PSYCHOLOGICAL FACTORS INFLUENCING BEHAVIORAL INTENTION OF USING FUTURE SKY TRAIN: A PRELIMINARY RESULT IN PHNOM PENH

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3rd ATRANS SYMPOSIUM: STUDENT CHAPTER SESSION
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Outline

- Introduction
- Methodology
- Reviews
- Experiments
- Results and Discussion
- Conclusion

Introduction

Background of Phnom Penh City

- Situated on 4 intersection of Rivers

(Mekong, Bassac and Tolé Sap)

- Was established since 1434.
- Population: 1.37 million (2.2 million in 2020).
- Cover on 375 Km^2 with Density 4571.3 person/ Km^2.

Introduction

Current Traffic Situation in Phnom Penh City

- Increasing number of vehicles, especially motorcycles

(15% each year, motorcycles: 80 percent of total traffic)

- Serious traffic congestion

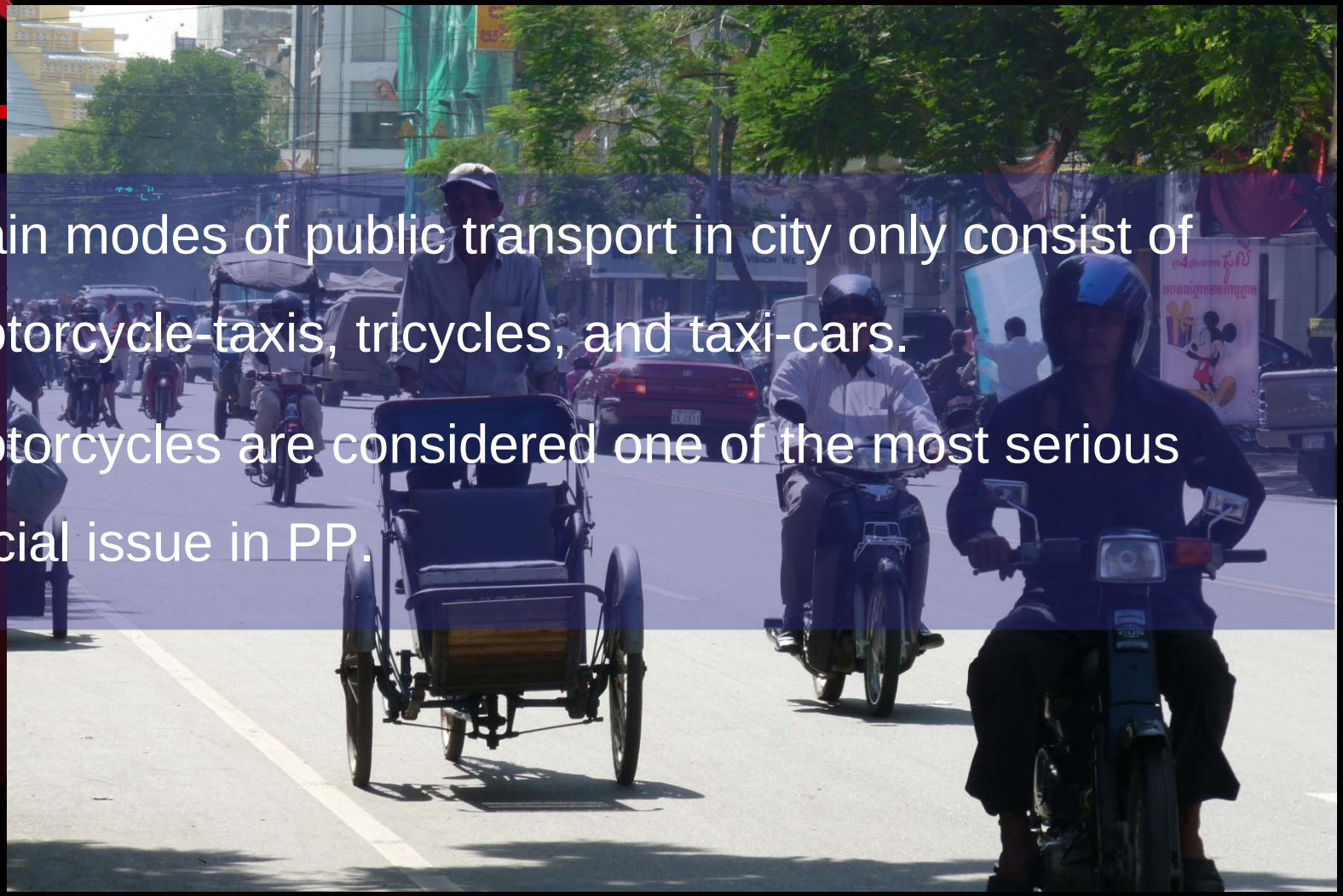
(at morning/evening peak hour, inefficient traffic control,…)

