the factors associated it.
Specific Objectives

Specifically the objectives of the study are:

1. To determine the attitude of young drivers toward road safety
2. To determine if there is any significant different between male and female drivers in term of their attitude toward road safety
3. To determine if there is any relationship between emotion and driver’s attitude toward road safety
4. To determine if there is any relationship between personality traits of driver’s attitude toward road safety
5. To determine if there is any relationship between role modeling and driver’s attitude toward road safety

Conceptual Framework

Figure 1. The conceptual framework of the study

Figure 1. show the conceptual framework of the study to explain how independent variables (factor) effect dependent variable (driver’s attitude). In this study, the independent variables are gender, emotion, personality traits and role-modeling selected as factors to show the relationship between independent variables
and the dependent variable, such as positive attitude (e.g. responsible and alertness) and negative attitude (e.g. risky driving, distracted driving, drink and drug driving).

**Null Hypotheses**

H$_{o1}$: There is no difference between male and female drivers in term of their attitude toward road safety.

H$_{o2}$: There is no significant relationship between emotion and driver’s attitude toward road safety.

H$_{o3}$: There is no significant relationship between personality traits of driver and driver’s attitude toward road safety.

H$_{o4}$: There is no significant relationship between role modeling and driver’s attitude toward road safety.

**Significance of study**

The purpose of this study is to investigate factors that can possibly affect the driver’s driving attitude and the important of driver’s driving attitude to road safety. It will increase the awareness of drivers’ especially younger drivers toward road safety and may suggest ways prevention road accident to Policy Maker, Policy implemental and future researchers. Important findings of this study are also expected to contribute to the body of knowledge in the field of road accident studies in Malaysia.

**Operational of term**

**Attitude**

Attitude is the behaviour exerted by drivers while driving, and components of attitude that will be investigated include responsibility, alertness, risky driving, distraction and alcohol and drug consumption.
Responsible
This is a combination of knowledge, driving skill and attitude show by a responsible driver towards road safety. As a responsible driver, he or she is always obeying and minding the rules of road safety.

Alertness
Alertness is a person attitude to show whether he or she is paying close, continuous attention and having awareness driving while on the road.

Risky driving
Risky driving means people taking dangerous action that can lead to severity and a high probability of a risk and injure themselves and other road users. For example, increasing speedometer mileage showed accident risk is increased.

Distracted driving
Distracted driving is when a person who is driving will at the same time engaged in others activities, such as talking on the mobile phone, texting or reading message, eating and others which take driver’s attention away from the road.

Drink and drunk driving
Drink and drunk driving is to describe a people who had drink and drug while driving.

Gender
Gender is refers to differentiation between male and female students drivers among Cognitive Science students in UNIMAS.

Emotion
Emotion is associated with a person is mood and feeling like sad, happy anger, fatigue which can affect his or her life and attitude.
Role-modeling

Role-modeling is people who show operational driving behaviors, and interaction between lead vehicles as a model to other road users, especially parents as a model to children (younger driver) because their children look at how their parents drive and learn to drive from them.

Personality traits

Personality traits exhibited by a driver is different from others drivers in term of action, cognition and feeling. In this study, personality traits are aggression, anxiety, and other forms of social deviations exhibited by the drivers while driving.

Limitation of the study

There were several other factors that influence the attitude of drivers toward road safety but this study only focused on gender, emotion, modeling and personality traits. Factors such as age and driving experience of the drivers were not included because the population of this study was limited to Cognitive Science undergraduates in UNIMAS. This is mainly due to the range of student’s age all almost same age which from 19 to 25 years old; and the driving experiences of the students was also limited to a maximum of five to eight years. Besides that, Muslim students show a higher percentage in Cognitive Science Program compare to other ethnicity. Therefore, the questions pertaining to drink will not obtain correct data and result because they do not drink.
CHAPTER TWO

LITERATURE REVIEW

Concepts of Attitude

Attitude which is formed on the basis of cognitive, affective and behaviour is defined as “a psychological tendency to evaluate something with favour or disfavour” (Hu, Xie, & Li, 2012, p.30). Hu, Xie and Li (2012) noted that attitude towards risky driving is affected by evaluation that could be favourable or unfavourable. Theory of planned behaviour states that the behaviour intentions of the drivers could be predicted by their attitudes towards behaviour (Hu, Xie, & Li, 2012). They noted there is a strong relationship between driving risk attitude, risky driving behaviour and accidents.

