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Development of a Safe Driver's Attitude Intervention Module Based on the SaringSikap Screening Method

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Abstract

The human factors are consistently the leading cause of road crashes in Malaysia and worldwide. This study would like to support the government's effort to reduce road crashes by proposing a comprehensive driver's intervention module based on the *SaringSikap*/ASDS46 screening method. A total of 240 volunteers had undergone the screening process. Domain 1 (D1) scored the highest high-risk attitude score, and Domain 2 (D2) was the lowest. This intervention will benefit all groups of road users in Malaysia. It also will assist the government in reducing road crashes in the future through education and empowerment programs.

Keywords: Human factors; SaringSikap/ASDS46; Road crash; Driver's intervention

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1.0 Introduction

The driver's attitude is always a reference to the occurrence of a road accident both inside and outside the country. In general, 1.35 million people die every year, 3,700 every day on the roads, and 18 people are killed in road accidents every day (Ministry of Transport, 2023). This phenomenon contributes to substantial economic losses for individuals, families, and the country. According to MIROS Malaysia, the value of life (VSOL), the Malaysian government has lost at least RM3.12 million for each life (Ibrahim & Wah, 2023). Many studies have been conducted that can relate to the driver's attitude and where human error contributes to accidents. Human factors and poor driving performance are the most significant contributors to car accidents globally, as shown by a series of studies exploring the causes of traffic road accidents (Cocius, 2023). The negative attitudes of drivers, such as acting aggressively on the road, not obeying the rules, and lack of respect and patience for other users, are among the examples that usually lead to

eISSN: 2398-4287 © 2024. The Authors. Published for AMER & cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), and cE-Bs (Centre for Environment-Behaviour Studies), College of Built Environment, Universiti Teknologi MARA, Malaysia. DOI: https://doi.org/10.21834/e-bpj.v9i27.5657 accidents. In addition, a report from an international driving education firm, Zutobi, placed Malaysia among the ten most dangerous countries to drive. The country was placed eighth with a recorded safety score of just 5.63 out of 10. This situation gives the impression that road accidents in our country have become a habit. This report also raises the question of the extent to which the driving learning system in Malaysia can produce prudent drivers, thus reducing the risk of accidents (BHOnline, 2022). The number of these problematic drivers may be only a minority group, but it directly poses a danger to all road users. Because of this emerging danger, it has a substantial direct impact on our quality of life in this country. As a reference, previous studies on Attitude Screening have discussed how this attitude screening can help identify the risk level of a driver's attitude (Masuri, 2016, 2017, 2020). The development of SIKAP101 is in line with what was discussed before. Therefore, this study holds that changing the driver's attitude is the ultimate solution to reduce the risk of crashes on our roads.

This study highlights the development of a safe driver's attitude intervention module, which will later be known as SIKAP101, based on the SaringSikap/ASDS46 screening method. This intervention module was developed based on previously published models and screenings. The study successfully matched the appropriate rehabilitation recommendations based on six domains (D1 - D6) from SaringSikap/ASDS46 240 respondents who participated in the previous study. This Safe Driver's Attitude intervention module was developed using the driver's attitude screening form, SaringSikap/ASDS46. This study is critical and significant because it will be able to support the ecosystem formed through MS2756:2023 (2023). The proposed intervention can provide added value, especially in the national road safety education and empowerment program. This study explores specific driver's attitude interventions that may reduce traffic crashes in Malaysia. In addition, this study will also investigate the components of driver attitudes that need to be prioritized in planning appropriate interventions. This study aims to identify the components of the driver's attitude according to the order of priority that should be given attention in the intervention program. In addition, the intervention module developed will also try to determine the attitude intervention component more specifically.

2.0 Literature review

The focus and discussion on the problem of driver attitudes in this country have been around for quite some time, and certain parties are still looking for the best solution to overcome this matter. The government can spend millions of ringgit implementing advocacy programs, education, and intensifying enforcement activities. However, ultimately, the individuals, as drivers and road users, need to change and obey the rules. Various efforts have been and will be made by the government in dealing with this issue. Among these noble efforts is document MS2756:2023 Road traffic safety - Good practices for platform providers in implementing work-related road traffic safety management (MS2756:2023, 2023). This study is aware of this, and among the suggestions for proactive improvement that can be thought of is to provide a platform to profile drivers' attitudes towards healthy and safe driving practices. This study believes the dangers of driver attitudes can be guided. The first step in this process is continuing education. The practice of no followup once a person has a driver's license needs to be changed. Humans must constantly be 'reminded' about good manners on the road. Continuous education must be implemented strategically for all road users, including those with a license. At the same time, through this continuous education, the driver's competency level will also be improved over time. This education process should also be introduced and implemented early, for example, when obtaining a driver's license. Attitudes and behavior may be influenced by surrounding factors (Mustaffa, 2019). With regards to 'surrounding factors,' one critical effort that is needed to ensure people around us behave appropriately is through proper education, example, and practice. The public should be educated as early as possible. Education is crucial in changing drivers' behavior by influencing their knowledge, attitudes, and understanding of road safety. Road Safety Education (RSE) is widely known as a reliable determinant of future health and welfare results and an undisputed factor contributing to individuals' social behavior and mid- and long-term road safety outcomes (Alonso, 2018).

