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Implicit Attitude to Speeding: Instrument Development and Validation



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We still have a long way to go in this business of saving lives.

Abstract

Speeding – while has been acknowledged as the main contribution to the safety outcome, has yet to receive sufficient fundamental research to explore its determining factors. Previous studies have demonstrated the role of attitude in influencing speeding behaviour. This insight, however, was more applicable to the attitude that normally relied on self-report. With the recent development of attitude research, in particular the idea of implicit versus explicit attitude, the study has developed Speeding-IAT – a computerised instrument to measure cognitive association of speeding and favourableness – to explore the implicit attitude of road users in Malaysia towards speeding. The results indicated that 80% of participants indirectly consider speeding favourable (i.e. have positive implicit association to speed); thus shedding some light to why speeding is the main issue in Malaysia. Further, examining the correlation between explicit and implicit attitudes towards speeding revealed a counter-intuitive inverse relation. The discussion section offers some potential explanation of these findings as well as future direction in further uncovering about '*mondobut*' or '*membesit*' – among local colloquial phrases to speeding.

1. Introduction

Malaysia, a beautiful nation of various potentials is dashing forward with her vision to achieve developed nation status. The swift progress of urbanity, connectivity and personal mobility accelerate the economic growth striving for betterment of the people. Ironically, this betterment driven vision also escalates the health risk to the people: Those development-friendly and faster transportation encourages not only better trading and business activities, but also motivates people to '*mondobut*' or '*membesit*' – among local colloquial phrases to 'speed' – more on the roads.

Central to the safe system approach, speed plays a big role in the safety of road users. Its influence spans across a continuum of before and during crashes events: e.g. from the focusing angle when driving, to the response gap upon encountering hazard, and to the severity of injury (or death).

Imbedded in the personal oriented mobility (relative towards public transportation-oriented), speed has become a longstanding and complex factor to road safety in Malaysia. Enforcement, while has been showing effective in combating the unnecessary high speeding, suffers from implementation constraints – both financial and spatial effectivity.

Therefore, addressing speeding from other points of view necessitates fundamental uncovering of the problem determinants. Previous studies have investigated the contribution of attitude to speeding. This study intends to explore along the same line, however, employing a response time-based paradigm in measuring the attitude of road users towards speeding indirectly.

1.1 Objectives of the Study

To explore the influence of attitude to speeding using a response time-based procedure, the study needed to develop the instrument before validating the implicit attitude.

Specifically, the study targeted the following:

- i. to develop an implicit association test for speeding (Speeding-IAT); and
- ii. to determine convergent validity of the Speeding-IAT by assessing the relationship between IAT-measured implicit attitudes to speeding and self-reported explicit attitudes to speeding.

1.2 Study Scope

The Speeding-IAT developed for this study is applicable for the desktop platform only. Participants accessing the application via smartphone will not be able to properly use the application.

The investigation of speeding in this study only focused on road users within Klang Valley.

2. Literature Review

Road safety is a prominent issue in Malaysia. The Royal Police Malaysia (PDRM) reported that for this rapidly developing country, she suffers from 7152 of road deaths for 2016, a 446 increment from the previous year. Speeding is recognized as an important contributor to road crashes, increasing both the frequency (Vernon, Cook, Peterson, & Michael Dean, 2004) and severity (Moore, Dolinis, & Woodward, 1995) of road crashes. Digging further into the national road fatality statistics, 23% of the number is attributable to driving at the inappropriate speed (Rahim, Jamil, Musa, Isah, & Wong, 2014).

To simply define speeding is driving at a speed above the speed limit (WHO, 2004). Even that is not inclusive. For example, during a heavy monsoon downpour, driving 80 km/h at a 110 km/h posted speed limit stretch is inappropriate and risky – speeding. In Malaysia, drivers who self-reported to frequently speed were, respectively, 2.25 and 2.08 more likely to receive traffic summons, and to get involved with crashes (Ab Rashid, Azman, Ilyas, & Low, in press).

Attitudes, through their influence on the formation of intention, have been theoretically and empirically linked to behaviour outcomes (Ajzen & Fishbein, 2005; Marcil, Bergeron, & Audet, 2001). Attitudes appear to have both a cognitive and an affective component, that each plays a role in the formation of behavioural intention.

Eagly and Chaiken (1993) defined an attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor." Gray's (2002) interpretation of attitude was simply as "evaluative judgements". Later, Eagly and Chaiken (2007) argued that evaluative judgments as "expression of the inner tendency that constitutes attitude", instead of synonymous with attitude itself. The current study has no intention to scrutiny the definition of attitude and would like to focus more on the application towards speeding at the attitude object. In simpler terms, a negative

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attitude to speeding reflects that road users' belief on speed as 'bad', whereas a positive attitude to speeding carries the view that speeding is 'good'.

A meta-analysis Kraus (1995) conducted on 88 attitude-behaviour studies that revealed that attitudes significantly and substantially predict future behaviour. This analysis is not specific to road safety or speeding specifically, however.