- Large number of traffic volume at ring roads

Introduction (cont.)

Traffic Problems in Phnom Penh

- Concentration of population.
- Old vehicle usage.
- Non improvement of transportation system.
- Inadequate regulation and low level enforcement.
- Poor use of traffic management measure.
- Improper of urban public transportation system.



- Main modes of public transport in city only consist of motorcycle-taxis, tricycles, and taxi-cars.
- Motorcycles are considered one of the most serious social issue in PP.

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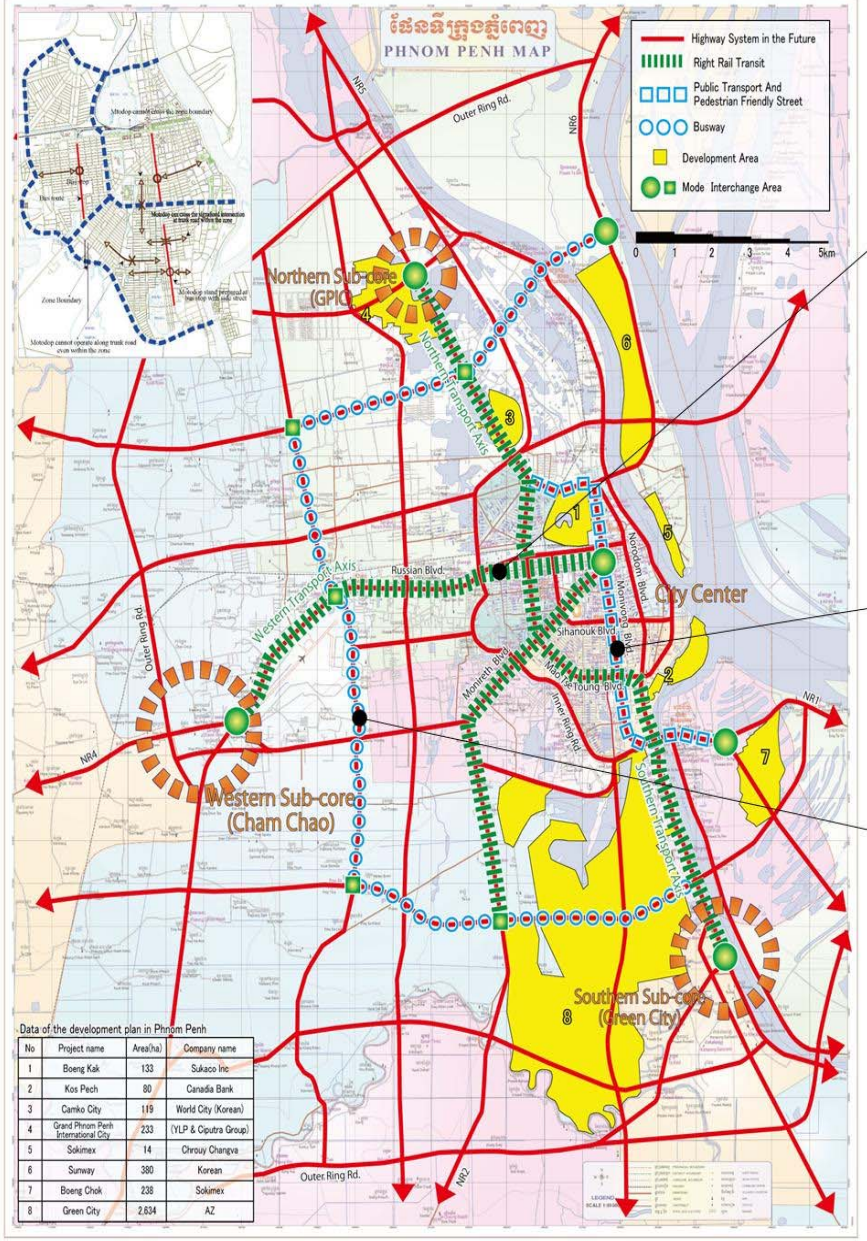
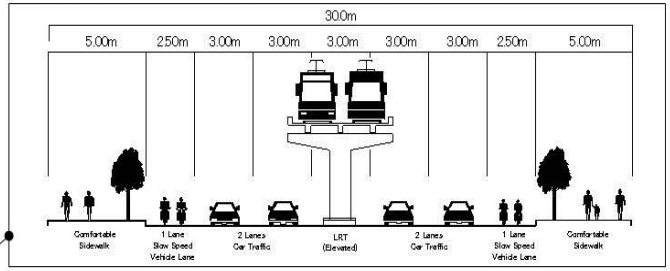
FUTUER PUBLIC TRANSPORT SYSTEM IN PHNOM PENH CITY



