

CONCENTRATION LEVEL AND GENDER ON BEHAVIOUR ACCIDENTS IN SELANGOR

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Introduction

Malaysia recorded a total of 477,204 road accidents in 2013 with the average of 19 deaths everyday (Omar et al, 2017). Selangor has the highest rate of road accidents in Malaysia and fatality has risen to 70% in five years from 2013 to 2017 (Kamarudin et al, 2018). There is limited information or lack of studies regarding the influence of cognitive state on traffic behaviour in Selangor where there is a high rate of accidents. Baddeley's (2000) Working Memory Model was used to explain how an individual concentrate while driving by remembering the information with Visuospatial Sketchpad and Episodic Buffer and maintaining them for a short period of time. Level of concentration refers to the ability to provide an individual's undivided attention to exclude any other distractions (Academic Advising & Career Center, 2010). Gender refers to the characteristics of men and women socially, behaviourally and psychologically (Chrisler, 2000). traffic behaviour of an individual is defined as the violations, errors and lapses that the drivers made while driving (Reason et al., 1990) The purpose of this study is to observe how does the concentration level of the drivers influence their traffic behaviour. Gender is also observed to be identified if it affects both concentration level and traffic behaviour.

Hypothesis

1. There is no significant effect of driver's concentration level on driver's traffic behaviour.
2. There is no significant difference of driver's concentration level based on gender.
3. There is no significant difference of traffic behaviour based on gender.

Methodology

Research design

Quantitative survey research design was used to investigate the effect of concentration level on driver's behaviour in Selangor.

Data Collection Methods

Data was collected through Whatsapp and Facebook. Questionnaire was created using Google Form and distributed through social platforms mentioned.

Participants

A total of 81 participants who are born from or residents of Klang Valley were involved in this study using purposive sampling where there were 29 males and 52 females.

Measurements

Working Memory Questionnaire (WMQ)

with a 6-point scale (Storage domain, Attention domain and Executive domain) ranging from 0 to 5 representing Not relevant to Extremely. The high and low scores were determined as a high score in WMQ indicated lower concentration level and the low scores indicated higher concentration level. Driver Behaviour Questionnaire (DBQ) was a 5-point scale measuring Violations, Lapses and Errors ranging from 1 to 5 from Hardly Ever to Nearly All The Time. The Cronbach's alpha for both instrument were .943 and .932 respectively which means they had very high reliabilities.

Procedure

Participants were briefed which participation information sheet was provided to clarify the purpose of research and consent form was given to sign as an agreement to participate in this research before they proceed to answer the questionnaire. They were given maximum of 25 minutes to answer it. After they have finished, they were debriefed about the aim of the study and the necessary of deception in order to achieve the goal of the research.

Results

Summary of Multiple Regression Analysis for Storage Domain, Attention Domain and Executive Domain on Driver's Traffic Behaviour among Klang Valley Drivers (N=81)

Variables	B	SE B	B	T	Sig. (p)
Storage Domain	-.246	.320	-.409	-1.277	.205
Attention Domain	.658	.372	1.243	3.337	.001
Executive Domain	.061	.295	.122	.415	.680
R ²		.260			

*p < .05. **p < .01. ***p < .001

Table 1.1
Independent sample T-test between gender and working memory

Gender	N	Mean	SD	t	df	Sig (2-tailed)
Male	29	58.4138	20.31	1.258	79	.212
Female	52	64.6731	22.08			

Table 1.2
Independent sample T-test between gender and traffic behaviour

Gender	N	Mean	SD	t	df	Sig (2-tailed)
Male	29	52.8966	15.39	1.029	79	.307
Female	52	49.3846	14.36			

An independent sample T- test was used to compare the scores between genders on concentration level and on driver's traffic behaviour. Multiple regression was used to see

how Storage, Attention and Executive Domain contribute to traffic behaviour. From the Summary table, it can be seen that Attention Domain is the only contributor to driver's traffic behaviour. Hence, as working memory with attention domain increases by one (1) unit, driver's traffic behaviour increases by 1.243 units, $t(79) = 3.337$, $p < .001$. Table 1.1 and 1.2 show no significant scores in mean working memory scores and driver behaviour scores for both male and female groups respectively, $t(79) = -1.258$ and $t(79) = 1.029$.

Discussion

In Baddeley's Working Memory Model, one of the components that was included to be measured which is related to the WMQ is Central Executive. However, results in the current study shows that Attention Domain is the one that contributes in working memory instead of executive domain as the result for executive domain is not significant. By right, it should be executive domain that contributes as its role is to control a person's attention to focus on processing visual and auditory information that an individual received yet it is interesting to see that attention domain is the only contributor.

Strengths

Data collection is convenient as it is online. Participants have to distribute the

questionnaire via WhatsApp and Facebook to the people they knew who are fit to the criterias for the study (18-55, have driving license and resident from Klang Valley.

Limitations

Using self-reported working memory does not really bring out sufficient impact on traffic behaviour. The study being correlational as well, does not provide a causal link. Furthermore, the number of male and female participants were imbalanced (M=35.2%, F=64.8%).

Conclusion

Hypothesis I is rejected as the results in current findings show that there is a significant effect of driver's concentration level on traffic behaviour ($r = .439$, $p < .01$). Both hypotheses II and III are supported where there is no significant difference on driver's concentration level and traffic behaviour based on gender. Attention domain is the only contributor towards driver's traffic behaviour.

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