Review of some speeding related studies and attitude revealed consistent results, nevertheless. In Belgian study, an affectively positive attitude towards speed limits has a positive impact on self-reported behaviour (Pelsmacker & Janssens, 2007). In Australia, a roadside survey reported that driver attitudes towards what constituted a safe travel speed were related to speeding behaviour – a substantial number of motorists interviewed believed it was not dangerous to exceed the posted speed limit by 30km/h at both rural and urban locations (Fildes, Rumbold, & Leening, 1991). Furthermore, speeders perceived less risk of a serious crash, reported greater likelihood of exceeding the speed limit when they believed they would not be detected, and reported a higher level of social acceptability of speeding (Stephens, Nieuwesteeg, Page-Smith, & Fitzharris, 2017).

These above studies, including those, meta-analytically reviewed, employed explicit attitude measures, i.e. respondents self-reported their beliefs on speeding. Self-report is often employed in studies of driving behaviour, and indeed until fairly recently, it has been regarded as the only way of measuring attitudes. Further, self-report may be susceptible to inaccuracies of recall (in the case of behaviour) or reporting (in the case of behaviour, attitudes and beliefs). In particular, reporting may be distorted by several response biases, including socially desirable responding (see Paulhus, 1989), which has arguably been of most concern in the context of road safety research (for examples see Lajunen, Corry, Summala & Hartley, 1997; Parker, Manstead, Stradling, & Reason, 1992).

Therefore, "objective" measures are typically regarded as a valuable addition to the research arsenal. For example, speeding is sometimes assessed via observation, or with reference to archival driving records. An "objective" measure of attitudes to speeding might not only enhance confidence in the research interest but also increase its utility

in preventive intervention development. Observing directly the behaviour certainly provide higher utility, but the complexity and resource-intensive of the measure are of concern.

Current study, while not adopting totally naturalistic approach in measuring speeding behaviour, intends to capture speeding determinant (i.e. attitude) in a more objective measure – non-self report approach. Specifically, the study aimed to employ the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998).

To the best of the author's knowledge, implementation of IAT in measuring speeding, in fact in any other directly road safety-related constructs, is unavailable for Malaysian context. Hatfield, Fernandes, Faunce and Job (2008) has explored the IAT in road safety context by developing and validating IAT measure with other measures including self-report and driving simulator. The study has concluded the validity of IAT to measure attitude towards speeding without reliance on the self-report method.

2.1 Implicit Association Test

The main concept of IAT lies within the mental association between a target-concept (in this study, it is driving at high speed vs normal speed) and an evaluation (good vs bad). Each concept is normally represented with neutral words as stimuli. The IAT measure clutches on the response time when the target-concept stimuli and the evaluation stimuli are presented together. The task should be easier (i.e. lesser cognitive interference) when the target-concept aligns with participants judgment of it.

For example, when the test presented '*pantas*' (target-concept stimulus) and '*seronok*' (evaluation stimulus), road users who consider that 'going fast is fun' would feel easier to response relative to when stimuli '*pantas*' and '*jahat*' appeared. Contrasting the response time between '*pantas-seronok*' and '*pantas-jahat*' would provide the IAT measure or IAT-effect. Depending the design of IAT, the IAT-effect represents attitude (e.g. Greenwald, McGhee, & Schwartz, 1998) or stereotypes (e.g. Rudman, Greenwald,

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& McGhee, 2001) *inter-alia*. The current study aimed to measure the implicit attitude towards speeding.

Previous studies have demonstrated the utility of the IAT to measure attitudes associated with obesity (Burgess & Faunce, 2006; Faunce & Golding, 2002), homosexuality (Banse, Seise, & Zerbes 2001; Steffens & Buchner, 2003), smoking (Swanson, Rudman, & Greenwald, 2001), presidential candidates (Nosek, Banaji, & Greenwald, 2002), consumer products (Brunel, Collins, Greenwald, & Tietje, 1999; Maison, Greenwald, & Bruin, 2001), and social anxiety (Tanner, Stopa, & De Houwer, 2006), among others.

3. Methodology

This a quantitative study involving two (2) tasks:

- i. Task 1: Development of Speeding-IAT
- ii. Task 2: Convergent Validation of Speeding-IAT

3.1 Task 1: Development of Speeding-IAT

The IAT development was a web-based application running only on local computer. The web technology involved were HTML, Javascript and PHP running across different web browsers on the desktop platform. Participants response were recorded using the standard keyboards.

The IAT required words as the stimuli. To determine these words, researchers approached 10 frequent road users to identify seven (7) mostly associated words with the following four (4) categories: 'kelajuan tinggi', 'kelajuan sesuai', 'baik', and 'buruk'. From the 70 recorded stimuli candidates, researchers had a discussion to determine seven (7) most associated words for each category (see Table 3 for the results).

3.2 Task 2: Convergent Validation of Speeding-IAT

3.2.1 Explicit Measure

Besides the above-developed Speeding-IAT, the second instrument developed for this study was a self-report questionnaire to capture explicit attitude towards speeding (EAS), as well as speeding expression (SPE). Table 1 summarises the questions and their related construct.

