17th Urban Mobility India Conference & Expo 2024

Paper ID : 4363

Exploring the Hedonic Dimension of Mental Well-Being in Commute Experiences: Insights from the Satisfaction with Travel Scale in the Indian Context

Author: **Ms. Ann Das**[1], Prof.(Dr). Ashish Verma [2],

[1] **Research Scholar, Department of Civil Engineering, IISc Bangalore**

[2] Prof, IISc Sustainable Transportation Lab. (IST Lab.),Department of Civil Engineering, IISc Bangalore

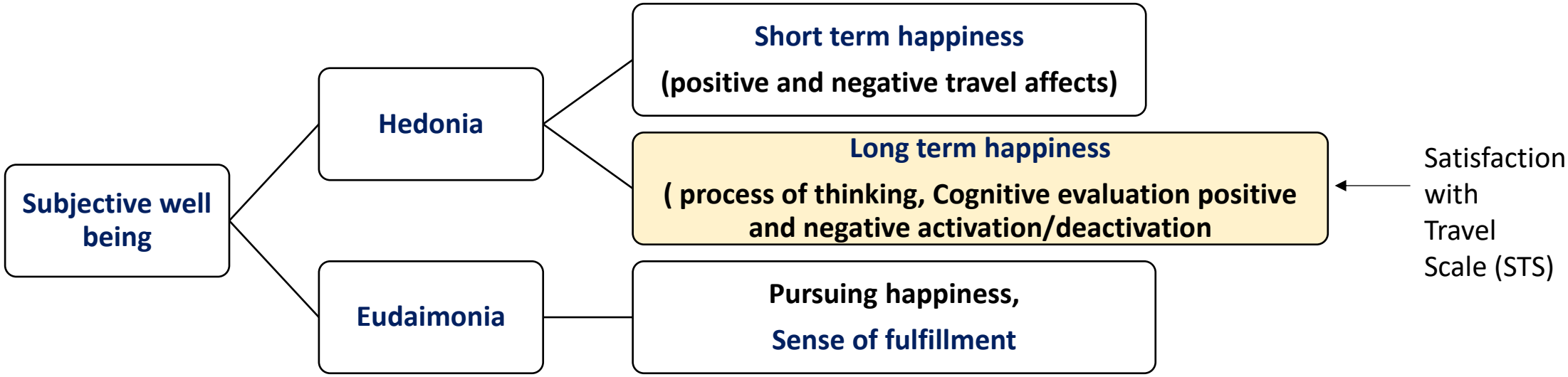
Outline

- Introduction
- Objective and Methodology of the study
- Survey Design
- Data Descriptive
- Model Development
- Confirmatory Factor Analysis (CFA) and Path Analysis
- Future scope
- Novelty
- Reference

Introduction

*QoL is **objective and subjective evaluation** of **one 's perception** of their **reality**'* **(*WHO*)**

"**Quality of life**" is a broad concept that encompasses various aspects of an **individual's overall well-being and happiness**.
It generally includes both **physical and mental health**, **emotional well-being**, **social connections**, material standards, **personal freedoms**, and **leisure activities**.



Objective & Methodology

- Investigate the **hedonic aspect** of **mental well-being** related to daily commute experiences in Indian city- Bangalore.

- Analyze if **Satisfaction with Travel Scale (STS) is a suitable scale and** how the **Satisfaction with Travel Scale (STS)** can be applied or adapted to the **Indian context** to measure emotional responses during commutes.

