

# Structural Equation Modeling (SEM) using R

Session 3: Case Study

23-24 August 2021



# Journal article

- Access the article by clicking the DOI link.
- Fortunately, the author provided the data publicly.
- In this session we will replicate some of the analysis in the paper.



Young people's perceived service quality and environmental performance of hybrid electric bus service

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# Conceptual model

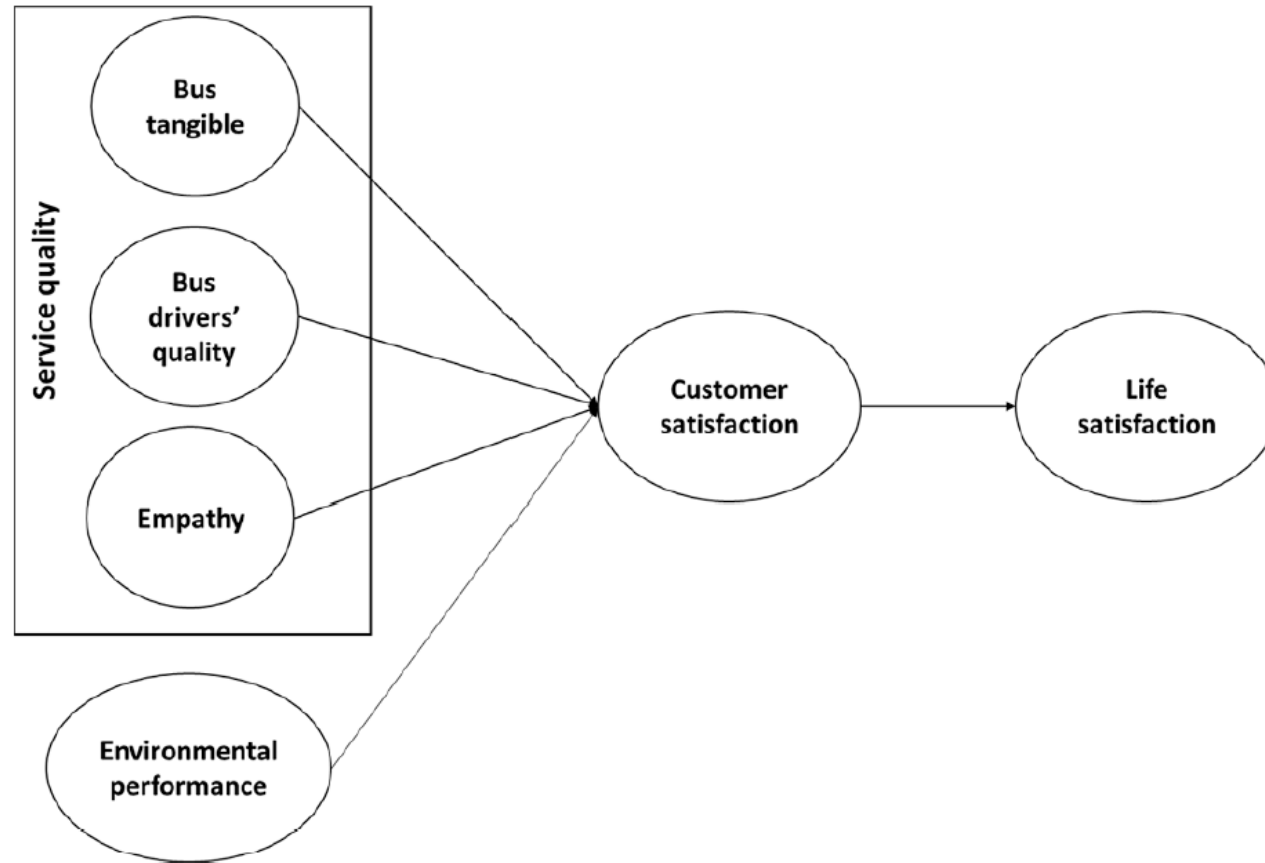


Fig. 1. Conceptual model.

# Measurement, validity and reliability results

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Travel Behaviour and Society 20 (2020) 133–143

**Table 2**

Measurement items and their reliability.

Constructs and their respective items	Factor loadings
Tangible features of the buses (BT, alpha: 0.85, CR: 0.85)	—
1. Physical facilities of a bus are modern looking	0.699
2. Neat and clean inside a bus	0.696
3. <i>No disturbing noise from engine when sitting inside a bus</i>	<i>Dropped</i>
4. Good condition of air cooling and heating system	0.655
5. Good working condition of bus audio system	0.691
6. Visibility of a complete set of safety equipment (i.e. glass breaking device, emergency door, etc.) with instruction signs	0.717 0.694

**Table 3**

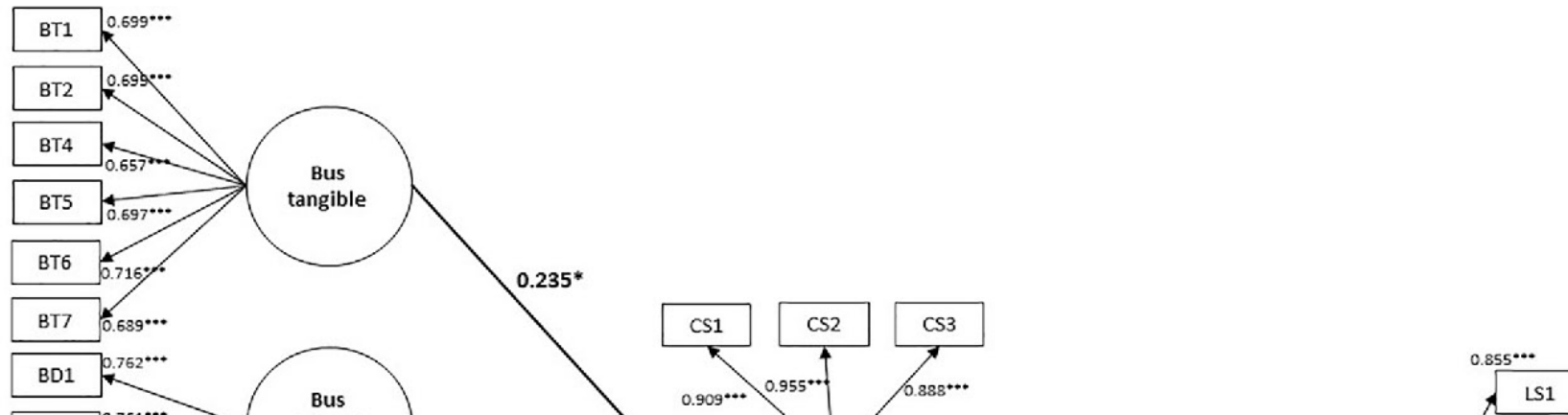
Divergent validity analysis.

	BT	BD	EMP	CS	EP	LS
BT	1.00					
BD	0.48	1.00				
EMP	0.22	0.37	1.00			
CS	0.32	0.32	0.36	1.00		
EP	0.27	0.20	0.17	0.23	1.00	
LS	0.13	0.08	0.07	0.09	0.08	1.00
AVE	0.48	0.60	0.49	0.84	0.75	0.66

# Structural model and indirect effects

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# Thank you!

Slides created via the R packages:



xaringan by Yihui



xaringanthemer and xaringanExtra  
by Garrick