Data of the development plan in Phnom Penh

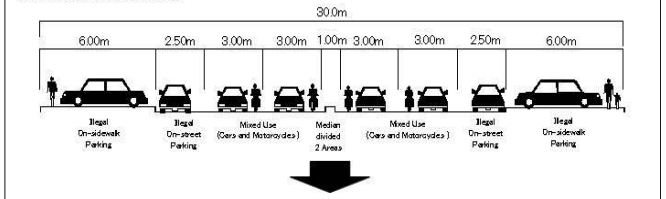
No	Project name	Area(ha)	Company name
1	Boeng Kak	133	Sukaco Inc
2	Kos Pech	80	Canadia Bank
3	Camko City	119	World City (Korean)
4	Grand Phnom Penh International City	233	(YLP & Ciputra Group)
5	Sokimex	14	Chrouy Changva
6	Sunway	380	Korean
7	Boeng Chok	238	Sokimex
8	Green City	2,634	AZ

RUSSIAN AND KAMPUCHEA KROM BLVD. (LRT CORRIDOR)

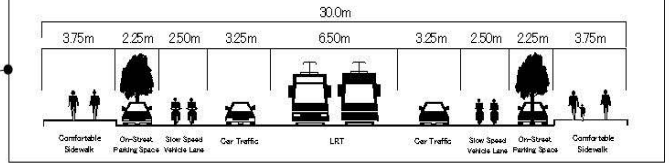


MONIVONG BLVD.

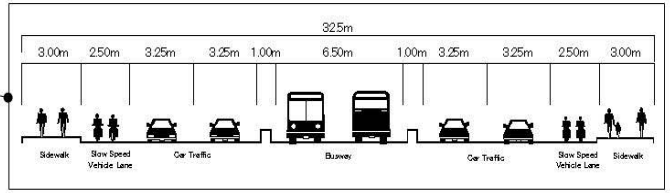
CURRENT SITUATION



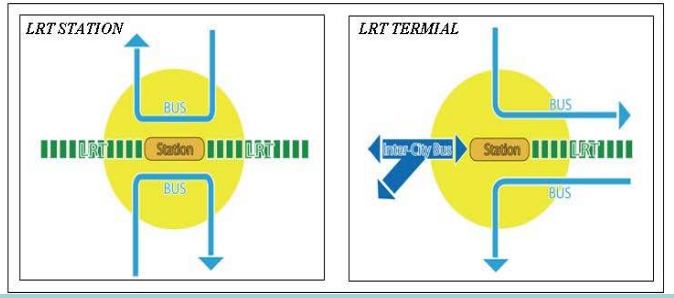
FUTURE PLAN PUBLIC TRANSPORT AND PEDESTRIAN FRIENDLY STREET



BUSWAY ALONG SUBURBAN RING ROADS



MODE INTERCHANGE AREA



Introduction (cont.)