Survey Instrument Design

Data collection
- Collected on Open day, IISc Bangalore
- Sample size : 211
- Sampling unit : Bangalore commuters

Data coding
- Semantic scale -2 to 2

Confirmatory Factor Analysis (CFA)

Path analysis – PLS SEM

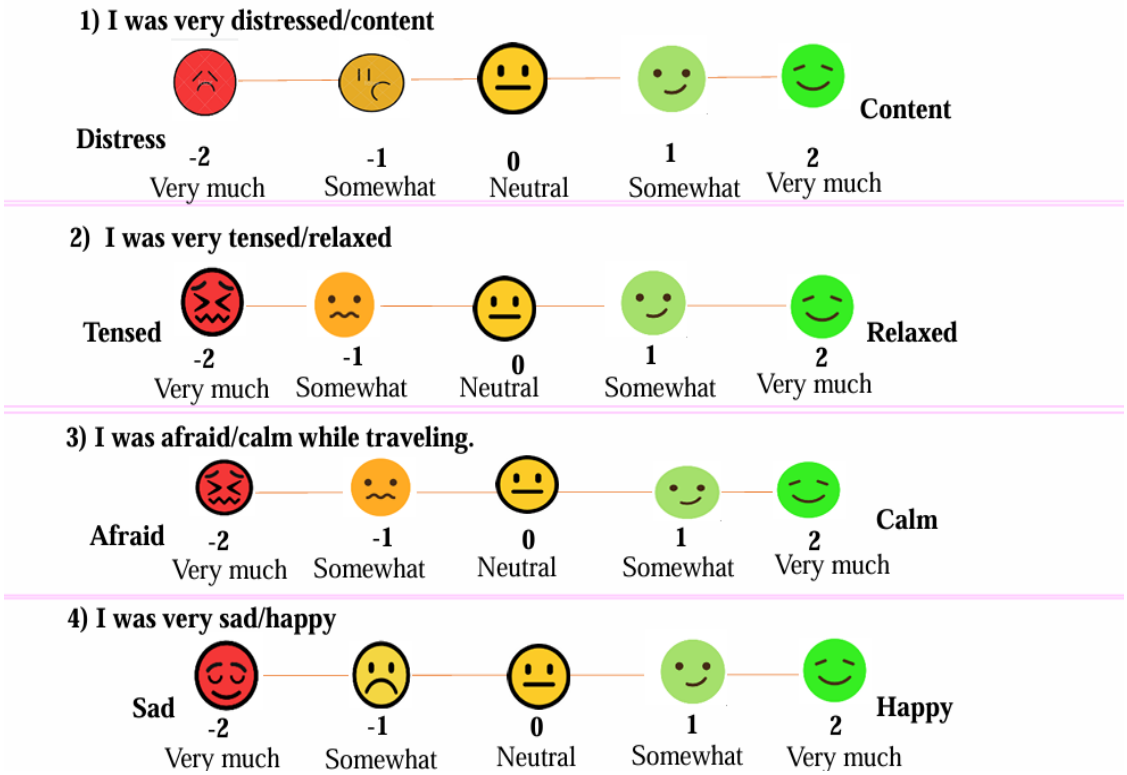
Measures the impact of emotions on travel satisfaction

Survey Design

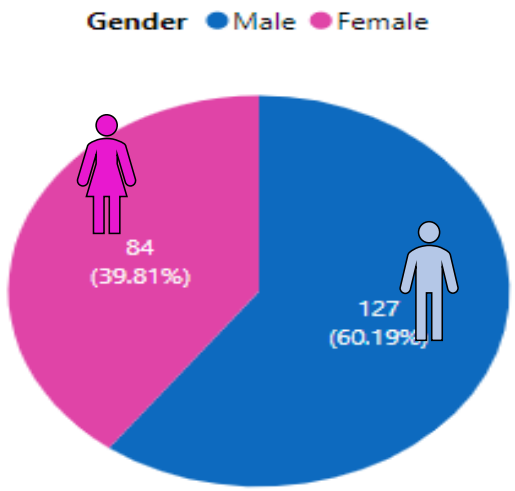
Survey Questionnaire

Socio demographic	Travel characteristics	Overall Travel Experience (STS)
Gender Occupation Age	Primary mode Commute duration Distance	Afraid/calm Distressed/content Tensed/Relaxed
		Sad/Happy Tired/Energised Bored/Enthusiastic
		Displeasing/Enjoyable Poor/Smooth Worst/ Best Worried/Confident

