



## Attitudes and Behaviors of Motorcycle Helmet Use among Thai-Nichi Institute of Technology Students

Nattapol Pourprasert

Humanities and Social Sciences Department, College of General Education and Languages  
Thai-Nichi Institute of Technology, Bangkok, Thailand  
E-mail: nattapol@tni.ac.th

### Abstract

The purposes of this research were to investigate toward the attitudes, the behaviors, and the reasons for using or not using crash helmets among the 100 students in the Thai-Nichi Institute of Technology.

This research assesses the utility of mixed methods designs that integrate qualitative and quantitative data through a transformative process. The qualitative method applies interviews while the questionnaire is used as a research instrument for the quantitative method. The data were statistically analyzed in terms of frequency, percentages, mean, and the Chi-Square test.

The research findings were as follows: 1) The TNI students were 68 % male and 32 % female, in academic years ranged from (32%) for 3rd year and most of whom had motorcycling riding experience of higher than 5 years. The study revealed that all of The TNI students were aware of the helmet law. Most respondents had positive attitudes toward the government road safety policy and helmet law enforcement. They strongly agreed that wearing a helmet could decrease the fatalities rate and offer protection in the event of motorcycle accidents.

2) In terms of behavior of wearing motorcycle helmet, (48%) of the TNI students used the Jet type of helmet, (35%) used the half type and (17%) used the full face type. The majority of the TNI students (98%) of the respondents were aware of helmet use law. (61%) of the TNI students sometimes wore motorcycle helmets both day and night time while (27%) of them wore helmets at all times and (12%) never wore the helmets either day or night time.

3) The main reasons for starting wearing helmets were safety (18%), minimizing severity of injuries (14%), and avoidance of injuries from accidents (13%). On the other hand, the main reasons for not wearing helmets were lack of necessity due to short distance ride, poor vision and hearing problem.

The P-Value of the factors compared to analyze the relationship of the significance value for helmet use and non-use behaviors both day and night time which was lower than 0.05 ( $P < 0.05$ ) and, thus, considered significant, were academic years ( $P= 0.044$ ), faculties ( $P= 0.005$ ), and riding experience ( $P= 0.009$ ).

**Keywords:** Attitudes, Behaviors, Motorcycle Helmet Use, Thai-Nichi Institute of Technology Students



## 1. Introduction

Road Traffic Injuries and Motor Vehicle Type, It is important to note that in Thailand, motorcycle riders comprised approximately (70%) of road traffic fatalities; this is substantially higher than high-income countries and may be explained by the rapid growth of motorcycle usage in the last few decades.

The Road Traffic Act B.E. 2522 (1979) Section 122 mandates the use of helmets Ministerial regulation number 14 under Road Traffic Act 1992 also established rules concerning helmet type and use of helmet straps. Additionally, helmet standard can be found under TIS 369–2557.(World Health Organization, 2016, p.54) The government's response to such a critical condition resulted in its enactment of the law regulating the wearing of crash helmets among motorcycle riders in order to reduce serious injuries and death from road accidents. The law prescribing use of crash helmets in Bangkok (Interior Ministry of Interior, 1996; p.23)

In 2013, for example, (59.6%) of the country's registered vehicles were motorcycles. Motorcycles tend to be more vulnerable to road traffic crashes as compared to other types of motor vehicles. This is due to the fact that they share roads with larger vehicles and are less visible; motorcycle riders also lack physical protection. (World Health Organization, 2016)

The number one cause of loss of life years of the adolescent population for both men and women (aged 15-29) is accidents on roads. Such premature deaths and injuries can be prevented from improvement of behavior of driving of Thais to development of the transport system of the country.

The SDGs, have determined the goal in reducing deaths and injuries from road traffic accidents worldwide by halving this number by the year 2020. This is a major challenge for Thailand because the Global Status Report on Road Safety 2015 of the WHO estimated the rate of death from road accidents of Thailand as the highest in ASEAN countries and the second highest in the world. Data on trends in the past 5-6 years show that the situation has improved somewhat. Data on deaths are still high at approximately 14,000-15,000 persons per year. In the year 2015 it was found that the highest accidents two thirds of all deaths were motorcycle riders.