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Table 1 Items for both explicit speeding attitude and speeding expression constructs

| Construct | Items |
|----------------------------------|--|
| Explicit speeding attitude (EAS) | 1) "Menunggang/memandu laju adalah suatu keperluan." Bagi saya, kenyataan ini ... |
| | <i>sangat salah</i> 1 2 3 4 5 6 7 <i>sangat tepat</i> |
| | 2) Saya betul-betul percaya menunggang/memandu laju adalah sesuatu yang... |
| | <i>sangat buruk</i> 1 2 3 4 5 6 7 <i>sangat baik</i> |
| Speeding expression (SPE) | 3) Kekerapan saya menunggang/memandu pada 35 km/j di zon 30 km/j adalah: |
| | <i>sangat rendah (Tidak pernah)</i> 1 2 3 4 5 6 7 <i>sangat tinggi (Sudah pasti)</i> |
| | 4) Kekerapan saya menunggang/memandu pada 40 km/j di zon 30 km/j adalah: |
| | <i>sangat rendah (Tidak pernah)</i> 1 2 3 4 5 6 7 <i>sangat tinggi (Sudah pasti)</i> |
| | 5) Kekerapan saya menunggang/memandu pada 95 km/j di zon 90 km/j adalah: |
| | <i>sangat rendah (Tidak pernah)</i> 1 2 3 4 5 6 7 <i>sangat tinggi (Sudah pasti)</i> |
| | 6) Kekerapan saya menunggang/memandu pada 100 km/j di zon 90 km/j adalah: |
| | <i>sangat rendah (Tidak pernah)</i> 1 2 3 4 5 6 7 <i>sangat tinggi (Sudah pasti)</i> |

3.2.2 Implicit Measure

Derivation of the implicit speeding attitude (IAS) from the responses times of all Speeding-IAT stimuli involved two (2) approaches: the conventional *Log* and the improved *D* measures.

The former measure included contrasting between the mean of natural logarithm transformations of individual-trial latencies in block 4 and block 7. Further details on the

computation steps are available by Greenwald, Nosek and Banaji (2003). For the current study, we have normalised the value to linearly reflect the attitude: i.e. positive *Log* measure indicates a positive attitude to speeding and otherwise.

The second, improved measure of IAT was the *D*. Also, Greenwald et al. (2003) has demonstrated the improvements of the measure and provided details of the computation steps. Unlike *Log*, the *D* measure divides the difference between block 4 and 7 means by the standard deviation of all the latencies in these blocks. To reflect a more intuitive understanding, the direction of the score has been normalised in the current study as for positive *D* corresponds to a positive attitude to speeding.

3.2.3 Sampling

The primary data collection using both instruments involved participants recruited using convenient sampling method at various organisations (government agencies and colleagues) within Klang Valley.

At all data collection sites, researchers arranged the meeting with participants in a room with four laptops and questionnaires set-up on a table. As to reduce the order effect (see Greenwald et al., 2003), counterbalance procedure was adopted with two (2) of the laptops presented block 2, 3, and 4 after block 5, 6, and 7 took place.

Upon completion, all the tasks, participants received food voucher as a token of appreciation for the time they spent in this study.

4. Results

This chapter contains two (2) subchapters to address the two (2) tasks accordingly.

4.1 Results of Task 1: Development of Speeding-IAT

The codes of Speeding-IAT is available with the lead author of this report. Table 2 summarises the Speeding-IAT. It contains 7 blocks as per the standard IAT (Greenwald et al., 1998).

Table 2 Sequence of trial blocks in the Speeding-IAT

| Block | No. of trials | Stimuli assigned to left key response (words) | Stimuli assigned to right key response (words) |
|-------|---------------|---|--|
| 1 | 14 | <i>Kelajuan tinggi</i> | <i>Kelajuan sesuai</i> |
| 2 | 14 | <i>Baik</i> | <i>Buruk</i> |
| 3 | 28 | <i>Kelajuan tinggi + Baik</i> | <i>Kelajuan sesuai + Buruk</i> |
| 4 | 28 | <i>Kelajuan tinggi + Baik</i> | <i>Kelajuan sesuai + Buruk</i> |
| 5 | 14 | <i>Buruk</i> | <i>Baik</i> |
| 6 | 28 | <i>Kelajuan tinggi + Buruk</i> | <i>Kelajuan sesuai + Baik</i> |
| 7 | 28 | <i>Kelajuan tinggi + Buruk</i> | <i>Kelajuan sesuai + Baik</i> |

Note: 125 participants (41%) received a reverse order of the stimuli – i.e. in block 3 and 4, respectively, the stimuli are from block 6 and 7. This is to reduce the ‘order effect’ (Greenwald et al., 1998; Greenwald et al., 2003).

Table 3 Stimuli for each category for Speeding-IAT

| Category | Stimuli |
|------------------------|---|
| <i>Kelajuan tinggi</i> | <i>pantas, kejar, gegas, pecut, deras, zoom, kencang</i> |
| <i>Kelajuan sesuai</i> | <i>cermat, relaks, beringat, tenteram, santai, tenang, lambat</i> |
| <i>Baik</i> | <i>bagus, seronok, senang, indah, elok, sempurna, cantik</i> |
| <i>Buruk</i> | <i>teruk, jahat, zalim, busuk, gelojoh, hodoh, tamak</i> |

In the first block, participants received seven (7) stimuli related to ‘*Kelajuan tinggi*’ and another seven (7) stimuli related to ‘*Kelajuan sesuai*’. These stimuli are in Table 3 and were presented in a random sequence. Participants had to push the left key on the keyboard whenever the ‘*Kelajuan tinggi*’ stimuli appeared, and the right key whenever the ‘*Kelajuan sesuai*’ appeared.



