

THE EFFECT OF TYPE OF TRAFFIC SAFETY CAMPAIGN MATERIAL TO ATTITUDE CHANGE OF MOTORCYCLISTS AMONG UNDERGRADUATE UNIVERSITY STUDENTS IN INDONESIA

Leksmono Suryo PUTRANTO
Professor
Department of Civil Engineering
Tarumanagara University
Level 5, Block L, Kampus 1,
Jl. Letjen. S. Parman No. 1,
Jakarta 11440, Indonesia
Tel: (+62) 21 5638353
Fax: (+62) 21 5663277
Email: lexy_putranto@yahoo.co.id
(Corresponding Author)

ROSTIANA
Senior Lecturer
Faculty of Psychology
Tarumanagara University
Level 2, Block K, Sungai Long, Kampus 1,
Jl. Letjen. S. Parman No. 1,
Jakarta 11440, Indonesia
Tel: (+62) 21 5661334
Fax: (+62) 21 5638356
Email: dutaindah03@yahoo.com

ABSTRACT

One way to educate motorcycle riders is by asking them to observe traffic safety campaign material. There were four type of motorcycle rider safety awareness campaign materials in Indonesia, i.e. picture/ drawing (poster etc), audio (short radio advertisement), video (short television/ movie advertisement) andy testimonial video. This paper is aimed to observe the effect of different types of traffic safety campaign materials to attitude changes of motrorcyclists among undergradute university students in Indonesia. 107 students from four Universities in diferent cities were asked to asked to be our respondents. Firstly, they were asked to fill baseline questionnaires consist of 22 motorcycle rider behaviours. They should rate whether they strongly disagree (1), to strongly agree (4) on the statments. Afterward, they were supplied with flash discs containing 5 pictures, 6 audios, 9 short videos and 2 testimonial videos. They were then asked to observe each pictures and fill second questionnaire and provide another rating on 1 to 4 scale. Similar procedures also apply after they hear the audios, observe the short videos and osbserve the testimonial videos. Serials of mean difference t-tests were conducted to evaluate possible attitude change of respondents before and after treatment. In general the respondent were low risk riders. There were certain unfamiliar behaviours with Indonesian respondents, e.g. wearing bright colour helmet and bright colour jacket. Also, for Indonesian rider, keep changing lane is common. Short videos combine moving picture, conversation, musical illustration, sound's effect, animation and text messages to strengthen the message.

Keywords: traffic safety, type of campaign material, attitude change, motorcyclists, undergraduate university students, Indonesia

1. INTRODUCTION

In Indonesia, there was increasing trend of motorcycle ownership and use to avoid congestion in the last decades. This was due to uncontrolled land use development and unsatisfactory public transport system. Apart from problem with large number of motorcycle in the general traffic, it triggers other problems related to motorcycle rider behaviour such as unskilled rider, traffic violation, aggressive behaviour, etc.

One way to educate motorcycle riders is by asking them to observe traffic safety campaign material. There were four type of motorcycle rider safety awareness campaign materials in Indonesia. Firstly picture or drawing in a form of poster etc. Secondly audio in a form of short radio

advertisement (60 seconds). Thirdly video in a form of short television/ movie advertisement (30 seconds, 60 seconds and 3 minutes). Lastly testimonial video either performed by real accident victim or by professional artist (5 minutes). This paper is aimed to observe the effect of different types of traffic safety campaign materials to attitude changes of motorcyclists among undergraduate university students in Indonesia.

2. PREVIOUS STUDIES

Available motorcycle safety campaign materials in Indonesia (in any form, i.e. picture, audio, short video and longer testimonial video) were mainly regarding rider protection equipment ownership and use. Other common theme was vehicle check before riding. Only very few materials were about motorcycle operation (Putranto and Rostiana, 2015). Therefore the authors modified Indonesian Motorcycle Rider Behaviour Questionnaire (Putranto et al, 2014) accordingly for the base line questionnaire before treated the respondents with pictures, audios, videos, and testimonial videos.

The Malaysian government spends a lot of money on awareness campaigns aimed at road users especially motorcyclists. However, the effectiveness of such campaigns were not as expected. A study was conducted to evaluate the awareness level among motorcyclists after watching road safety advertisements and its relation to the rate of road accidents involving motorcyclists. The objective of the study was to measure the level of acceptance of certain television advertisements, identify effect of advertisements from the cognitive, affective and conative aspects of the motorcyclists and identify contributing factors to the acceptance and effect of advertisements. The respondents in this study were motorcyclists from various government and public agencies, and students in the Kuala Lumpur area. They were shown five road safety advertisements and followed by filling a questionnaire. The results of the study show that ninety percent of the advertisements are accepted by the respondents. The road safety campaigns have a high effect on the cognitive (83.0%), while the effect on affective is 55.5% (MIROS,2015).