The main reason for accidents in Thailand are due to inappropriate traffic behavior and road manners in the sharing of roads with other users of Thais, and low compliance with the traffic laws. Thais still insufficiently see the importance of this, especially in the area of safety. The survey on risky behavior of non-communicable diseases and injuries in the year 2015 (The BRFSS: Behavioral Risk Factor Surveillance System) found that Thai people drive while always using seat belts of only (54.1%) and ride motorcycles while always using helmets of less than one third or (31.7%) .(Health Information System Development Office, 2017)

In the Thai-Nichi Institute of Technology alone, the rate of injury from motorcycle accidents among non-users of crash helmets increases every year. Such road accidents were serious enough to warrant a study. Based on the theoretical framework of behavioral change, the researcher studied the attitudes, the behaviors, and the reasons for using or not using crash helmets among the students in the Thai-Nichi Institute of Technology.

## 2. Research purposes

To investigate toward the attitudes, the behaviors, and the reasons for using or not using crash helmets among students in Thai-Nichi Institute of Technology.



### 3. Scope of the Study

1) The study was an attitudinal and behavioral study of the employees towards the reason for wearing and not wearing motorcycle crash helmet of students in Thai-Nichi Institute of Technology.

2) Population in this study were based on the random sampling of students in Thai-Nichi Institute of Technology.

3) This research took almost 3 months to finish from October to December, 2017.

### 4. Literature Reviews

#### 4.1 The Concept about Socio-demographic and Helmet use status

Study of planned behavior and helmet use in college students founded that ethics discipline was significant for helmet use status. The African-America students tended to use helmet more than white students (Lisa et.al, 2011)

All socio-demographic data (age) on improper motorcycle helmet use differs significantly, including also the road types and time of day. Moreover, the young age group less than 25 years old correlated with improper helmet use more than the older age group. People do not use helmet on minor roads compared to principle and national roads. The time of improper helmet occurs in evening more than morning and afternoon (Li-Ping-Li et al., 2008).

#### 4.2 The Concept of Laws Relating to Helmet Use

Motorcycle Helmet Laws in Thailand, Road Traffic Act. B.E. 2522 (1979) Section 122. Motorcycle driver and passenger must wear crash helmets for safeguarding while driving and traveling. No motorcycle driver under paragraph one shall drive the motorcycle while the passenger does not wear safeguarding crash helmet. The character and procedure of using safeguarding crash helmet under paragraph one shall be prescribed in the Ministerial Regulation. The provisions of paragraph one shall not apply to the monk, novice, priest, other faith follower wearing traditional turban, or any person prescribed in the Ministerial Regulation.

Section 148. Any person who violates or fails to comply with Section 122 shall be liable to a fine not exceeding five hundred Baht. If the driver of a motorcycle commits an offense under section 122 paragraph two, he or she shall be liable to double the penalty prescribed in paragraph one. (World Health Organization, 2016, p.54-55)

The main campaign in Thailand for road safety is a campaign year for “100% helmet use promotion” through all sectors involved. The objective was to promote helmet use among motorcycle riders and passengers, with an emphasis on standard helmet to protect head and face from being shocked directly, thereby reduces head injuries from skull fracture and brain injury upon an accident (Department of Disaster Prevention and Mitigation, 2011).

The study in the United States of America about universal helmet laws founded that the states with universal helmet laws affected decreased motorcycle registration (2.3%) because of the negative thinking for universal helmet laws. Thus, the universal helmet laws affected an enforcement of helmet use and led to other road safety policies as well (Jenny, 2009).

In addition, motorcycle helmet use law in Taiwan was important to reduce severe head injury cases. The study showed the change on helmet use by law played an important role. People wear helmet when the law is compulsory. Moreover, there was reducing numbers of hospital admission and severe cases surgery (Wen-Ta et al., 2000).

In United Kingdom, British Association for Neuroscience Nurses advised the legislature on compulsory helmet use among the cyclists through the realization that law helped reducing accidents problems (Neal, 2011).



The study of frequency and perception of helmet use, thought or action can be consistent with road safety policy, laws and projects. An example is the helmet use among motorcycle riders in Rawalpindi, Pakistan who had low helmet use. It could be concluded that developing countries had lower helmet use less than developed countries (Babar et al., 2007).

#### **4.3 The concept on knowledge, attitude, and practice towards helmet use**

Based on the Theory of Planned Behavior, it reveals that knowledge and beliefs will affect attitude, subjective norm, and perception of behavior, and thus leads to behavioral change (Adulwit, 2009)

The study of Planned Behavior Theory and helmet use measure attitudes towards law and practice. The attitude of the subjects related to knowledge as well as friends and family involved in helmet use. Moreover, they support the importance of wearing helmet which goes beyond mere comfort. Thus, behavior will be related to the surroundings and perceptions of self (Lisa, 2011).