Figure 1 A screenshot of Speeding-IAT

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The response time computed for each stimulus were between the moment it appeared on the screen, and the moment participants push down the keys. If participants push the wrong key, i.e. left key for right stimuli, a red 'X' mark appeared on the screen, and participants had to push the other key to continue. Figure 1 shows the screenshot of Speeding-IAT for block 1, 2, or 5.

Upon completion of each block, participants had a break before they decided to continue with the next block. After completing all blocks, participants obtained their Speeding-IAT score, as well as a brief consultation of what it reflects. Researchers provided simple road safety speeding-related advice in that debriefing session. As a token of appreciation to the participants for approximately 30 to 40 minutes of their time, participants secured RM10 food voucher.

4.2 Results of Task 2: Convergent Validation of Speeding-IAT

The following three (3) subchapters intends to present the results from the explicit measures, (i.e. the questionnaires) which includes the descriptive statistics of the explicit attitude to speeding and self-report speeding behaviour; the results from the implicit measures; and finally the inferential statistical results between these explicit and implicit measures of attitude to speeding.

4.2.1 Explicit Measure Results

In this study, 305 participants participated to complete both the explicit and implicit measures. Results of the questionnaire (explicit measure) are in Table 4. EAS construct has a moderate reliability ($\alpha = .61$), whereas SPE construct has a very high reliability ($\alpha = .86$).

EAS and SPE scores were both calculated by simply adding the scores of each item. Consequently, the EAS score might be within the gamut of 2 to 14; while the SPE score ranged between 8 to 28.

The mean and standard deviation of the items for EAS construct revealed that on average, participants have a negative attitude towards speeding (i.e. they do not like to speed). Consequently, the mean of EAS construct was $M = 5.90$ ($SD = 2.61$), reaffirming the negative attitude to speed among most participants.

In contrast, SPE construct has four items that were reflecting a moderate frequency of speeding behaviour. The composite score indicating SPE construct, furthermore, revealed the mean of $M = 16.89$ ($SD = 5.47$), which is marginally above the middle point of 16 the score could have.

Table 4 Mean and standard deviation of all six questions in the questionnaire

| Construct | Items | Mean (SD) |
|----------------------------------|--|-------------|
| Explicit speeding attitude (EAS) | 1) "Menunggang laju adalah suatu keperluan." Bagi saya, kenyataan ini... | 3.09 (1.52) |
| | 2) Saya betul-betul percaya menunggang laju adalah sesuatu yang... | 2.81 (1.55) |
| Speeding expression (SPE) | 3) Kekerapan saya menunggang pada 35 km/j di zon 30 km/j adalah: | 4.16 (1.67) |
| | 4) Kekerapan saya menunggang pada 40 km/j di zon 30 km/j adalah: | 4.00 (1.60) |
| | 5) Kekerapan saya menunggang pada 95 km/j di zon 90 km/j adalah: | 4.44 (1.57) |
| | 6) Kekerapan saya menunggang pada 100 km/j di zon 90 km/j adalah: | 4.29 (1.67) |

Note: Each item in the questionnaire ranges from 1 to 7 scales. All the above results, therefore, are either above or below the middle point of 4.

4.2.2 Implicit Measure Results

Figure 2 and 3 contains histograms for D and Log , respectively. Qualitative observation of both measures indicated that most participants have a positive implicit attitude to speeding. Explicitly, only 10.8% of participants have a negative attitude towards

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speeding when using *D*. Similarly, only 11.1% of participants have negative IAS when using *Log*.

Using the *D* measure, IAS has general mean of $M = .46$ ($SD = .37$), while using the *Log* measure, the general mean of IAS was $M = .29$ ($SD = .23$). Scoping the analysis by positive and negative sections, the means of *D* are: $M_{D-positive} = .55$ ($SD_{D-positive} = .27$), and $M_{D-negative} = -.25$ ($SD_{D-negative} = .22$). Applying the same analysis for the *Log* revealed the following: $M_{Log-positive} = .34$ ($SD_{Log-positive} = .19$), and $M_{Log-negative} = -.09$ ($SD_{Log-negative} = .09$).