The problem of drivers' attitudes in Malaysia has been widely debated in previous studies (Masuri 2012, 2015a, 2015b). Based on the findings of this study, the idea of developing SIKAP101 was formed. Education contributes to changing drivers' behavior by providing them with knowledge, shaping their attitudes, improving their skills, and fostering a sense of responsibility. Through theoretical understanding, practical training, and ongoing awareness efforts, education helps create a safer driving culture and reduces the likelihood of accidents and injuries on the road. A well-designed and comprehensive driver education program can positively impact drivers' attitudes, knowledge, and habits. Educational programs and awareness campaigns about road safety among drivers and other vulnerable road users should be systematically organized (Cociu, 2023). Designing an effective road safety education program requires careful planning, consideration of target audiences, and a multi-faceted approach. In the module development process, this study has carefully investigated and determined the fundamental components that are compulsory to be included in the module. In order to achieve the objective, the PreSiM model (Masuri, 2018) is used as a reference. PreSiM is one of the previous models emphasizing the importance of the risk screening process, recovery, and maintenance. In theory, human behavior should always be guided toward goodness and be warned because, by nature, it is easy for humans to forget. The results section will further explain the detailed information related to the SIKAP101 syllabus.

3.0 Methodology

The development of SIKAP101 has used a multi-stage data collection approach. Attitude screening data was obtained based on previous studies using the cross-section method. From the data obtained, matching themes and module content are developed. SIKAP101 is then sent to the authorities for evaluation and comments. The development process of the SIKAP101 is based on a reference to the main keyword of the SaringSikap/ASDS46 domain. The three questions with the highest Cronbach alpha score were

used as an essential guide to form the module. Here are the related items (Q1-46) for all domains (D1-D6) in SaringSikap/ASDS46. Every piece of information that makes up the module's theme goes through a cross-referencing process between related sources where the relevant parties confirm the appropriateness and accuracy of the information. However, the first draft of the feedback report still needs to be confirmed in writing by the authorities. In general, it was well received verbally by the JSPT PDRM. The development of SIKAP101 involved three stages of the process as follows:

3.1 Stage 1 – Module development using thematic analysis – themes were based on a previous study (Masuri, 2020, 2023). As for reference, the domain and top three items were as follows:

- D1: Self-compliance Q39, Q40, Q41
- D2: Self-confidence Q15, Q17, QQ14
- D3: Self-benefit Q23, Q10, Q24
- D4: Self-concern Q43, Q44, Q35
- D5: Self-style Q8, Q7, Q21
- D6: Self-preparedness Q6, Q5, Q4.
- 3.2 Stage 2 Risk analysis
 - Cross-sectional survey (N=240)
 - Attitude analysis matrix SaringSikap/ASDS46 calculator
 - Intervention matching is based on the respondent risk score.
 - 20 items attitude reflection test based on each domain
- 3.3 Stage 3 Intervention evaluation
 - The evaluation will focus on the raw score increments and positive color-changing
 - High risk poor
 - Medium risk moderate
 - Low risk reasonable.

*For information, when the initial screening is held, participants are free to decide whether they want to share their data. Unfortunately, stage 3 could not be completed due to the constraints of incomplete personal data from the participants.

4.0 Result

The result section will discuss the process and outcome of module development. Various resources (online and offline) were used in collecting module information. This module is pending comment and approval from the authority. As far as this study is concerned, it has received positive verbal comments from the authorities.

4.1 Stage 1

Results from stage 1 are divided into three sub-components: determination of course learning outcomes (LO), course content development, and course assessment.

4.1.1 Learning outcomes.

The development process of this SIKAP101 module is generally guided by curriculum development as used by Malaysian Qualification Agencies (MQA). This module contains general information, objectives, teaching methods, and assessment components. The first step involves setting learning outcomes (LO) where six objectives have been identified as follows:

- 1. To promote awareness of the importance of road safety.
- 2. To educate road users about safe practices and rules.
- 3. To encourage responsible and considerate road behavior.
- 4. To promote a deeper understanding of road safety.
- 5. To equip participants with practical skills for safe road use.
- 6. To reduce the risk of accidents and injuries on the road.