In addition, the Health Belief Model can predict helmet use behaviors. The study by Thomas et al. (2010) conducted in the undergraduates. It revealed that to wear a helmet that could help reducing injury (77%). However, the attitude was not represented only the perceived benefit. Nevertheless, the study mentioned about attitude of economics such as high pricing affected helmet use (Thomas et al., 2010).

In China, the study of improper motorcycle helmet use derived from observations of helmet use and measured level of knowledge and attitudes. The result supported the benefit of helmet use (58.9%) and age group was associated with attitude. People who were older than 50 years supported the importance of wearing helmet (68.3%).

Moreover, the subject supported the negative attitude that wearing helmet was uncomfortable (71.3%) and was a block to eyesight (38.5%). Ignorance of helmet use was (32.3%) in riders and (15.3%) in passengers (Li-Ping-Li et al., 2008).

There is another similar study conducted in Vietnam to measure the level of attitude and belief towards helmet use. However, the result contrasted to the first study. The people tended to support the negative attitude that helmet use could not help reducing injury (> 95%), helmet use was uncomfortable and difficulty to store. Tendency to wear helmet was (23.1%) (Dang et al., 2008).

The knowledge statements on severity from head accident, increasing safety from helmet use, and law were correlated with practice. In addition, there was the most percentage being uncertain about negative attitude (Mahisorn Prapasanobola, 2007).

Attitude study by Sujitra Tadteang (2010) was 18.8% feeling of uncomfortable upon helmet use, (26.3%) regarding damaged hair style, and no reducing of severity on head injury (36.7%).

#### **4.4 The concept of Helmet use**

The effectiveness of helmet use can prevent head impact from road accident. The risk of death and severe injuries can reduce from helmet use (40%) and (70%) reduction respectively. The brain and spinal cords are the most important organs for human beings. If they are destroyed, loss of life or disability problems will take place. Life expectancy of people who do not use helmet is lower than the helmet use group and Quality-Adjusted Life Years (QALYs) of helmet use is also greater than non-helmet-use group as well. Helmet can protect life from head injury. The study conducted in patients with head injury and aged over 50-years in Taiwan (Hsin-Yi Lee et al., 2010).



In Jamaica, the research conducted on head injury among motorcycle riders and passengers. Male riders (91.7%) died from brain injury and female passengers (8.3%) faced the same condition. Ten out of twelve people did not use helmet (Ivor W Cradon et.al., 2009).

The basic components of a helmet include shell, impact-absorbing liner, comfort padding, and retention system or chin strap. Some helmets might compose of face shield. The shell is outer site and a smooth outer area. It cushions on the crash impact. The impact-absorbing liners are also known as “styrofoam” that help absorbing the shocks. The comfort padding is generally made of foam materials. It is adjacent to the head and provides a well firmness. The last component is the retention system or chinstrap - the only part that sustains the helmet when shock occurs.

The motorcycle helmet design has four common types: first, Full-face helmet which covers all head part and help putting the best firmness as well as does not move to obstruct riding. Second is Open-face helmet which is cheaper than Full-face helmet with color limitation. Third, Half-head helmet in similar shape with Open-face helmet but lack of chin or jaw protection area. Last is helmet for tropical use. South Asian and Southeast Asian countries are located the hot region so helmet is specifically designed to be well-cool. Colors of helmet should be simple and light as it is more efficient to reduce risk of crash (WHO, 2006). Helmet safety design research has chosen four colors for design: red, blue, gold, and silver. All colors are bright tone (Li Cui Yu et al., 2010).

## **5. Methodology**

### **5.1 Population**

The population of the study was the random sampling of 100 students in the Thai-Nichi Institute of Technology.

### **5.2 Research Instrument**

The research instrument for the study on attitude toward government policy for road safety and helmet law and behavior of motorcycle helmet use was divided into 6 parts:

Part 1: Personal data form consisted of items on respondents' sex, age, motorcycling riding experience, residence, drivers' license, types of helmet, the third party Act of motorcycle accident protection, life insurance, life insurance company, and awareness of motorcycle helmet use law.