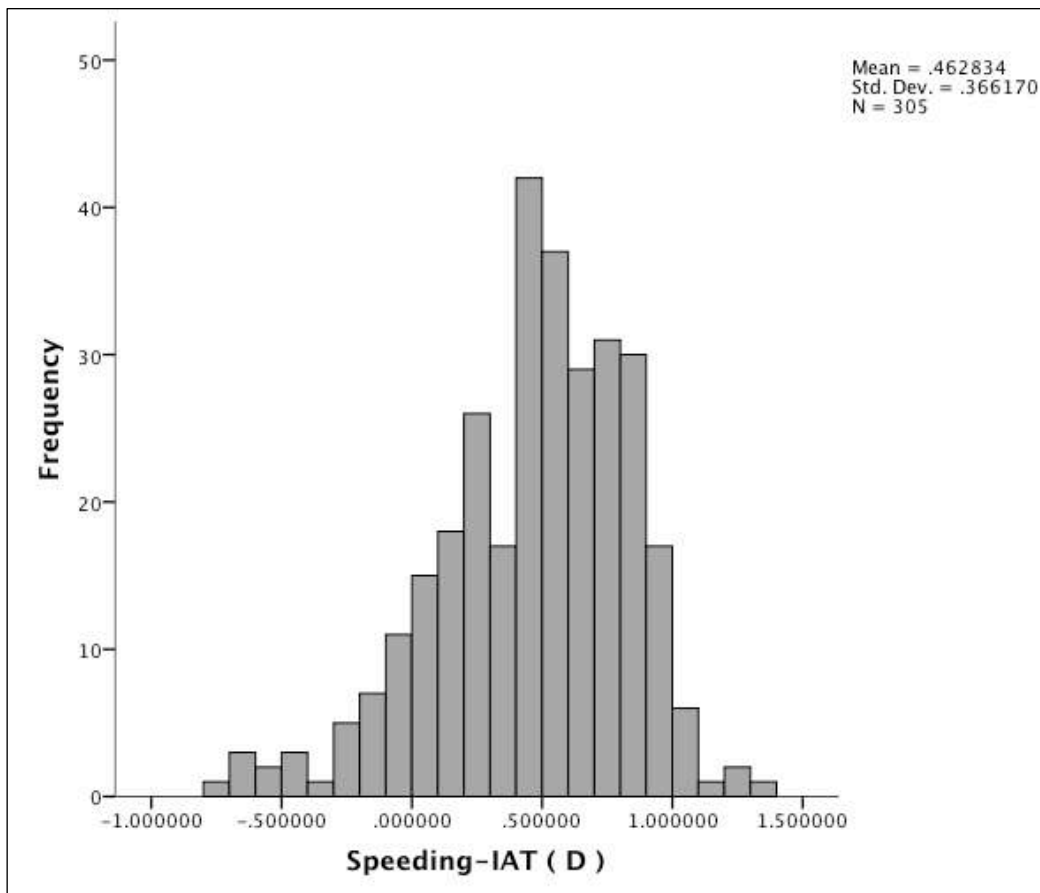


Figure 2 Histogram of *D* measure of IAT

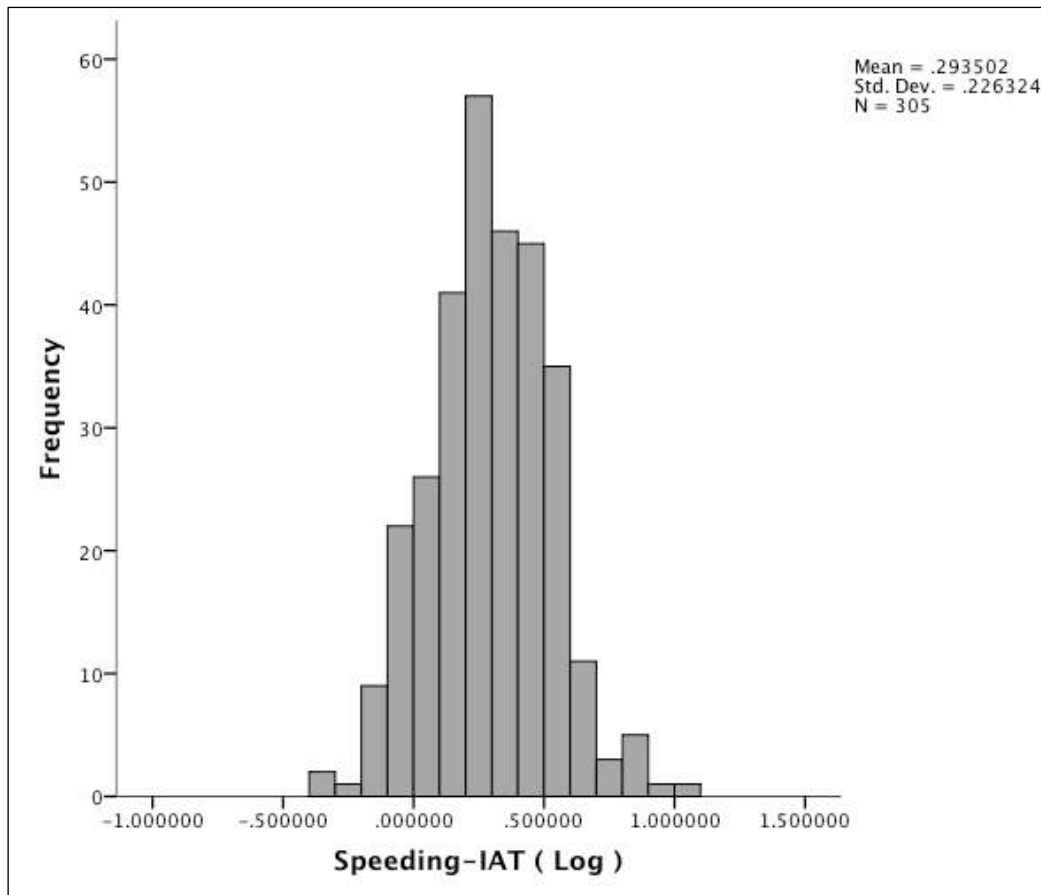


Figure 3 Histogram of *Log* measure of IAT

4.2.3 Explicit-Implicit Convergence Results

The next analysis involved establishing the convergence validity between EAS and IAS. Figure 4 contains scatter plots between both IAS measures and SPE. Despite the lines of best fit (red line in Figure 4) showing the negative slopes, qualitative observations of the distribution between IAD and SPE seemed to be more scattered for both measures.

