HOKKAIDO UNIVERSITY

Title	Structure Analysis of Latent Psychological Factors of Transportation Behaviour [an abstract of dissertation and a summary of dissertation review]
Author(s)	Long, Borith
Citation	. ( ) 11572
Issue Date	2014-09-25
Doc URL	http://hdl.handle.net/2115/57220
Rights(URL)	http://creativecommons.org/licenses/by-nc-sa/2.1/jp/
Type	theses (doctoral - abstract and summary of review)
Additional Information	There are other files related to this item in HUSCAP. Check the above URL.
File Information	Borith_Long_abstract.pdf ( )

Borith Long

Structure Analysis of Latent Psychological Factors of Transportation Behaviour
(   )

In developing countries, the fast growing population and urban development have recently caused many serious transportation problems throughout the countries. The lack of public transportation system and the increasing of number of vehicle in traffic stream which leads to the serious social problems through traffic accident are still the hot issue to be concerned with. As for Cambodia after recovering from the civil war, Cambodia has spent many years of hard working to restore and build the transportation infrastructures under the assistance and equipment from other countries. The traffic condition has gradually worsened in recent year. Even though most of infrastructures, road safety action plans, traffic management and other countermeasures have been upgrading and applying into the transportation system but still many traffic accidents, congestion, violation and other serious issues occurred. To cope with the traffic issues, the government has been doing the cooperation with national and internal organizations and other related institutions such as Japan International Cooperation Agency (JICA), Handicap international, Japan External Trade Organization (JETRO), SYSTRA and other institutions and organizations to make and revise the transportation master plan, improve transportation infrastructures and facilities, collect traffic data, conduct studies, develop countermeasures, strategies and policies in order to improve the traffic situation and make people's life better. To increase the mobility, the urban rail transportation system has been planned and proposed as a high priority project in future master plan 2020. However, to what extent the existing commuters would patronize such a system is unknown. In addition, the underlying psychological factors that could induce more public transportation are not well understand. Therefore, investigation of road users' intention, drivers' attitudes and other latent psychological factors that can help explain the possibility of using the future urban rail transport and understand drivers' perception of traffic accident is very essential.

This dissertation examines the latent psychological factors that influence transportation behaviour such as commuters' behavioural intention, their perception of future urban public transportation, drivers' perceived risk of accident and attitudes towards various risky driving behaviour such as drunk driving, distraction driving, speeding driving, careless driving and other forms of risky driving. This dissertation proposes the latent structures for analysing drivers' behaviour that incorporates the latent psychological factors into driver behaviour analysis. (1) It includes the investigation of several aspects including socioeconomic variables and psychological factors that can potentially help to explain the likelihood of future urban rail transit's usage. (2) And the investigation of the relationship between various attitudes to risky driving behaviours such as speeding driving, drunk driving, distraction driving, careless driving and other forms of risky driving and self-reported perception of riskiness of certain driving behaviours which can cause the traffic accident. (3) The theory of planned behaviour (TPB)

and its extension, application of SEM in field of traffic accident and prevention, the investigation on the numerical analysis problems in structural equation modelling (SEM), the developing of SEM program and the calculation procedure and criteria to be considered when applying SEM will be also discussed.

The dissertation is organised into six chapters with the bibliographies and appendices. The contents of each chapters are presented as follow. Chapter 1, introduction, presents the general background of traffic situation in Cambodia, the problem statement, research objective, scope of study and dissertation overview. In chapter 2, the literatures associated with the background of Phnom Penh city, current traffic situation and future transportation planning are viewed. The special consideration is paid to the drivers' behaviour, application of theory of planned behaviour (TPB) and structural equation modelling (SEM) into the travel behaviour to investigate the users' intention and drivers' attitudes. Chapter 3, research methodology, describes the theory of planned behaviour, structural equation modelling, the numerical analysis problems in SEM and the developing of SEM program and the calculation procedure and criteria to be considered when applying SEM. Chapter 4, research framework, describes the questionnaire surveys and the analysis frameworks. The questionnaire surveys have been divided into two subsections: questionnaire survey of the future urban rail usage and drivers' attitude. The questionnaire surveys have been done three times. The first and the second questionnaire survey are used to observe commuters' behavioural intention toward future urban rail usage and the third questionnaire survey is designed to observe drivers' attitude toward perceived risk of traffic accident in city. In Chapter 5, results and discussion, summarizes the descriptive statistics of data, results of the structural analysis models and the discussions of each models. The analysis and the discussions are presented in two subsections: users' intention towards future urban rail transit and drivers' attitudes toward perceived risk of accident. Finally, chapter 6, conclusion and recommendations. The overall conclusion, research contributions and recommendations are discussed.

In conclusion, the results from structural equation models reveal that the commuter's behavioural intention towards future urban rail usage should be considered on their attitudes, subjective norm, perceived behavioural control, moral obligation, and awareness of consequences, attitudinal aspect variables, socioeconomic variable and travel characteristics. And the perceived risk of traffic accident is significantly influenced from drivers' perception and their attitudes to risky behaviours such as drunk driving, careless driving, distraction driving, driver's awareness such as lack of punishment awareness, and awareness of distraction driving. The results prove that lack of law awareness, lack of skill awareness, lack of safety awareness, drivers' attitudes towards drinking level and drinking frequency, lack of knowledge and awareness of drunk driving are statistically influent on risk of drunk driving. This study demonstrates the structural models of latent psychological factors of drivers' transportation behaviour.