Effect of Norwegian adolescent safety campaign was evaluate and the association between risk perception and traffic behavior was examined. The results of the study showed that a traffic safety campaign carried out among adolescents in two Norwegian counties seemed to have changed risk perception related to speeding and other traffic hazards significantly. The respondents of the post-sample also reported less risk behaviour in traffic and the number of speeding accidents were reduced. Perceived risk was not changed among adolescents in two other counties with no safety campaign. Neither were there any changes in self-reported risk behaviour. There were no significant differences between samples classified by sex, age, percentage who had a driver licence, driver experience or accidents records. Thus, it can be concluded that it was the campaign that caused the change in risk perception in the experimental group (Rundmo and Iversen, 2004).

3. THE RESPONDENTS

Data collection was conducted in 4 public universities in 4 different cities (Table 1). All of them were undergraduate students who ride motorcycle daily. 73% of them were male which hypothetically reflect proportion in general population.

Table 1: Number of Respondents in City/ University Classified by Gender

| City | University | Number of Respondents | | | |
|-----------|--------------------------------|-----------------------|--------|------|--------|
| | | Planned | Actual | | |
| | | | Total | Male | Female |
| Denpasar | Udayana | 25 | 24 | 17 | 7 |
| Padang | Andalas | 25 | 24 | 17 | 7 |
| Pontianak | Tanjung Pura | 25 | 29 | 23 | 6 |
| Surabaya | Institut Teknologi 10 November | 25 | 30 | 21 | 9 |
| T O T A L | | 100 | 107 | 78 | 29 |

4. THE QUESTIONNAIRES

4.1. Baseline Questionnaire

The baseline questionnaire consists of general questions and perceptual questions. General questions consist of questions regarding name, age and gender. Perceptual questions consist of questions regarding whether the respondent strongly disagree (1), disagree (2), agree (3) or strongly agree (4) that he/ she conduct the following statement when riding motorcycle daily:

1. wears standard helmet with solid outer layer, thick middle layer and soft inner layer.
2. child in the passenger seat wears special helmet for children.
3. wears bright colour helmet.
4. wears helmet regardless the travel distance.
5. wears helmet properly and buckle the chin strap until it sounds "click".
6. wears bright colour jacket.
7. wears gloves.
8. wears shoes protecting upto ankles.
9. ensures the head lamp works before departing.
10. ensures the brake works before departing.
11. ensures that the rearview mirrors are in place.
12. ensures the turning signs work before departing.
13. ensures proper tires pressures before departing.
14. ensures proper machine condition before departing.
15. carries legal size of luggages.
16. carries one passenger at a time
17. facilitates underage family member to ride motorcycle.
18. carries a child only for short distance travel.
19. keeps changing lane to utilize small gap in a congestion.
20. rides in high speed.
21. considers other road users when riding.
22. avoid mobile phone communication when riding.

4.2. Questionnaire to Measure Attitude Change after Observing Picture of Safety Campaign

The respondents were asked to filled the second questionnaire after observing the following pictures:

- P1. The picture showed bright colours standard helmet with the choice of full-face helmet open face helmet. The texts underneath describe three layers required in standard helmets, i.e. solid outer layer, thick middle layer and soft inner layer. It was ended with the message to buckle chin strap until "click" sound heard.
- P2. This is basically a campaign to encourage adults only to carry children passenger for short trip wearing a bright colour children standard helmet.
- P3. The picture and text message show the important of wearing standard helmet and to buckle chin strap.
- P4. The picture and text message show the important of wearing bright jacket and helmet and the importance to buckle chin strap.
- P5. The picture and text message show the effect of over loading on rider concentration and balance.

For example, the resepondents were asked to state whether after observing P1 they wear standard helmet (question 1 in baseline questionnaire) properly (question 5 in baseline questionnaire).

4.3. Questionnaire to Measure Attitude Change after Observing Audio of Safety Campaign

The respondents were asked to filled the third questionnaire after hearing the following audios:

- A1. It was about conversation between 2 men in a hospital. One of them said his younger brother is hospitalized due to a motorcycle accident. In the accident his younger brother was wearing non-

standard helmet causing serious head injury and up to that moment still unconscious. The other man emphasized the importance of using standard helmet and buckling the chin strap.