Part 2: The attitudinal measurement toward the government road safety policy and helmet law consisted of the estimated value standard of Likert rating scale of 1 – 5 from “strongly agree” to “agree,” “uncertain,” “disagree,” and “strongly disagree.” Each respondent was asked to check one of the five positions given below. These five positions were given simple weights of 5, 4, 3, 2, and 1 for scoring. The high scale score represented a positive attitude of the employees. All the positive items were scored as they stand: (5 strongly agree), (4 agree), (3 uncertain), (2 disagree), (1 strongly disagree).

The standard of keeping the score of the attitude measurement were interpreted as follows: (Mean 4.51-5.00) Showing very good or very high agreement level toward the government policy on the safety road traffic and helmet law enforcement, (Mean 3.51-4.50) Showing good or high agreement level for measurement of the government policy toward the safety road traffic and helmet law enforcement, (Mean 2.51-3.50) Showing medium agreement level for measurement of the government policy toward the safety road traffic and helmet law enforcement, (Mean 1.51-2.50) Showing low agreement level for measurement of the government policy toward the safety road traffic and helmet law enforcement, (Mean 1.00-1.50) Showing very low agreement level for measurement of the government policy toward the safety road traffic and helmet law enforcement.



Part 3: The behavioral helmet use measurement was designed to check respondents' riding behavior. It was comprised of four questions asking the respondents about their behavior of wearing helmets at all times during both day and night time, occasionally use only day and night time, and turning on the front light while wearing helmets.

Part 4: Respondents were asked to give reasons for their helmet use and nonuse behaviors.

Part 5: The purpose of an interview was to obtain additional information concerning motorcycle safety helmet use and non-use from respondents. Specific riding situations were designed to determine all 100 respondents' reasons for doing so.

Part 6: The purpose of the Chi-Square test is to determine whether the frequency of respondents' reported behaviors towards motorcycle safety helmet use and non-use, are significant or not at a 0.05 level of confidence.

### 5.3 Data Collection

The data were obtained through the questionnaire and interview results among 100 selected students in the Thai-Nichi Institute of Technology. All selected respondents were given the questionnaires and participated in the interview. 100 questionnaires were distributed and all 100 questionnaires were returned, making a (100 %) sample population.

### 5.4 Data Analysis

The data of attitudes and behaviors among students in the Thai-Nichi Institute of Technology were statistically analyzed in terms of frequency, percentages, mean, and Chi-Square tests for degrees of significance.

## 6. Results

**Table 1: Table of the results of respondents' personal data**

<b>Respondents' Personal Data</b>	<b>n=100</b>	<b>Percentage</b>
<b>1. Genders</b>		
Male	68	68.00
Female	32	32.00
<b>Total</b>	<b>100</b>	<b>100</b>
<b>2. Academic Years</b>		
1st Year	15	15.00
2nd Year	28	28.00
3rd Year	32	32.00
4th Year	25	25.00
<b>Total</b>	<b>100</b>	<b>100</b>
<b>3. Faculties</b>		
Engineering	40	40.00
Information Technology	20	20.00
Business Administration	40	40.00
<b>Total</b>	<b>100</b>	<b>100</b>
<b>4. Riding Experience</b>		
Lower than 1 year	9	09.00



<b>Respondents' Personal Data</b>	<b>n=100</b>	<b>Percentage</b>
2-3 years	14	14.00
4-5 years	21	21.00
Higher than 5 years	56	56.00
<b>Total</b>	<b>100</b>	<b>100</b>
<b>5. Helmet Type</b>		
Half Type	35	35.00
Jet Type	48	48.00
Full Face Type	17	17.00
<b>Total</b>	<b>100</b>	<b>100</b>

Table 1 showed that percentages of Thai-Nichi Institute of Technology students respondents in genders ranged from (68%) for male and (32%) for female; in academic years ranged from (15%) for 1<sup>st</sup> year, (28%) for 2<sup>nd</sup> year, (32%) for 3<sup>rd</sup> year and (25%) for 4<sup>th</sup> year; in faculties ranged from (40%) for Engineering, (20%) for Information Technology, (40%) for Business Administration. The majority of the TNI students (56%) had more than 5 years in motorcycling riding experience with the least having between 1-5 years riding experience. (48%) of the TNI students used the Jet type of helmet, (35%) used the half type and (17%) used the full face type.