Assum (1997) noted that several studies have indicated there is a correlation between attitudes and driving behavior. However, he found that there were not many studies looking at the relationship of attitudes and road accidents. He further noted that if there is a relation between the attitudes and road accidents, then intervention to change the attitudes can be taken.

Assum’s study in 1997 looked at the importance of attitudes towards road safety. His hypothesis then was, if the drivers had correct attitudes according to the driving code, and then there would be lower risks of accidents. His research among the Norwegian drivers found that drivers’ attitude affected accident risks, with no other factors taken into consideration. However, age and annual mileage, when taken into consideration, took more importance in higher accident risk compared to attitudes.

Assum (1997) noted that attitudes can be divided into positive attitude and negative attitude. Positive attitude decreases risks of driving but negative attitudes will increase the risks.
i. **Positive attitude:** Drivers need to have a good sense of responsibility while they are driving. The responsibility of the responsible drivers extends to other road users in addition to their own passengers. Assum (1997) study noted that there were fewer accidents among responsible drivers compared with irresponsible drivers. Irresponsible drivers tend to show higher accident risk than responsible drivers.

In addition to sense of responsibility, a driver’s sense of alertness is of equal importance. According to Road Safety for Life, a community website of road safety issues, if drivers have a low sense of alertness, the possibility of road accident increases as they do not make an intelligent choice regarding the destination and path they chose to drive (*Road Safety for Life*, 2013). In addition, alert drivers usually use their car mirrors to be aware of other vehicles around them that might contribute to possible hazards.

ii. **Negative attitude:** Among the negative and dangerous driving attitudes of a driver as noted by Iversen (2004) are risky driving, distracted driving behaviours, as well as driving under the influence (DUI) of alcohol and drugs. Risky driving behaviour includes speeding as it may cause the lost of a life in within seconds. *Governors Highway Safety Association* (2013) found that fifty percent of male drivers were likely to drive over the posted speed limit compared to females. It strengthens the argument that male drivers were more likely to drive riskily compared to female drivers.

Similarly, distracted driving is dangerous, mainly because drivers’ attention is distracted by other things while they are driving. *Parkview Trauma Centers* (2011) reported that driver distractions cause up to 80% of road accidents and it takes an average of three minutes for a driver to be distracted and to be involved in a car crash. Distractions include texting messages, talking on cell phones, reading prints, applying
make-up, eating or even smoking. According to *Parkview Trauma Centers* (2011), 23% of the individual drives involved in car crash were more likely due to texting or reading messages while driving.

Besides this, Assum (1997) noted that driving under influence of alcohol and drug also display the negative attitude of the driver and can contribute to road accidents. Horwood and Fergusson (2000) noted that drivers who drive under the influence recorded 2.6 times higher rates of active road accident than those who did not drive under influence.

**Findings on Factors Affecting Attitudes of Drivers towards Road Safety**

**Gender**

Gender refers to differentiation between male and female students’ attitude towards road safety among Cognitive Science students in UNIMAS. Assum (1997) noted that the driver’s gender was one of the factors that influenced the drivers’ attitude towards road safety. Nayum (2008) found that males were more likely to commit driving violations, speed and be involved in a road accident than females. Similarly, Waller, Elliot, Shope, Raghunathan, and Little (2001) noted that men’s risk of crashing was higher than women and their first crash happened earlier than the women. According to National Highway Traffic Safety Administration (NHTA) (1995), males’ had higher crash fatality rates than female and twice as high in the age group among 16 to 20 year old and 21 to 24 year old.

Several researchers have identified factors that explain differences of gender and found males were higher than female involved in a road accident (Jimenez-Mejias et al., 2014). For example, men involve greater risky behavior than female, such as driving longer distance, over speeding, driving under the influence of alcohol or speaking on mobile phones (Ainy, Movahedi, Aghaei, & Soori, 2011; Vardaki &
On the other hand, Fernandes, Hatfield, & Soames Job (2010) and Nykolyshyn et al. (2003) noted that female drivers had higher use of safety devices compared to men such as usage of the seat belts when driving or riding in a car (as cited in Jimenez-Mejias et al., 2014). Jimenez-Mejias et al. (2014) found that differences of gender involved in road safety were related to mortality and morbidity. For example, Instituto Nacional de Estadistica (2010) observed that compare to female, the mortality rate of male was 4.5 times higher than female between the aged 20 and 29 years (as cited in Jimenez-Mejias et al., 2014). Similarly, research by Jimenez-Mejias et al. (2014) suggested that male drivers had higher risk of involving in accidents due to speeding, drinking, cell phone usage, and not using a seat belt.