- A2. It was about conversation between husband and wife in a car in a traffic congestion. The husband angrily swearing at motorcyclists who block his way. He was not happy about the fact that number of motorcycle in the traffic keep increasing. The wife calmed him down that this situation happen because the motorcyclists have no better option to travel. The husband argued that he regretted the risky motorcyclist behaviour. Suddenly a motorcycle hit the car and the husband become more angry. The wife calmed him down and asked him to be thankful to be able to drive an air conditioned car compared to the motorcyclist that should suffer in congestion under hot weather. The wife suggested the husband to enjoy the trip by listening to a relaxing music.
- A3. It was about a conversation between 2 men in a shopping center. One of them told the other that he went there to buy some equipments for a long trip to his hometown in the upcoming feast day. The other man criticized the non-standard helmet bought. The man who bought such helmet argued that he needs fashionable helmet to impress his girlfriend in hometown. The other man suggested his friend to buy a standard helmet which can protect him from water, stones or insects. He also emphasized that the fashionable helmet seems to be very fragile and can be easily broken on a crash. He showed that there was only one thin fabric layer in the helmet. He told him that standard helmet should consist of 3 layers. He also tell him that there were 2 types of standard helmet, i.e. full face and open face. He told him that if he cares about himself and his girlfriend he should wear proper safety equipment. Moreover this will be a long distance travel which will need a good physical, engine, and equipment conditions. So he suggests to replace the helmet with the standard helmet. He also reminds him to buckle the chin strap until it sounds "click".
- A4. It was about a conversation between 2 men live in the same neighborhood. One of the men was older and he was the chief of neighborhood. He greeted the younger man who apparently ready for a long distance trip to his hometown to celebrate the feast day. The younger man said that he have sent most of his belongings in advance by courier service to be able to travel by motorcycle more comfortably. He have checked the brake, engine and tire condition. The older man complimented the younger man effort to prepare his travel but he commented that actually motorcycle is not suitable for long distance travel and its going to be a dangerous travel. The younger man replied that he had no better choice. So the older man advice him to protect himself with standard helmet and wear the helmet properly by buckle the chin strap until it sounds "click". He also reminded the younger man that his son should wear helmet. When he saw the son's bright colour jacket he complimented this and inform the younger man that bright colour jacket will be easier to be seen by other road users.
- A5. It was about a conversation between 2 men live in the same neighborhood. One of the men was older and he was a respected haj in the neighborhood. He greeted the younger man who apparently ready for a long distance trip to his hometown to celebrate the feast day. The younger man said that he made an seat extention to the motorcycle so that he can carry his wife, two children and some luggages. The older man commented that motorcycle can only be occupied by two people and should not carry too many luggages. He suggested that the luggages were sent in advance using courier service. He added that the motorcycle and the rider should be in good condition. He also reminded the younger man to bring all related licenses, spare tire (inner tube), flashlight, map, bright colour jacket and sufficient money. He also emphasized the use of standard helmet. The younger man said that he has already prepared all of that and even install new headlamp. The older man reminded that the lamp should not cause glare for traffic from the other direction. The younger man follow the advice from the older man to send the luggages in advance and even "send the children in advance".
- A6. It was about a wife who prepared her belongings for long distance travel to celebrate a feast day in her hometown. She plan to bring various different clothing. The husband shocked to find his wife brought a lot of belongings for the motorcycle trip. The wife reacted that she will be embarrassed if she wear almost the same clothing every day during the visit to her hometown. Her husband reminded her that it will not be a recreational trip so she should bring less clothing. Instead they should bring equipment specially needed for motorcycle riding. When the wife ask the husband what should she do with, blamed her husband not to acquire a car. The husband make a joke that next year they will be travelling by a truck trailer!

For example, the respondents were asked to state whether after hearing A1 they wear standard helmet (question 1 in baseline questionnaire) properly (question 5 in baseline questionnaire).