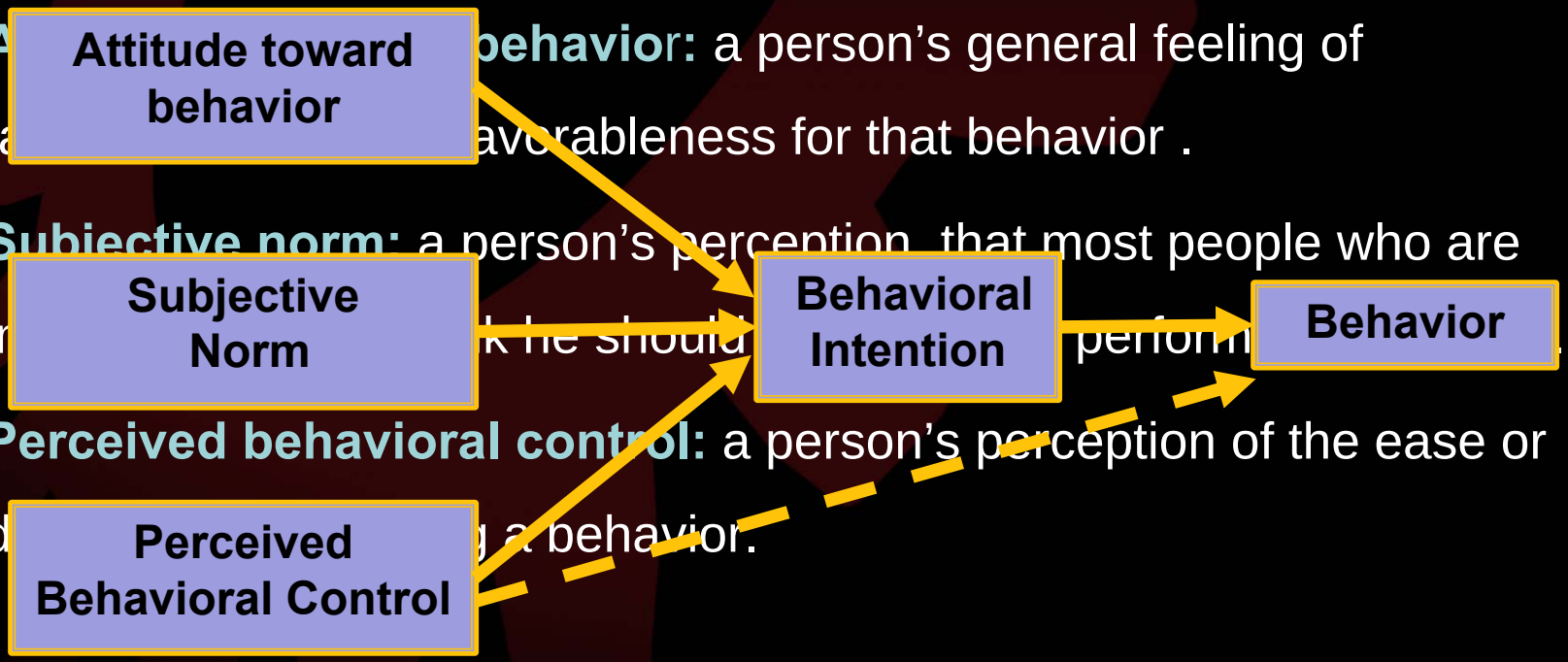
Research Objective:

- present an application of Theory of Planned Behavior (TPB) to investigate the commuters' intention towards future sky train usage.