**Emotion**

One of the factors that influenced the drivers’ attitude toward road safety were emotions (Hu, Xie, & Li, 2012). Emotions are associated to a person’s mood and feeling such as feeling sad, happy, angry, and fatigue, which can affect our life and our attitude. Emotion can be divided into positive and negative emotions and affect driving related perceptions, attitude and behaviours. Hu, Xie, and Li (2012) noted drivers with positive emotion, view and approach things with the favourable way; those with negative emotion tend to avoid those things. They cited Forgas’s (1995) Affect Infusion Model (AIM) to explain their arguments. According to the AIM model, emotions are the activators of the “valence-congruent memory or information related to the judgment (Hu, Xie, & Li, 2012, p. 30). It is noted that when people are involved in processing information from own discoveries and experiences, judgements are guided directly by emotional inputs. Based on studies by Lin (2008) and Slovic, Finucane, Peters, and MacGregor (2007) studies, Hu, Xie, and Li (2012)
found that positive emotions exerted a significantly lower risk perception and higher benefit perception compared to negative emotions.

**Personality traits**

A driver’s personality trait is another factor that links drivers’ attitudes toward road safety. Ulleberg and Rundomo (2002) reported that 95% of accidents were contributed to particular human factors, that was, the personality trait of drivers. According to Khani, Shariat and Atashpour (2013), personality traits can affect driving styles and accident rates, which suggests that there could be a relationship between personality trait and the probability of getting involved in road accidents.

Personality traits can be defined in different ways. Personality traits represented by a driver could be different from other drivers in terms of action, cognition and feeling. Ulleberg and Rundomo (2002) noted that personality traits show “dimensions of individual differences in patterns of thoughts, feelings and attitude” (p. 428). Ulleberg and Rundome (2002) theoretically defined personality traits as individual’s perception influenced by thought and the environment. AllPort (1967) defined personality as “a dynamic organization of physical-psychic systems within the individual which determines his specific thoughts and behaviors” (p.28) and trait was defined as “specific and comprehensive capabilities, entailing a durable condition of adaptation with environment” (All port & Odbert, 1936, p. 26).

Personality trait varies in every individual and serves a significant role in shaping driver behavior on the road (Ferreira, Martinez & Guisamde, 2009). For example, personality traits such as sensation seeking, driving anger and narcissism are noted for the entailed risks of the road accidents.
Modeling

Modeling is another factor that influenced the drivers’ attitude toward road safety (Bianchi & Summala, 2003). According to Taubman, Ari, Katz and Ami (2012), results from a number of researches unanimously suggest that parents serve a pivotal part in shaping their children’s driving behaviour. Specifically, modeling in this context refers to the model of act provided by the parents to their children while driving and their attitude towards traffic regulations. A good modeling includes having parents to plan ahead under any circumstance to avoid time-induced panic, comply with traffic laws and drive safely regardless of rushing or fatigue. In addition, parent-child relationships of those who have positive prognosis and compliance with authority have been found to be significantly related to be a more effective enforcement of vigilant driving style. Else, reckless driving style would rather be endorsed. Parents who positively emphasise road safety and encourage safe driving style also tend to lower the likelihood of reckless driving style in their children. In addition, parents who are considered to have positive models tend to be able to deliver clearer and more straightforward messages, and therefore communicate better between generations.

As mentioned by Bianchi and Summala (2003), it is of utmost importance to note that parents do not solely provide their children a life-long role model but also a positive model when it comes to shaping the children’s driving style both cognitively and motivationally. Additionally, children might principally and genetically inherit their parents’ disposition traits (e.g., temperament, cognitive style and attention). Children in the early stages of life usually experience modeling learning by observing their parents’ driving style. Specifically, such learning refers to the way children perceive and behave when seeing other drivers under numerous traffic circumstances.
Conclusion

This chapter discussed the concepts of attitudes that are related to the attitudes of young drivers toward road safety and studies of factors such as gender, emotion, personality traits and role-modeling that affect attitude of drivers’ toward road safety.