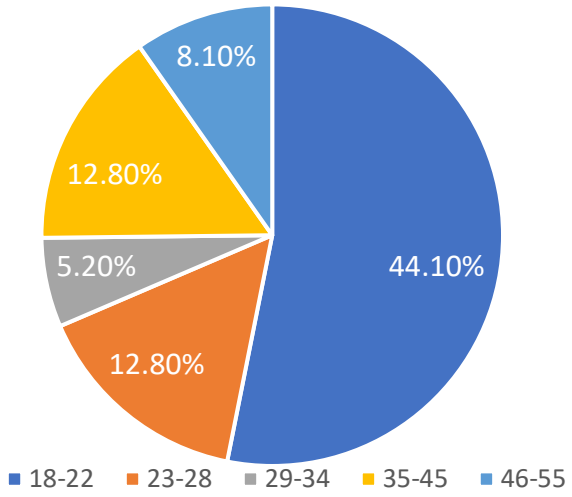
"Select (✓) the choice that best corresponds to your overall experience traveling on your most recent commute to work/ school/ college"

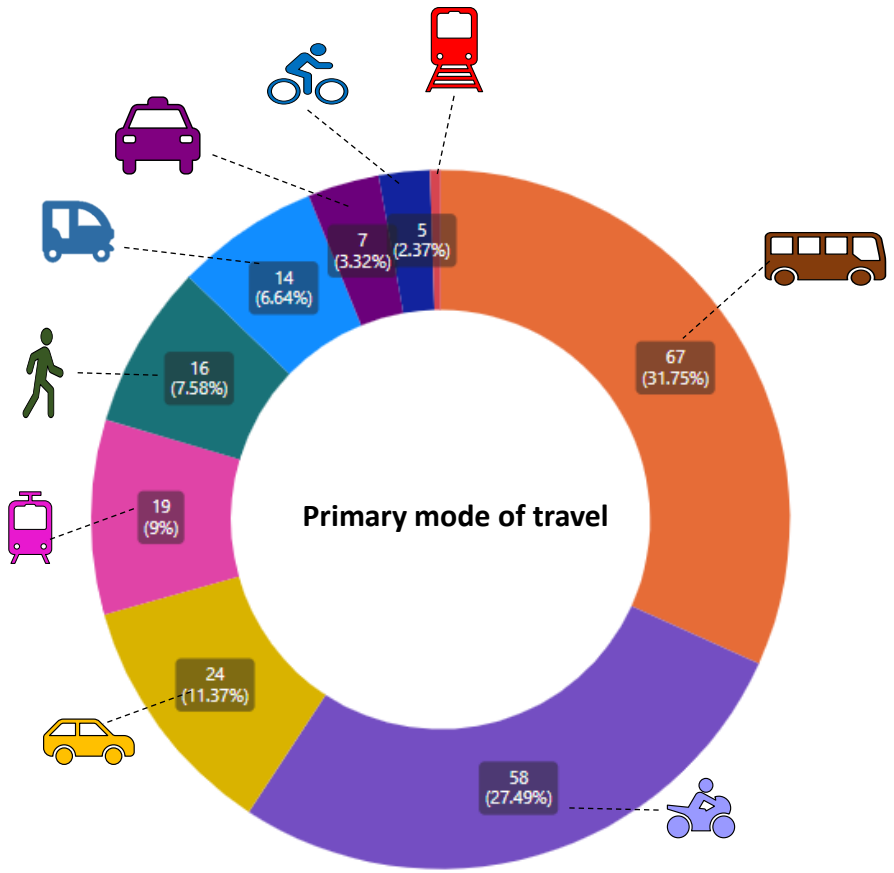


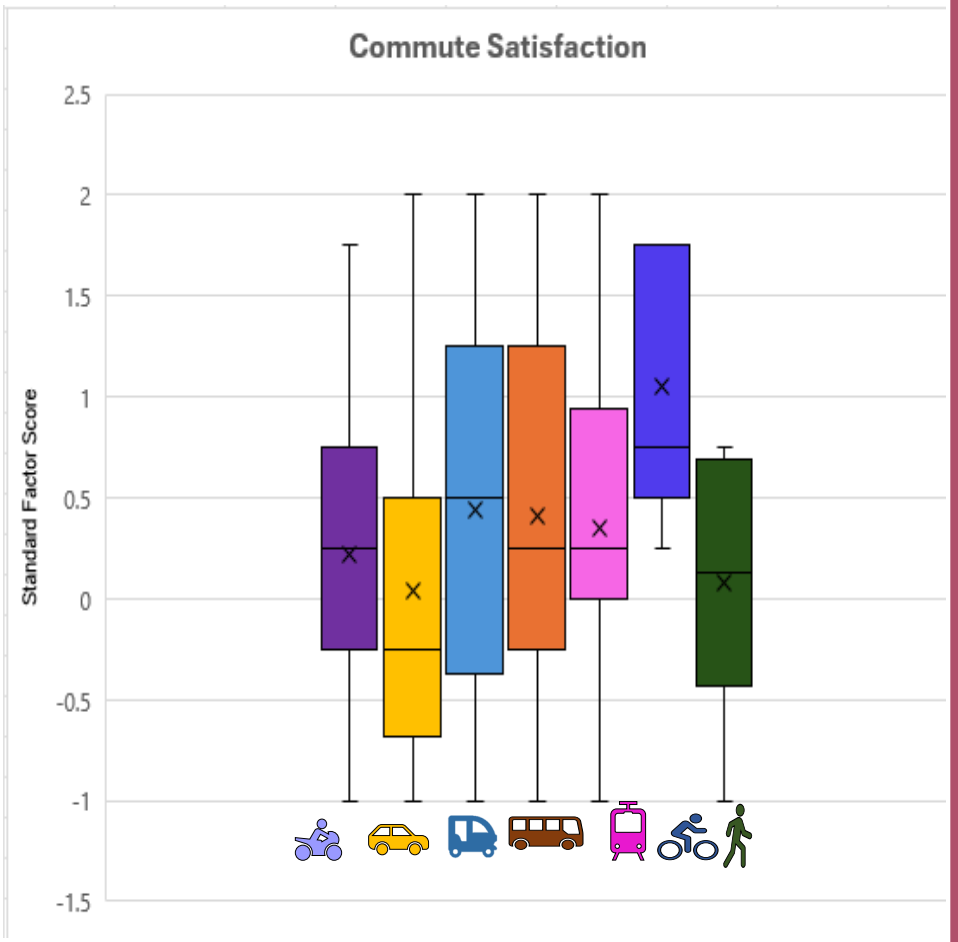
Data Descriptive



Age (years)