Methodology

Theory of Planned Behavior (TPB)

- **A** **behavior:** a person's general feeling of f avorableness for that behavior .
- **Subjective norm:** a person's perception that most people who are i k he should perform .
- **Perceived behavioral control:** a person's perception of the ease or d g a behavior.



Reviews

Authors	Research on
Hsiao C.& Yang C. (2010)	Predicting the travel intention to take high speed rail among college students
Forward (2009)	Extension of TPB to predict the intention to commit two different driving violations: speeding in an urban area and dangerous overtaking
Choocharukul (2007)	Extension of TPB to investigate the behavioral intention of using private car in the future work trips
Han T. et al. (2007)	Investigation of psychological determinants of behavioral intention to use travel modes in Ho Chi Minh

Reviews (cont.)

Authors	Research on
Lam & Hsu (2006)	Behavioral intention of choosing a travel destination
Warner & Aberg (2006)	Driver's decision to speed
Mark A. Elliot et al. (2003)	Driver's compliance with speed limits
Díaz (2002)	Pedestrians' intentions to violate traffic regulations
Jillian et al. (2004)	Constructing questionnaires base on TPB
Damian R.P. et al. (2008)	Application of TPB to truck driving behavior and compliance with regulations
Evans & Norman (1998)	Pedestrians' road crossing decision
Mark A. Elliot et al. (2007)	Using TPB to predict observed driving behavior
Mathieson K. (1991)	Predicting user intentions
Sonmez & Graefe (1998)	Determining future travel behavior from past travel experience and perception of risk and safety