4.4. Questionnaire to Measure Attitude Change after Watching Video of Safety Campaign

The respondents were asked to fill the fourth questionnaire after watching the following videos:

- V1. This video is about a father who carries his little daughter with his motorcycle. The mother has shouted to the father to equip the child with helmet and jacket but the father neglected this reminder and argued that it will be a short trip only. Few seconds later a crash sound was heard. It was a motorcycle accident suffered by the father and daughter. As the kid did not wear a helmet, she was unconscious after she had hit the road pavement. The video concluded with a text message "The little one also needs protection".
- V2. This video is about a fruit trader who has just received an order from a customer to deliver some fruits. He thought that if he brought as many fruits as he can, he will get substantial benefit. His wife shook her head showing her disagreement when she saw her husband trying to bring every ordered fruit at once. He shouted to other road users to move aside and give him a way. As a result the husband lost his balance and the ordered fruits fell apart. He regretted his act and said "targeted a profit but failed". The video ended with a text message "safety is not a cost but an investment".
- V3. This video is about a group of singers visiting a petrol station, greeting the customer by singing a song about standard helmet, how to use helmet, the use of bright colour jacket and its benefit, the use of shoes, the use of gloves. The song was supported by some additional information using text messages.
- V4. This video is about a boy who got a helmet as his tenth birthday present. He was very happy to get the present and even clean it regularly by washing and wiping. His dad told him to wear the helmet correctly. He was then shown the standard helmet and wear it with a buckled chin strap.
- V5. This video is about helmet use. Firstly a bright colour helmet was chosen. Then the young man buckled the chin strap until "click" sound heard. He carried a passenger who wore a non-standard helmet without buckling the chin strap. They then involved in a crash because the motorcycle kept changing the lane. Only the man with standard helmet survived.
- V6. A man wearing a standard helmet and buckled the chin strap correctly riding his motorcycle in a heavy traffic. He keeps changing the lane and even sometimes flowing in the opposite direction. He was then hit by a car from the front and fell above the hood of the car.
- V7. A father who was so proud of his son's academic achievement in a junior high school gave a motorcycle as a present. The young boy rode the motorcycle and almost hit other road users until finally he hit a car. The video ended with a scene where the father cried regretting his decision to give such a present because now the son should use a wheelchair.
- V8. In this video a man called his girlfriend that he will visit her with his new motorcycle. The girlfriend reminded him to wear helmet, jacket and shoes in several phone calls. Later he arrived with bright colour standard helmet/ jacket, gloves and shoes.
- V9. This video is about motorcycle riding preparation and safety riding. Before riding, one should check the condition of brake, headlamp, sign, and rearview mirrors. Rider should wear bright colour jacket and standard helmet (and buckle the chin strap), gloves and shoes. Rider should not break speed / capacity limit, drink riding and obey traffic law.

For example, the respondents were asked to state whether after watching V1 the child passenger wears children helmet (question 2 in baseline questionnaire) for any distance of travel (question 4 in baseline questionnaire).

4.5. Questionnaire to Measure Attitude Change after Watching Testimonial Video of Safety Campaign

The respondents were asked to fill the fifth questionnaire after watching the following testimonial videos:

- T1.** This video tell a univerisity student's story about his accident history a year ago. One day he got up late for an appointment to meet his undergraduate thesis supervisor. As he was in a hurry, he did not wear a standard helmet and moreover he did not buckle the chin strap. He took a less busy short cut route to campus so he can speed up his motorcycle. Suddenly he found that there were some pebbles in the road surface. As he was not prepared and he was in a substantially high speed, his front wheel passed through the peebles causing motorcycle imbalance. He was bouncing down from the motorcycle, the helmet was detached from his head and his head struck the road surface. He felt great dizziness and became unconscious. When he awaked he was in hospital and the doctor told him that he suffered light brain concussion. Up to now he still feel the dizziness. This disturbed his study and daily activities. Therefore he realized the importance of use standard helmet and buckle the chin strap to protect his head. He was then tell the viewers about some accident statistics, feature of standard helmet, how to wear helmet, the use of bright colour jacket/ gloves/ shoes covering ankles.
- T2.** This video tell high school student who loves to play football. But he should forget about his passion because of the accident. He used to ride motorcycle without rearview mirrors and without signal. One day he went to play football with his team. Because he want to get to the field soon, he speed up his motorcycle. As his motorcycle had no sign, a car who was behind him could not anticipate the motorcycle which was going to make a turn. A crash was happened and an important muscle in his foot was torn permanently and he become paralyzed. His passion to be professional footballers failed. He realized that he should only start a travel when all equipments were in a good condition. He was then tell the viewers about some accident statistics, the importance of motorcycle safety equipment such as rearview mirrors, brake, signal, head lamp, brake lamps, brake lamp (and should be checked before riding).