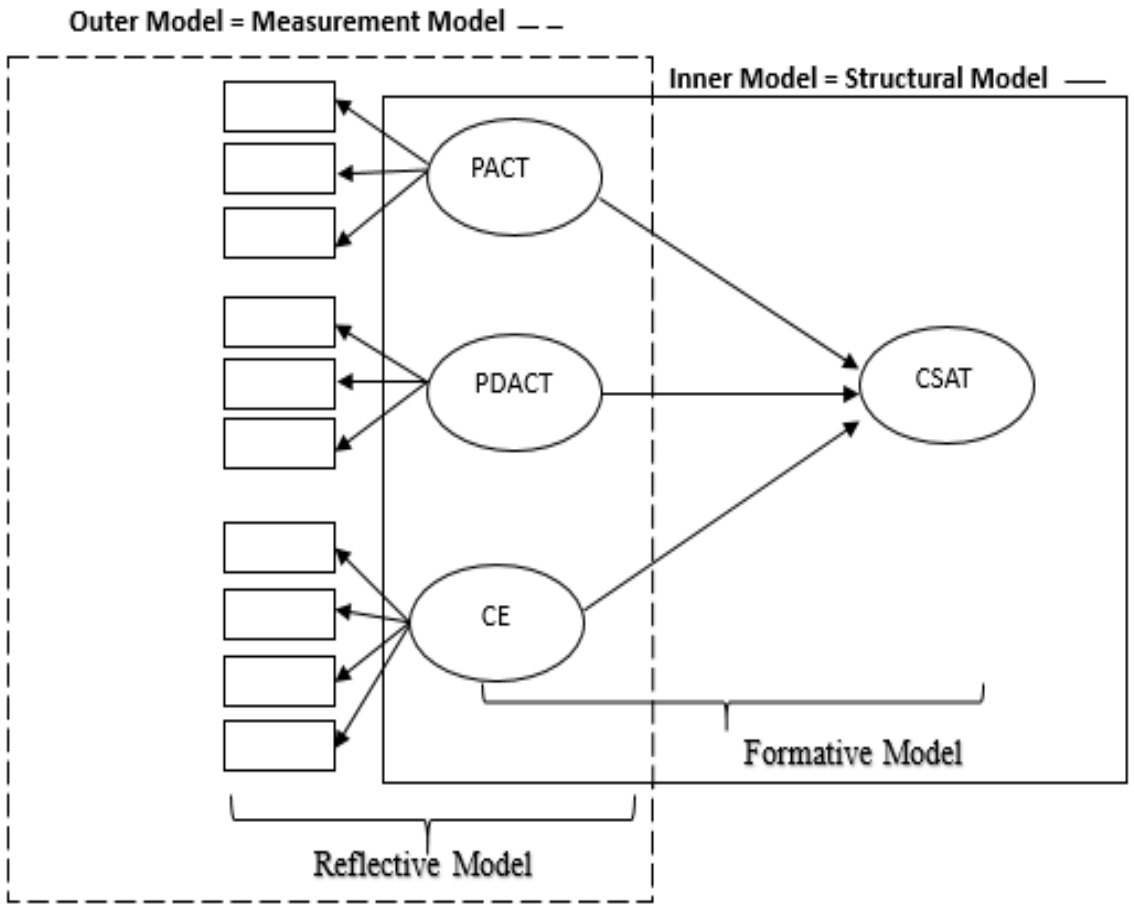






Model

Reflective Formative Model



Positive Activation, (PA) refers to a psychological state with **elevated arousal coupled** with **positive affect**

Positive deactivation (PD)refers to a psychological state with **low arousal** coupled with **positive affect**

Cognitive Evaluation (CE)refers to how one **evaluates their past experiences by recalling that event**, here the commuters are asked to recall their travel experiences and state their emotions.

PLS SEM is used: Theory Development (Source:*Hair, J.F., Matthews, L.M., Matthews, R.L., Sarstedt, M.: PLS-SEM or CB-SEM: updated guidelines on which method to use "PLS-SEM or CB-SEM: updated guidelines on which method to use." (2017).*

Hypothesis

H1 : There is a **significant relationship** between **Positive Activation on Commute Satisfaction**