4.1.2 Course content.

As stated above, the development of this intervention module is guided by the domain obtained previously from SaringSikap/ASDS46. The following is the definition and content of the intervention that has been selected based on the appropriateness of the domain themes. Due to word restrictions, this section will only include the top three main themes of syllabus content for each domain. As the methodological section explains, the headings are related to the domain themes.

D1: Self-Compliance

Self-compliance with traffic rules and regulations refers to individuals voluntarily adhering to the established rules and regulations governing traffic and road safety. It is an essential component of a well-functioning traffic system and contributes to safer and more efficient roadways.

- i. Following traffic laws
- ii. Safe and defensive driving

iii. Respecting parking rules

D2: Self-Confidence

Self-confidence in the context of traffic rules and regulations refers to an individual's belief in their ability to navigate the road safely while adhering to established traffic laws and regulations. While "self-confidence" is more commonly associated with personal beliefs and attitudes, it plays a significant role in road safety.

- i. Positive attitude
- ii. Safe driving practices
- iii. Resisting peer pressure

D3: Self-Benefit

Self-benefit in traffic rules and regulations refers to individuals or road users making choices and following traffic rules based on personal advantages, safety, and well-being. Individuals often consider how compliance with these rules can benefit them personally.

- i. Personal safety
- ii. Avoiding fines and penalties
- iii. Lower insurance premiums

D4: Self-Concern

Self-concern in traffic rules and regulations refers to individuals making decisions and adhering to traffic laws based on their well-being and safety. In the context of traffic rules and regulations, people often consider how compliance with these rules can directly impact their own lives and safety.

- i. Personal safety
- ii. Avoiding accidents
- iii. Financial consequences

D5: Self-Style

Self-style in the context of traffic rules and regulations is not a commonly recognized or standard term. Unique driving styles and habits can influence how individuals interact with traffic rules and regulations. The actual laws and regulations are established by government authorities and are meant to be followed uniformly to ensure road safety.

- i. Adherence to traffic rules
- ii. Interpretation of rules
- iii. Cultural and regional differences

D6: Self-Preparedness

Self-preparedness in the context of traffic rules and regulations refers to an individual's proactive efforts to equip themselves with the knowledge, skills, and mindset needed to navigate the road safely and responsibly while adhering to traffic laws and regulations. It involves personal responsibility for understanding and following the rules of the road.

- i. Knowledge of traffic rules
- ii. Driver's education
- iii. License requirements

4.1.3 Module assessment.

The proposed learning process is face-to-face, and the maximum number of contact hours is 8. At the end of this course, the participants' achievements will be evaluated based on the following evaluation breakdown:

: 50 marks

- i. Objective assessment (LO1, LO2, LO4)
- ii. Group presentation (LO3, LO5, LO6) : 50 marks
- iii. Domain log book (LO1 LO6): Pass/Fail.

4.2 Stage 2

A total of 240 participants participated in this screening. The majority of respondents were female and dominated by the Malay race. The age group involved is between 19 and 32 years old. Of the six screened attitude domains (D1-D6), D1 dominates the total score of the high-risk category, followed by D5, D6, and D2. Table 1 shows the distribution of respondent risk levels according to the domain and the respondents' demographic data.

Table 1. Demographic data						
Characteristic (N=240)	Frequency (percentage)					
Gender						
Male	65 (27.1)					
Female	175 (72.9)					
Age						
18-22	166 (69.2)					
23-27	69 (28.2)					
28-32	5 (2.1)					
RTA offences						
Speeding	112 (46.7)					
Against red light	97 (40.4)					
Safety belt	74 (30.8)					

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Mobile phone	88 (36.7)	
Carelessness	73 (30.4)	
Double line	43 (17.9)	
Overtaking queue	16 (6.7)	
Signaling	30 (12.5)	
Emergency lane	13 (5.4)	
No respect for other drivers	7 (2.9)	
Not wearing helmet	37 (15.4)	
All offences	5 (2.1)	

Table 2 shows the total score for each domain according to the risk level. Self-compliance was the most critical issue among drivers (26.3%). Self-style (7.9%) falls under the second highest, followed by self-preparedness (5.8%). Even though the number of respondents with a high-risk level is low, a severe program to attitude intervention is required.