Experiments

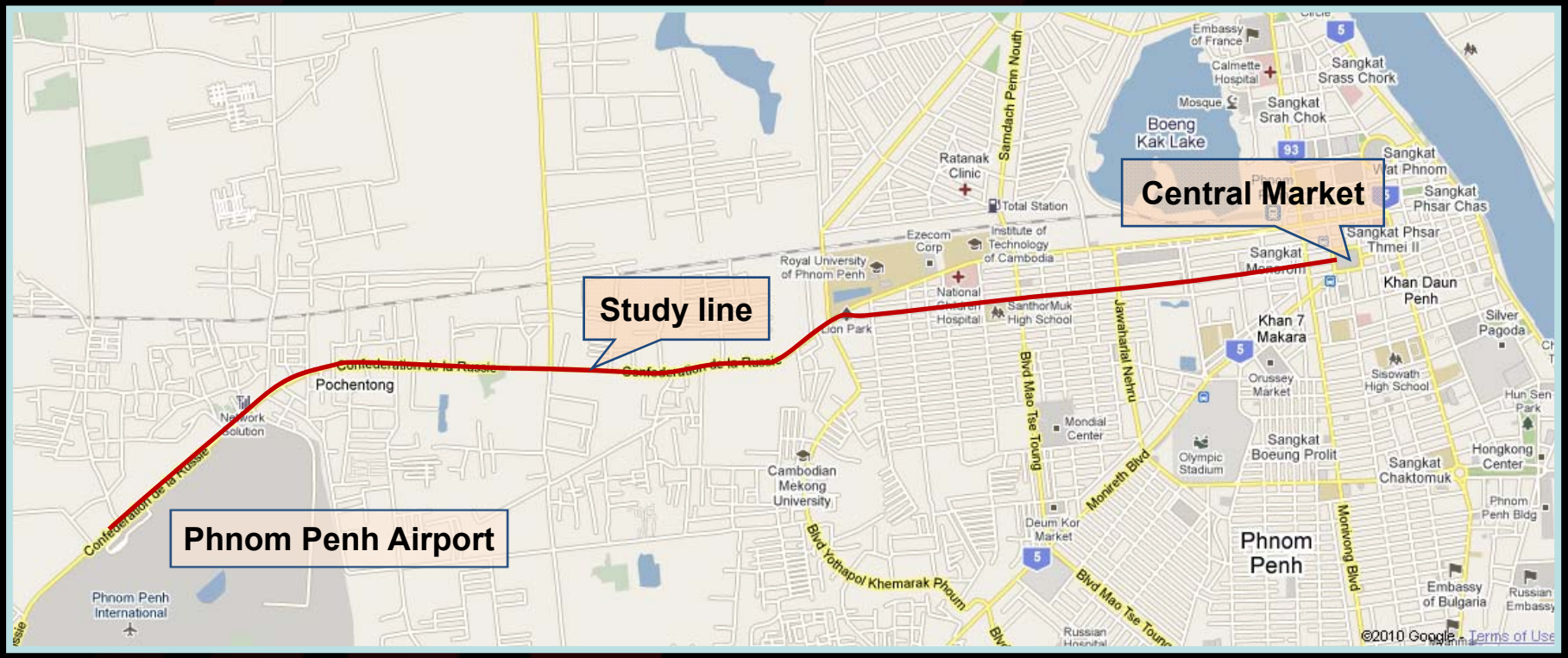


Figure 1 Study Line and Survey Location

Experiments (cont.)

- Survey Questionnaires
  - Conducted during 1st and 2nd February, 2010.
  - 8 surveyors stand by at different locations.
  - 488 respondents were voluntarily recruited from motorcyclists.

Experiments (cont.)

- Measurements

Code	Statements of Attitudes
ATT1	I prefer using the future urban rail transit.
ATT2	I have good feeling toward using future urban rail transit.
ATT3	Using future urban rail transit is desirable to me
ATT4	Using future urban rail transit is beneficial to me
ATT5	Using future urban rail transit is the right thing to do.

Code	Statements of Subjective Norms
SN1	My friends or my family want me to take urban rail transit.
SN2	If I took the urban rail transit, my friends or my family would have no problem with it.
SN3	My friends or my family would agree with using the future urban rail transit.
SN4	My friends or my family think that I should use future urban rail transit.
SN5	Most of my friends will use future urban rail transit.
SN6	I feel under social pressure to use future urban rail transit.

Experiments (cont.)

- Measurements

Code	Statements Perceived Behavioral Controls
PBC1	It is easy for me to use future urban rail transit.
PBC2	I am confident that I can use future urban rail transit.
PBC3	Whether I use future urban rail transit is completely up to me.
PBC4	The decision to use future urban rail transit is under my control.
PBC5	I could use future urban rail transit if I want to.

Code	Statements of Behavioral Intentions
BI1	I should use urban rail transit.
BI2	In regard to my decision, I will use future urban rail transit.
BI3	I want to use future urban rail transit.
BI4	I plant to use future urban rail transit.
BI5	I will make an effort to use future urban rail transit.

Results and Discussion

- Homogeneity of statements

Constructs	No. items	Cronbach's Alpha (α)	Mean	SD.
AT: Attitude	5	0.88	5.74	0.99
SN: Subjective norm	6	0.74	5.03	0.94
PBC: Perceived behavioral control	5	0.82	5.74	0.94
BI: Behavioral intention	5	0.89	5.65	0.97