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Further, Figure 5 depicts another scatter plots between both IAS measures and EAS. A similar observation of the trends was obtainable from the plots – both red lines were in negative slope in spite of relatively visually scattered distribution.

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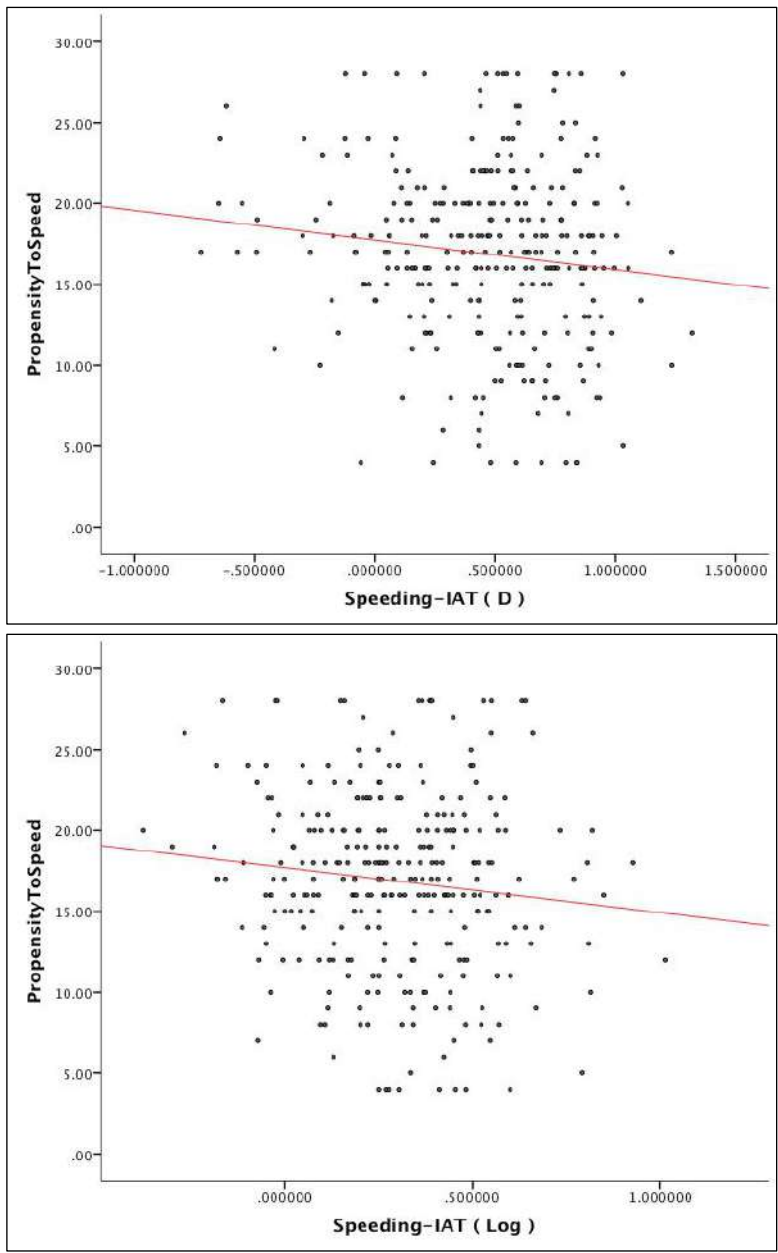


Figure 4 Scatter plot between IAS and SPE

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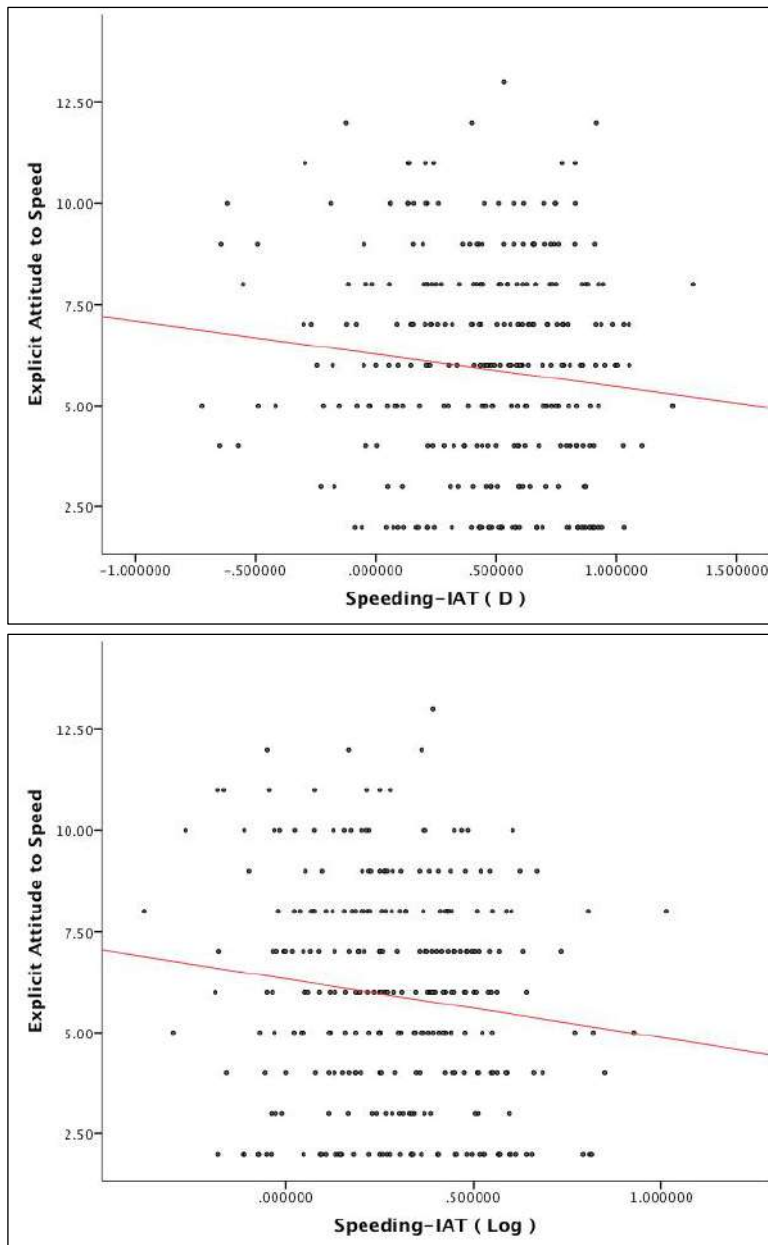