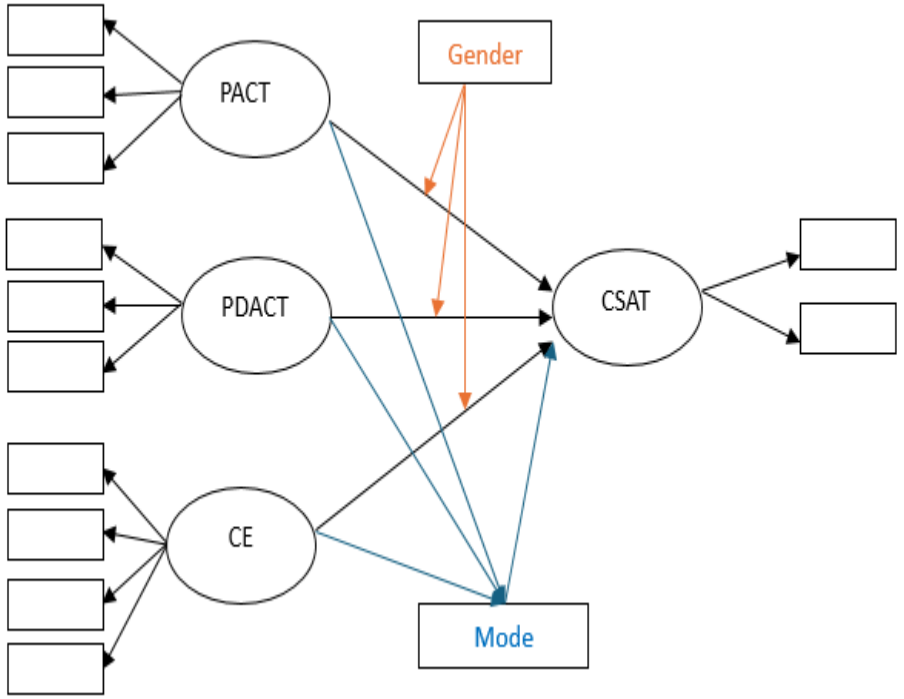
H2: There is a **significant relationship** between **Positive Deactivation on Commute Satisfaction**

H3: There is a **significant relationship** between **Cognitive Evaluation on Commute Satisfaction**

H4 : There is a **moderation effect of Gender** on **PACT and CSAT; PDACT and CSAT; CE and CSAT.**

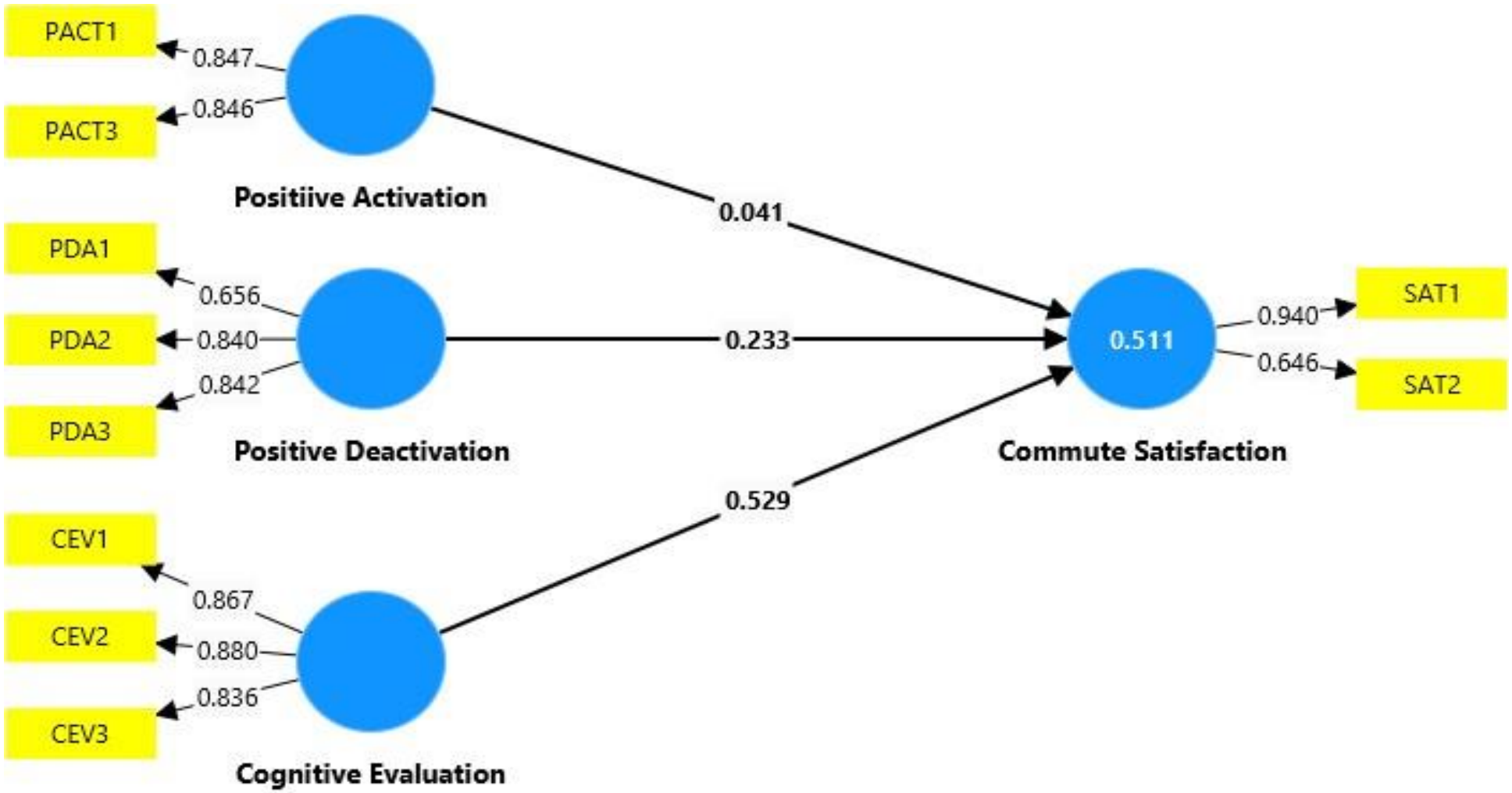
H5 : **Mode mediates** the association between **PACT on CSAT; PDACT on CSAT; CE on CSAT**