Table 2. Domain and risk level according to domain among 240 respondents												
Domain	in D1		D2		D3		D4		D5		D6	
and risk	Frequency	%										
level												
High	63	26.3	3	1.3	1	.4	5	2.1	19	7.9	14	5.8
Medium	125	52.1	28	11.7	15	6.3	65	27.1	124	51.7	97	40.4
Low	52	21.7	209	87.1	224	93.3	170	70.8	97	40.4	129	53.8

Table 2 also shows the number of high-risk respondents who require SIKAP101 intervention. As we can see, the D1 dominated the intervention requirement. Suppose we look back to previous studies (Masuri et al., 2012, 2015a, 2015b, 2016). Most participants had the same problem: poor compliance with road traffic rules and regulations. From this result, our authority can decide the priority of intervention, focusing on improving people's compliance with traffic rules.

5.0 Discussion

A well-designed road safety education program can have a profound and positive impact on individuals, communities, and society as a whole. SIKAP101 was systematically designed and organized to ensure effective results. This is similar to the critical process as suggested by (Cociu, 2023). The effectiveness of this program depends on its ability to address various aspects of road safety comprehensively. As a draft, SIKAP101 has tried to fulfill the needs of the ideal road user model. SIKAP101 is a well-executed road safety education program with significant potential to save people's lives. Proper exercise will help prevent injuries and contribute to the overall well-being of our road society. By combining knowledge dissemination, behavioral change strategies, practical training, and collaboration with stakeholders, SIKAP101 can create a safer and more responsible road environment for everyone. Road safety education is an investment in communities' present and future well-being, promoting a shared responsibility for safety on the roads. This developed SIKAP101 has tried to meet the characteristics of an 'ideal' driver. However, according to previous studies and references in the science of human behavior, Humans are the most complex living organisms (Masuri, 2012, 2015a), and attitudes may be influenced by surrounding factors (A. A. Mustaffa, 2019). Something ideal like SIKAP101 must be addressed to meet the educational needs of the human attitude. SIKAP101 was developed by examining the characteristics of the attitudes of Malaysian road users. The completion of this module has considered the principle of KAP, where every behavior change should begin with filling in appropriate knowledge. However, one thing that is usually overlooked is the primary assessment of the need for knowledge. With a combination of risk assessments, this KAP principle will be easier to achieve and will become more effective. In principle and theory, the principle of KAP will be simple and effective with accurate evaluation. These characteristics meet the demands of the basic theory of learning and recovery. However, this study is aware that the actual effectiveness test needs to be done on the driver himself. The effectiveness of SIKAP101 is highly dependent on implementing this module in the target group. An effectiveness study will be conducted once it is adopted later.

Further studies need to be done to identify the effectiveness of an intervention. Such studies usually require a lot of time and cost. SIKAP101 also needs to stay in this process, and it is hoped that the authorities will adopt this proposal. As a developing country, Malaysia must always be ready to change for the better, and attitude is the primary key to our future progress.

6.0 Conclusion & Recommendations

Looking at the accident trends and the leading causes of crashes in Malaysia, human behavior always dominates as the cause of crashes. Human error is one of the main factors in this crash. Unfortunately, the country has not been able to find and carry out appropriate and effective interventions to reduce this human error for a long time. For now, the Road Safety System (KEJARA), which uses the point demerit system, is the best step to educate drivers in Malaysia. KEJARA can prevent drivers from having many traffic summons, which can cause danger to other users. With this SIKAP101, all drivers who collect demerit points on traffic summons can be referred for intervention. In addition, this program will improve the ministry's monitoring process for these risky drivers. This study would like to suggest to the authorities that if every driver who has followed the rehabilitation process but the number of KEJARA points has reached the maximum level, then their license should be canceled or suspended for a certain period. They should not be allowed to drive because they are dangerous and should not be allowed to be on the road. The introduction of SIKAP101 is the best

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opportunity for the government to enforce the KEJARA system fully. In conclusion, regarding the direction of future research, the use of SIKAP101 requires field tests both from within and outside the country. About that, a cooperation framework between local authorities and cooperation with the Universitas Indonesia (UI) is being drawn up to successfully pilot and prepare this intervention module.

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Paper Contribution to Related Field of Study

SIKAP101 is an academic product based on in-depth research. This type of module is the first to be developed in this country. Although it may not seem perfect, the trial and implementation of this module will positively affect road users in this country. SIKAP101 can help the authorities deal with the problem of drivers' attitudes in Malaysia. However, enforcing regulations and laws must be carried out parallel to this intervention module. The researchers hope that this module will help the authorities reduce the rate of road accidents by the year 2030.

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