Figure 5 Scatter plot between IAS and EAS

Pearson correlation analysis between both IAS measures, SPE and EAS further supported the abovementioned qualitative observations: all correlations involving IAS and SPE and EAS were weak (representative of scattered in the scatter plot) and negative (see Table 5 for results).

Table 5 Correlation coefficients among EAS, IAS and SPE

| | EAS | IAS-D | IAS-Log | SPE |
|---------|-------|-------|---------|-----|
| EAS | – | | | |
| IAS-D | -.11* | – | | |
| IAS-Log | -.13* | .73* | – | |
| SPE | .34* | -.12* | -.12* | – |

Note: IAS-D and IAS-Log respectively represent implicit attitude to speeding using *D* and *Log* measures. All correlations marked with * are significant, $p \leq .05$.

Table 5 also contains a correlation between EAS, IAS and SPE. The correlation between both implicit attitude measures was positive and relatively strong, $r = .73$. Another positive correlation was between the explicit attitude and self-report speeding behaviour, $r = .34$; whereas the other correlations are negative and relatively weak.

5. Discussion

The present study aimed to develop the Speeding-IAT to measure the attitude of road users to speeding without explicitly asking them to report (implicit attitude), and to study the convergent validity of the implicit attitude with other measures – explicit attitude and self-reported speeding expression.

The implicit association test developed in this study clutches on the cognition mechanism where people respond faster when they relate the stimuli closer in their mind. For example, when the test presented '*pantas*' and '*seronok*' stimuli, participants who consider that 'going fast is fun' would response faster relative to when stimuli '*pantas*' and '*jahat*' appeared.

The study has successfully developed the IAT for speeding. The selection of stimuli was important as to avoid confounding 'speeding' with general 'road safety'. This is the advantage of this IAT relative to the version Hatfield and colleagues (2008) implemented when they measure implicit attitude to speeding using some stimuli that are closely related to road safety instead of exclusively for speeding.

Greenwald and Banaji (1995) defined implicit attitudes as "*introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects*". In the case of this study, the 'social objects' refers to speeding.

An interesting result of this study was the glaring imbalance number of participants who have a negative and positive attitude towards speeding. With over 80% of 'speed-likers' among the participants, it is not surprising when speeding becomes a longstanding problem in Malaysian road traffic scenario. Of course, positive attitude towards speed does not necessarily translate into the speeding behaviour due to other intervening factors such as motivation, which Devos (2008) has demonstrated, can hinder the

manifestation of the attitude. In other words, with sufficient strength of attenuating motivation curbing of speeding behaviour is possible. Automated enforcement system (AES), or simply speed cameras, *inter-alia*, has shown to be a strong factor to demotivate road users from speeding in Malaysia (Rahim et al., 2014).

Besides the abovementioned descriptive results, inferential statistical analysis results, however, make the convergent validity of the Speeding-IAT is of question. This is because of the negative relations the implicit attitude has with both its explicit counterpart and self-report speeding behaviour. *“The more road user believes that speed is bad and harmful the more likely he or she to actually commit speeding”*, is the simple interpretation of the negative correlation results. Counterintuitive indeed. In contrast, the explicit attitude towards speeding and the self-report speeding expression has a positive correlation.

To understand this counter intuitiveness requires us to take a step back and relook at the differences between definitions of implicit and explicit attitude. Unlike the explicit attitude where people deliberately think and make a judgment at the conscious level, the implicit attitude formation process, in contrast, occurs at the sub-conscious level of the mind. Therefore, to have a contradictory relation between implicit and explicit attitude is not implausible. This is because, at the conscious level, people attentively consider other influencing factors such as social identity, expectation, rational judgment, moral, etc. when reporting their explicit attitude; whereas implicit attitude reflects *“introspectively unidentified (or inaccurately identified) traces of past experience”*, as Greenwald and Banaji (1995) described it, at the subconscious level.