**Table 2: Table of the results of respondents' Awareness of Helmet Use Law and Helmet Use and Non-Use Behaviors**

<b>Results of Respondents</b>	<b>n=100</b>	<b>Percentage</b>
<b>Awareness of Helmet Use Law</b>		
Yes	98	98.00
No	2	2.00
<b>Total</b>	<b>100</b>	<b>100</b>
<b>Helmet Use and Non-Use Behaviors</b>		
All Times	27	27.00
Sometimes	61	61.00
Never	12	12.00
<b>Total</b>	<b>100</b>	<b>100</b>

Table 2 showed that percentages of the majority of the TNI students (98%) of the respondents were aware of helmet use law. (61%) of the TNI students sometimes wore motorcycle helmets both day and night time while (27%) of them wore helmets at all times and (12%) never wore the helmets either day or night time.

**Table 3: Table of Mean of Thai-Nichi Institute of Technology students's Opinion Scale for Attitude Measurement toward the Helmet Law Enforcement**

<b>Statements</b>	$\bar{x}$	<b>Level</b>
Helmet law enforcement can reduce road accident injuries and fatalities.	4.49	High



Statements	$\bar{x}$	Level
Low enforcement level of the helmet law leads to increasing road accidents and fatalities.	4.00	High
Wearing Helmets reduces severe injuries.	4.32	High
The campaign of turning on the front light and wearing safety helmets while riding can leads to reduction in injuries and deaths.	3.80	High
<b>Total</b>	<b>4.03</b>	<b>High</b>

Table 3 showed that the TNI students' attitude was at a high agreement level in all categories. The total (Mean 4.03), indicated that the TNI students' respondents had positive attitude toward the measurement of helmet law enforcement.

**Table 4: Table of the results of respondents' reasons towards motorcycle safety helmet use and non-use elicited from interviews**

Reasons for Wearing Helmets	n=100	Percentage
Safety	18	18.00
Minimizing Severity of Injuries	14	14.00
Protection from Wind, Rain, Sun, Dust, and Insects	11	11.00
Police Checkpoints	4	4.00
Motorcycle Accident Experience	13	13.00
Compliance to Motorcycle Helmet Law	9	9.00
Avoidance of Penalty	2	2.00
Avoidance of Injuries from Accidents	13	13.00
Family Request	3	3.00
Influence from Friends	0	0
Speed Facilitator	1	1.00
Confidence in Riding	9	9.00
Avoidance of Medical Expense	3	3.00
<b>Total</b>	<b>100</b>	<b>100</b>

Table 4 showed that the main reasons given by the TNI students for starting wearing helmets were safety (18%), minimizing severity of injuries (14%), and avoidance of injuries from accidents (13%).

**Table 5: Table of Significance Value between Factors and Helmet Use and Non-Use both Day and Night Time**

Factors	Chi-Square Value	Significance Value (P-Value)
Genders	2.154	0.171
Academic Years	10.98	0.044
Faculties	34.56	0.005





<b>Factors</b>	<b>Chi-Square Value</b>	<b>Significance Value (P-Value)</b>
Riding Experience	15.380	0.009
Helmet Type	2.87	2.99

Table 5 showed that all factors were compared with the respondents' helmet use and non-use behaviors both day and night time to determine significant value. The Chi-Square test can help the researcher compares each factor of the data to judge whether the relationship is significant or not (in this case) at the 0.05 level. ( $P=0.05$ ). If P-Value of a factor is lower than 0.05, it will be significantly related.

The P-Value of the factors compared to analyze the relationship of the significance value for helmet use and non-use behaviors both day and night time which was lower than 0.05 ( $P < 0.05$ ) and, thus, considered significant, were academic years ( $P= 0.044$ ), faculties ( $P= 0.005$ ), and riding experience ( $P= 0.009$ ).

## **7. Conclusion and Discussion**

### **7.1 Conclusion**

1. Government road safety policy and helmet law enforcement. They strongly agreed that wearing motorcycle protective helmets would decrease the fatalities rate and offer protection in the event of motorcycle accidents. They also strongly agreed that wearing safety helmet could reduce the severity of head injuries. In addition, the respondents had a high level of agreement that police checkpoints and full traffic fines for motorist violators would increase riders' road safety awareness and law compliance.

2. Behaviors of wearing motorcycle helmet, the TNI students reported high frequency in using helmets. (61%) of the TNI students sometimes wore motorcycle helmets both day and night time while (27%) of them wore helmets at all times and (12%) never wore the helmets either day or night time. (48%) of the TNI students used the Jet type of helmet, (35%) used the half type and (17%) used the full face type. The majority of the TNI students (98%) of the respondents were aware of helmet use law.