Theory Development Model



Gender : acts as moderator
Mode : acts as mediator

Confirmatory Factor Analysis (CFA)



Measurement Model & Path analysis

1. Convergent Validity – reflective construct

Variable and Item	Code	Factor Loadings (PLS)	CA	AVE	CR
Positive Activation	PACT		0.604	0.716	0.835
I was sad/happy while traveling.	PA1	0.847			
I was very bored/enthusiastic while travelling	PA3	0.846			
Positive Deactivation	PDACT		0.707	0.615	0.825
I was afraid/calm while traveling.	PD1	0.655			
I was very distress/content while travelling	PD2	0.84			
I was very tensed/relaxed while travelling	PD3	0.842			
Cognitive Evaluation	CE		0.827	0.741	0.896
My trip was displeasing/enjoyable	CE1	0.836			
My trip went poorly/smoothly	CE2	0.867			
My trip was the worst/best I can imagine	CE3	0.88			
Commute Satisfaction	CSAT		0.744	0.651	0.783
Overall, how Satisfied were you with your travel experience?	SAT1	0.94			
My expectations for pleasure and enjoyment were not met during my trip?	SAT2	0.646			

2. Discriminant Validity - RC

Factors	Cognitive Evaluation	Commute Satisfaction	Positive Activation	Positive Deactivation
Cognitive Evaluation	**0.861**			
Commute Satisfaction	0.682	**0.807**		
Positive Activation	0.699	0.57	**0.846**	
Positive Deactivation	0.535	0.544	0.681	**0.784**