Whenever road users were asked about what they think of speeding, they then *intentionally or calculatively* assess the worth of the risk and potential negative outcomes associated with speeding. This, however, is not the case for the implicit attitude. Measuring the road users' implicit attitude revealed the evaluative judgments reflecting their past experiences: i.e. low likelihood of getting involved with the negative outcomes and harms associated with speeding; and instead, the gain or benefits of travelling faster seemed to be more overwhelming. Thus, speeding is subconsciously assessed or associated with goodness.

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This argument is further supported with the relatively low level of perception of being caught (POBC) Mohd Soid and Isah (2014) reported among Malaysian road users, even during the festive season when enforcement activities were high. POBC, in another word, reflected the past experiences of road users travelling on the road, which in turn influences the implicit attitude they have towards speeding.

To recap, the contradiction between explicit and implicit attitude is not inconceivable because of the differences that root in the construction mechanism of each attitude: deliberate, calculative and volitional process forming explicit attitude; while formation of the implicit attitude is more spontaneous, unconscious and instinctive. The more socially sensitive a construct is, like speeding, the more probable the two attitudes to become incongruent.

Besides the negative relation between implicit and explicit attitudes, the results also highlighted the negative relation of the implicit attitude with speeding behaviour. A potential explanation for this may originate from the same above-mentioned argument: the speeding behaviour is self-reported. The deliberations participants made during the reporting involved attention towards the social expectation that speeding is bad, hence disturbing the accuracy of the reporting. Participants might still report their infringement behaviours of speeding, but perhaps to a lesser extent.

Figure 6 summarises the relationships between these three (3) constructs – implicit attitude, explicit attitude, and speeding behaviour. Take note that the relation between explicit attitude and past speeding behaviour is positive. The next question would be to determine how these constructs influence each other. While the theory of planned behaviour (Ajzen & Madden, 1986) posited that attitude influences behaviour through intention, the reverse is also plausible: current behaviour strengthens (or weakens) the subsequent (future) attitude.

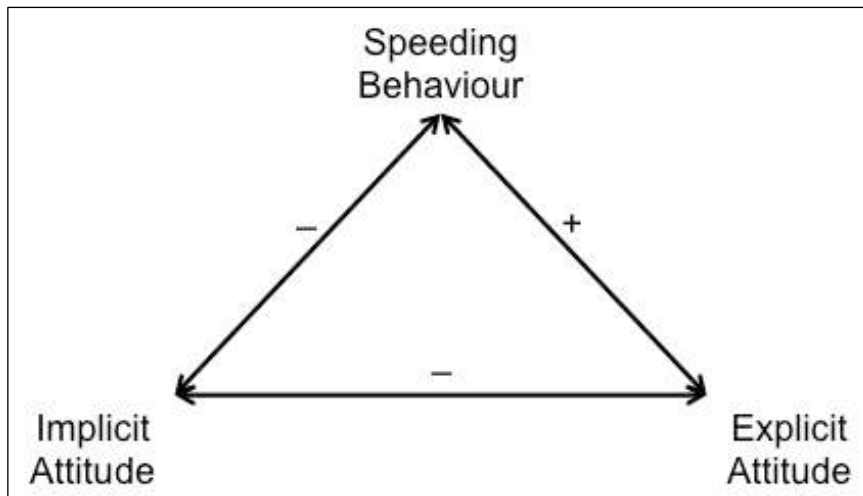


Figure 6 Visualisation of relations between constructs

If the latter is true, then the negative relation between implicit attitude and speeding behaviour holds up. For example, a driver who was late to a very important event (or to the office), or who was in an emergency might drive at a very high speed to address the urgency. Because his implicit attitude towards speeding is negative (i.e. he does not like speeding), the speeding behaviour that he forcibly committed could, in turn, further boost the negativity about speeding. This situation captures the negative relation between implicit attitude and speeding behaviour: more speeding leads to more dislike towards speeding.

Besides of the above arguments, the authors would like to also note the possibility of implicit attitude and explicit attitude to be more complex than just a simple linear relationship. This is because the distributions between implicit attitude and explicit and speeding behaviour were relatively scattered. Furthermore, Pearson's correlation only determines the degree to which a relationship is linear. In another word, the relationship between implicit and explicit attitude may be to a higher degree of complexity, beyond a simple linear correlation and surely the scope of this report.

From the perspective of intervention, it is necessary to conduct more studies to uncover the other types of motivation to intervene in the positive attitude towards speeding

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from being manifested into the behaviours. Enforcement, while having effective in addressing speeding, comes with a cost – high resources. Therefore, the established Speeding-IAT as the instrument to measure implicit attitude has opened up to more potential experiments and studies to address this problem in the future.

6. Conclusion

The study has uncovered that almost road users in Malaysia unconsciously value speeding as favourable. Accompanying this worrying finding, however, is the establishment of an instrument to measure speeding attitude without having them to self report it – the Speeding-IAT. Employing this tool, researchers have the opportunity to escalate their work in understanding more about speeding, including the identification of sufficient motivation to nullify the manifestation of positive speeding attitude on the road. Furthermore, of course, future studies are necessary to refine the utility of the Speeding-IAT into more sensitive and reflecting prospective, actual non-self report speeding behaviour among road users.

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Research Report

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