For example, the resepondents were asked to state whether after watching T1 they wear standard helmet (question 1 in baseline qestionnaire) with bright colour (question 3 in baseline questionnaire) buckle the chin strap (question 5 in base line qustoinnaire) wear bright colour jacket (question 6 in baseline questionnaire) wear gloves (question 7 in baseline questionnaire) wear shoes (question 8 in baseline questionnaire) and obey speed limit (question 20 in baseline questionnaire).

5. RESULTS

All 22 behaviours daily conducted by the respondents can be changed into better attitudes after observing pictures and/ or hearing audios and/ or watching videos and/ or watching testimonial videos. All changes were positive changes and statistically significant at 0.05 significant level

Table 2 shows which behaviours can be changed into better attitudes after each different interventions. V9, a three minutes long video containing various messages can change 11 behaviours into better attitudes. Meanwhile P2 about children helmet can not change any behaviour into better attitude. It can also be seen that the power of pictures to change behaviours into better attitudes were limited, whilst the power of audios, videos and testimonial videos to change behaviours into better attitudes were quite many.

6. CONCLUSIONS AND RECOMMENDATIONS

Video can be effectively change motorcycle rider behaviours into better attitudes because it can deliver stronger messages as a combined effect of moving pictures, audio messages, text messages, animations, sound effects and musical illustration supporting each other. To overcome budget limitation of the government, private companies can contribute to develop new safety campaign media through their company social responsibility programs. For future developpment, it is recommended to develop new themes which are urgently required due to the recent trend of motorcyclists risky behaviour, for example regarding motorcycle travelling in opposite direction, motorcycle travelling in side walk, underage motorcyclists, etc

Table 2: Behaviours which Can be Changed into Better Attitudes after Each Intervention

| No. | Intervention | Code of Changed Behaviours | Ammount of Behaviours |
|-----|--------------|---------------------------------------|-----------------------|
| 1 | G1 | 5 | 1 |
| 2 | G2 | - | 0 |
| 3 | G3 | 5 | 1 |
| 4 | G4 | 3; 6 | 2 |
| 5 | G5 | 15 | 1 |
| 6 | A1 | 5 | 1 |
| 7 | A2 | 19; 21 | 2 |
| 8 | A3 | 6; 7; 8; 9; 10 | 5 |
| 9 | A4 | 2; 6; 13; 14; 15; 16; 18 | 7 |
| 10 | A5 | 6; 9; 15; 16 | 4 |
| 11 | A6 | 6; 8; 15 | 3 |
| 12 | V1 | 2; 4 | 2 |
| 13 | V2 | 15 | 1 |
| 14 | V3 | 3; 6; 7; 8 | 4 |
| 15 | V4 | 2 | 1 |
| 16 | V5 | 5; 19 | 2 |
| 17 | V6 | 5; 19 | 2 |
| 18 | V7 | 1; 5; 17; 19; 20; 21 | 6 |
| 19 | V8 | 3; 6; 7; 8; 22 | 5 |
| 20 | V9 | 5; 6; 7; 8; 9; 10; 11; 12; 16; 20; 21 | 11 |
| 21 | T1 | 1; 3; 5; 6; 7; 8; 20 | 7 |
| 22 | T2 | 5; 6; 7; 8; 9; 10; 12; 20; 21 | 9 |

7. REFERENCES

- MIROS (2015). Acceptance And Effect Of Road Safety Campaigns TV Advertisement on Motorcyclists In Kuala Lumpur Federal Territory According To The Social Justice Theory. Available on <http://www.miros.gov.my/1/page.php?id=125&k=safety%20campaign>. (Accesed on 7 May 2015).
- Putranto, L.S., Rostiana (2015). *Review on Motorcycle Rider Safety Campaign Material in Indonesia*. 1st Circular of Safety Research Group of Inter-University Study Forum on Transport, August 6. Depok, Indonesia.
- Putranto, L.S., Setyarini, N.P.S.E., Rostiana, Bunawan, R. (2014) *Motorcycle Rider Behaviour of Tarumanagara University Lecturer and Employer*. Proceedings of 17th International Symposium of Inter-University Study Forum on Transport, August 23, Jember, Indonesia.
- Rundmo, T. Iversen, H. (2004). Risk perception and driving behaviour among adolescents in two Norwegian counties before and after traffic safety campaign. *Safety Science* 42, 1-21.