3. Validity for formative construct

Construct	VIF
PACT1	1.231
PACT3	1.231
SAT1	1.138
SAT2	1.138

PDA1	1.172
PDA2	1.523
PDA3	1.578
SAT1	1.138
SAT2	1.138

CEV1	2.006
CEV2	2.042
CEV3	1.682
SAT1	1.138
SAT2	1.138

4. Path analysis

Path	Beta	SE	P value	Hypothesis
PA --> CS	0.041ns	0.073	0.573	Not Supported
PD--> CS	0.239**	0.069	0.001	Supported
CE --> CS	0.529***	0.063	0	Supported
Note: *** p<0.001 ; ** p< 0.01; ns = not significant				

Key findings

1. The emotions, characterized by **feelings of calmness, relaxation, and a positive cognitive assessment of the travel experience**, emerged as strong **predictors of commute satisfaction**.
2. A **relaxed state of mind is closely linked to higher levels of satisfaction** during travel.
3. Commuters **who felt calm and relaxed were more likely to positively rate their travel experiences i.e.,** whether it was perceived as smooth and enjoyable.
4. Positive activation, such as **feeling happy or enthusiastic during the commute**, did not significantly influence commute satisfaction.
5. Characteristics of the trip: Work/education commutes are **often obligatory** and may **not elicit strong positive emotions like happiness or enthusiasm**. The **characteristics of these trips** might explain why positive activation did not play a significant role in shaping commute satisfaction in this study

Limitations & Future Scope

1. Sample size is **less to capture the moderation and mediation effects,** over representation of students (63.5% of respondents), who primarily commuted by bus or two-wheelers.
2. The **STS scale may not be a reliable scale to capture hedonic wellbeing** in **Indian context** : study sample questionnaire does not include **diverse travel conditions** that can **trigger different emotional responses**.
3. It is essential to **adapt scales to reflect cultural details** (**perception towards different modes**; **safety concerns; queueing practices** etc) and diverse travel conditions, such as capturing the **emotions of a bicyclist navigating mixed traffic** or the **emotions a driver experiences when encountering a cyclist in such conditions**, may not be adequately addressed by the existing research instrument.

Novelty & Directions

1. The developed model shows the impact of these emotions on travel satisfaction; there by understanding the **hedonic dimension of wellbeing** of **Bengaluru** commuters, which is **studied for the first time in India**, which **adds to the novelty of this research.**

2. Develop **scale** capturing **hedonic and eudaimonic** wellbeing

3. Could explore other potential moderators (e.g., **personality traits – driving anger scale, attentiveness, social factors**) that might affect the emotion-satisfaction link in transportation contexts.

Reference

1. Singleton, P.A.: Walking (and cycling) to well-being: Modal and other determinants of subjective well-being during the commute. Travel Behav Soc. 16, 249–261 (2019). https://doi.org/10.1016/j.tbs.2018.02.005

2. Singleton, P.A.: Validating the Satisfaction with Travel Scale as a measure of hedonic subjective well-being for commuting in a U.S. city. Transp Res Part F Traffic Psychol Behav. 60, 399–414 (2019). https://doi.org/10.1016/j.trf.2018.10.029

3. Chen, S., Fan, Y., Cao, Y., Khattak, A.: Assessing the relative importance of factors influencing travel happiness. Travel Behav Soc. 16, 185–191 (2019). https://doi.org/10.1016/j.tbs.2019.01.002

4. Friman, M., Olsson, L.E., Ståhl, M., Ettema, D., Gärling, T.: Travel and residual emotional well-being. Transp Res Part F Traffic Psychol Behav. 49, 159–176 (2017). https://doi.org/10.1016/j.trf.2017.06.015

5. Ettema, D., Gärling, T., Eriksson, L., Friman, M., Olsson, L.E., Fujii, S.: Satisfaction with travel and subjective well-being: Development and test of a measurement tool. Transp Res Part F Traffic Psych

6. Friman, M., Fujii, S., Ettema, D., Gärling, T., Olsson, L.E.: Psychometric analysis of the satisfaction with travel scale. Transp Res Part A Policy Pract. 48, 132–145 (2013). https://doi.org/10.1016/j.tra.2012.10.012

Thank yow