3. The TNI students gave high level of agreement on both positive and negative reasons for their helmet use and non-use behaviors. The main reasons for starting wearing helmets were safety, minimizing severity of injuries and avoidance of injuries from accidents. On the other hand, the main reasons for not wearing helmets were lack of necessity due to short distance ride, poor vision and hearing problem.

### **7.2 Discussion**

All of the 100 TNI students were aware of the mandatory protective helmet law. According to Barry E. Collins and Richard D. Ashmore (1970), a person's attitude is a person's convictions about which objects were good and which were bad, which are acceptable and which were unacceptable, to be agreed with or disagreed with.

TNI students strongly agreed that wearing motorcycle protective helmets would decrease the fatalities rate and offer protection in the event of motorcycle accidents and that wearing safety helmet could reduce the severity of head injuries. This indicated that they had positive attitudes towards government road safety policy and helmet law enforcement.



In addition, TNI students had a high level of agreement that full traffic fines for motorist violators would increase riders' road safety awareness and law compliance. The respondents thought that the mandatory helmet law was very important to encourage riders to wear motorcycle protective helmets.

According to Herber Kelman (1961), attitude change because of compliance can occur when an individual wants to obtain a reinforcement or avoid a punishment from the source. Fear of being caught by the police or being given full traffic fines were negative attitudes which caused the respondents to comply with the law.

Behaviors of wearing motorcycle helmet, the TNI students reported high frequency in using helmets. (61%) of the TNI students sometimes wore motorcycle helmets both day and night time while (27%) of them wore helmets at all times and (12%) never wore the helmets either day or night time. (48%) of the TNI students used the Jet type of helmet, (35%) used the half type and (17%) used the full face type. The majority of the TNI students (98%) of the respondents were aware of helmet use law.

According to Fishbein and Azjen (1980), whether individuals will actually perform a desired behavior depends on their personal attitudes, perceived social pressure, as well as their own experiences. The findings indicated that the helmet use and non-use behavior resulted from respondents' positive attitudes that wearing helmets provide them with physical comfort, safety, and compliance with the law.

The findings of this study concerning the respondents' helmet use and non-use were also in accordance with the findings of previous studies (Kriangsak, et al., 1999) in that they used helmets to avoid being fined and police checkpoints. However, it was found that respondents' own experiences had very little to do with their helmet use behavior.

Regarding the present campaign for motorists to wear helmets and turn on the head light, it was interesting to find that respondents did so because of their positive attitudes toward the campaign, their own safety, and their confidence in riding.

An analysis of the attitudinal data reveals three outstanding factors that may be influencing the behavior of motorcyclists. The first, of course, is the enforcement factor. A high number of responses comes from considerations of safety, minimizing severity of injuries and avoidance of injuries from accidents. On the other hand, the main reasons for not wearing helmets were lack of necessity due to short distance ride, poor vision and hearing problem.

Finally, Thailand's helmet law is quite comprehensive. However, the analysis reveals that, as of yet, helmet standards have not been specified for children. Moreover, penalties currently do not include a provision for motorcycle impoundment. Thailand also does not have laws that require riders of three-wheeled motorcycles and electrical motorcycles to wear helmets.

## **8. Suggestions**

### **8.1 Operational Suggestion**

- 1) The helmet law policy should be upheld.
- 2) Violators should be specially educated concerning personal responsibility.
- 3) The helmet law regarding insurance policy should be strictly enforced.
- 4) Different helmet types should be designed not only to fully protect motorists from head injuries but also to enhance their vision and hearing.
- 5) Road safety campaign should continue throughout the year to keep motorists fully aware of safe riding so that motorists would wear helmets at all-time regardless of distance.



6) Safe riding campaigns should be conducted through different media such as billboards in order to catch attention and create awareness and a sense of personal responsibility among motorists.

### **8.2 Suggestions for the Next Research**

1) The researcher should be broader investigation about the attitudes, the behaviors, and the reasons for using or not using crash helmets among the students in the Thai-Nichi Institute of Technology by studying level of participation.

2) The researcher should study in order to seek solution to improve techniques of using helmets campaign for enhance their vision and hearing.

3) The future investigation should be in the qualitative research associated with Participatory Action Research, it should gain deeper findings than the existing ones.

### **9. Acknowledgements**

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## 11. Bio data

**Nattapol Pourprasert** was born in Bangkok and graduated from Ramkhamhaeng University in Ph.D. (Political Science). He is a lecturer in Humanities and Social Sciences Department, College of General Education and Languages, Thai-Nichi Institute of Technology.