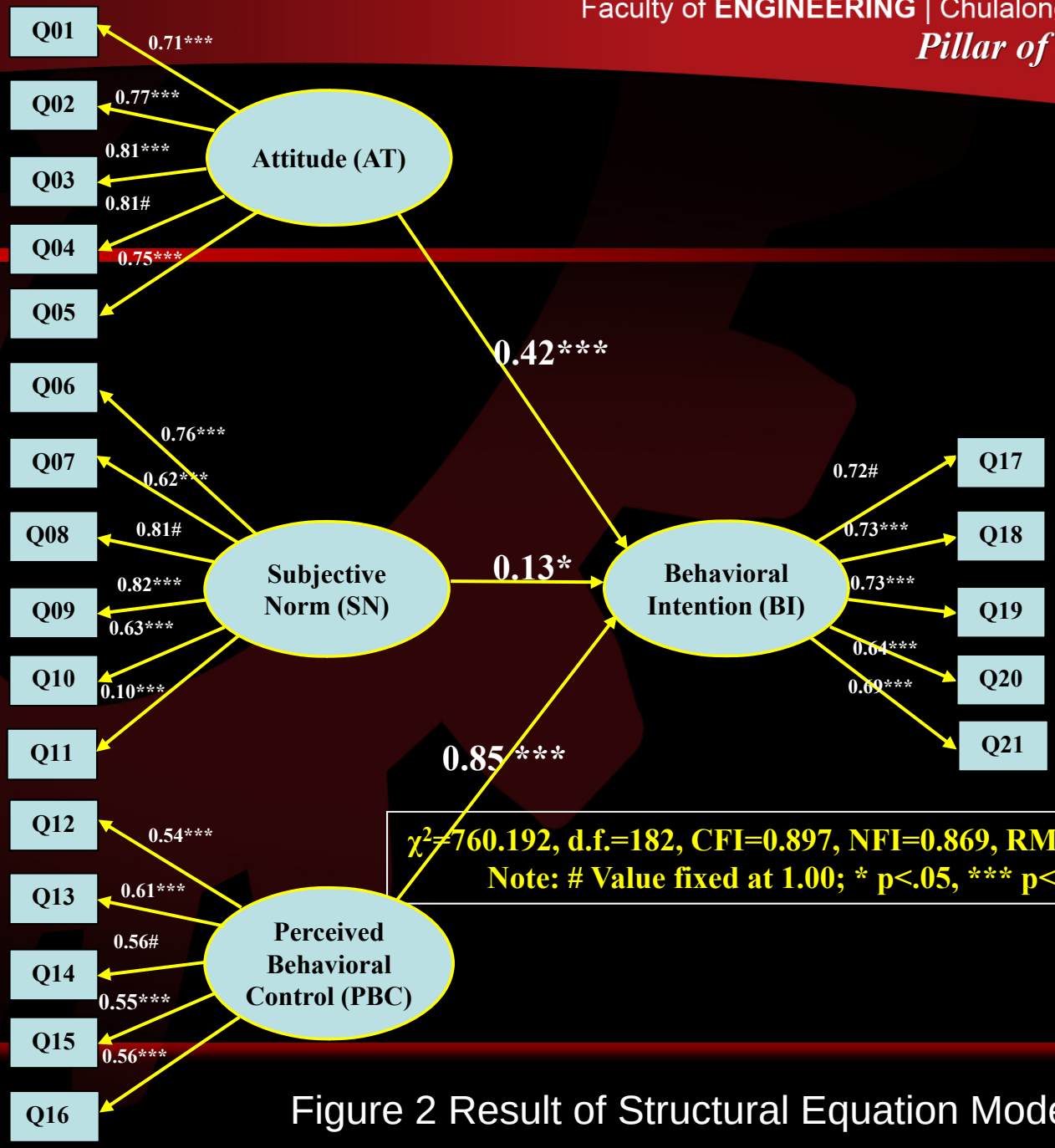


Figure 2 Result of Structural Equation Model

Results and Discussion (cont.)

- Model moderately fits the data (**CFI=0.897, NFI=0.869, RMSEA=0.081**).
- Standardized direct effects on the behavioral intention are 0.42 for attitude, 0.13 for subjective norm, and 0.85 for perceived behavioral control.
- Behavioral intention towards future sky train usage is significantly influenced by attitude, subjective norm and perceived behavioral control.
- Perceived behavioral control is found the highest influencing determinant on behavioral intention. This may be because of the fact that Phnom Penh's respondents take their perception of ability to take future sky train in account.

Conclusion

- Behavioral intention towards future sky train usage can be investigated by the theory of planned behavior (TPB).
- The strategies to induce road users to use more public transport should be aimed at attitude, subjective and perceived behavioral control.
- Further study is called for to investigate other psychological factors, i.e. moral obligation, awareness of consequences, socio economic variables and travel characteristics which can help understanding Phnom Penh commuters' behavioral intention toward future sky train usage.

Thank YOU!