

LOYALTY IN TRANSIT:

An analysis of bus and rail users in two Canadian cities

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ABSTRACT

The relationship between customer satisfaction and loyalty has recently received international attention as transit agencies aim to identify ways to increase ridership. **Improvements in perceived service quality increase the attractiveness of transit, and therefore lead to growing patronage.**

Research question: How do transit users’ perceptions of service quality and user satisfaction influence loyalty?

Using information from five years of customer satisfaction questionnaires collected by two Canadian transit providers, this study attempts to better understand the complexities of several **factors influencing passenger satisfaction and behavioral intentions**. It uses a **Structural Equation Modelling** approach to develop a series of models that reflects the different groups using transit:

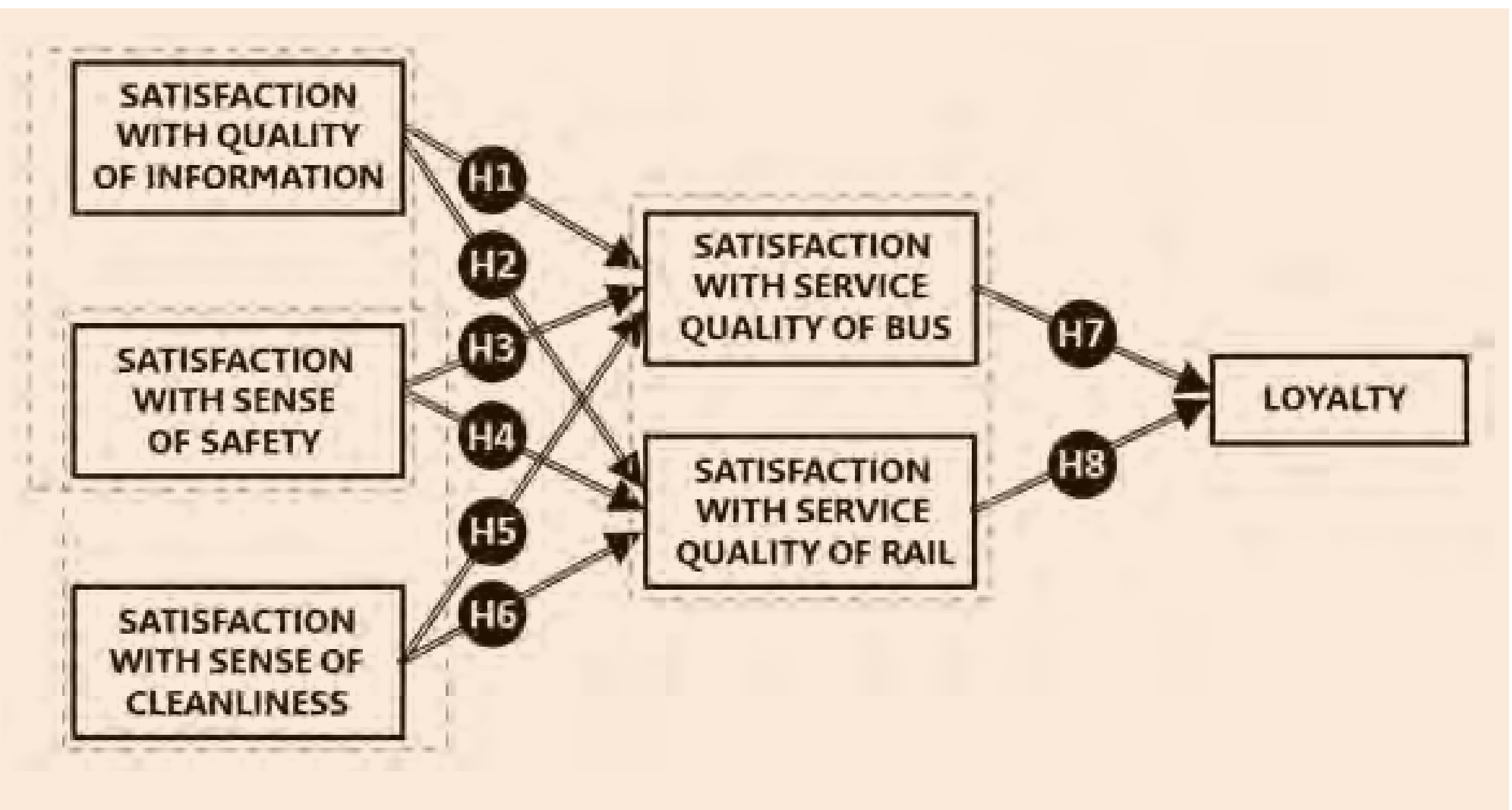
- **captive riders** (users who are dependent on transit)
- **choice riders** (car owners who choose to take transit)
- **captive-by-choice riders** (users who are dependent on transit but could own a car)

Summary statistics:

	TRANSLINK N=9370				STM N=2568			
	All users	Captive (24%)	Choice (65%)	Captive by choice (11%)	All users	Captive (41%)	Choice (51%)	Captive by choice (8%)
AGE								
16-24	17%	19%	15%	27%	12%	12%	10%	16%
25-34	13%	15%	12%	17%	21%	19%	23%	17%
35-44	19%	15%	20%	21%	17%	14%	20%	18%
45-54	21%	18%	22%	20%	20%	18%	21%	22%
55-64	17%	17%	19%	10%	17%	18%	16%	19%
65+	13%	17%	13%	5%	14%	18%	11%	7%
STATUS								
Student	12%	14%	10%	17%	22%	22%	22%	21%
Employed	66%	54%	69%	72%	68%	59%	74%	77%
Other	22%	32%	21%	11%	10%	18%	5%	2%
INCOME								
Under \$25,000	14%	37%	9%	0%	18%	33%	10%	0%
\$25,000-\$45,000	18%	34%	15%	0%	28%	40%	23%	0%
\$45,000-\$65,000	19%	29%	19%	0%	23%	27%	23%	0%
\$65,000-\$85,000	16%	0%	18%	40%	12%	0%	16%	49%
More than \$85,000	32%	0%	39%	60%	18%	0%	28%	51%
SURVEY YEAR								
2009	19%	22%	18%	16%	9%	10%	8%	8%
2010	22%	22%	21%	22%	22%	23%	21%	24%
2011	19%	19%	19%	18%	24%	26%	22%	25%
2012	20%	20%	20%	21%	27%	25%	30%	27%
2013	21%	18%	21%	23%	18%	17%	19%	16%

HYPOTHESES

Conceptual framework:



H1: Transit users’ satisfaction with the quality of **information** have a positive effect on their satisfaction with the **service quality** of the **bus**.

H2: Transit users’ satisfaction with the quality of **information** have a positive effect on their satisfaction with the **service quality** of **rail**.

H3: Transit users’ satisfaction with the sense of **safety** have a positive effect on their satisfaction with the **service quality** of the **bus**.

H4: Transit users’ satisfaction with the sense of **safety** have a positive effect on their satisfaction with the **service quality** of the **rail**.

H5: Transit users’ satisfaction with **cleanliness** have a positive effect on their satisfaction with the **service quality** of the **bus**.

H6: Transit users’ satisfaction with **cleanliness** have a positive effect on their satisfaction with the **service quality** of **rail**.

H7: Transit users’ satisfaction with the **service quality** of bus has a positive effect on their **loyalty** to transit.

H8: Transit users’ satisfaction with the **service quality** of rail has a positive effect on their **loyalty** to transit.

H9: The relationship between factors will vary between **captive**, **choice**, and **captive by choice** users.

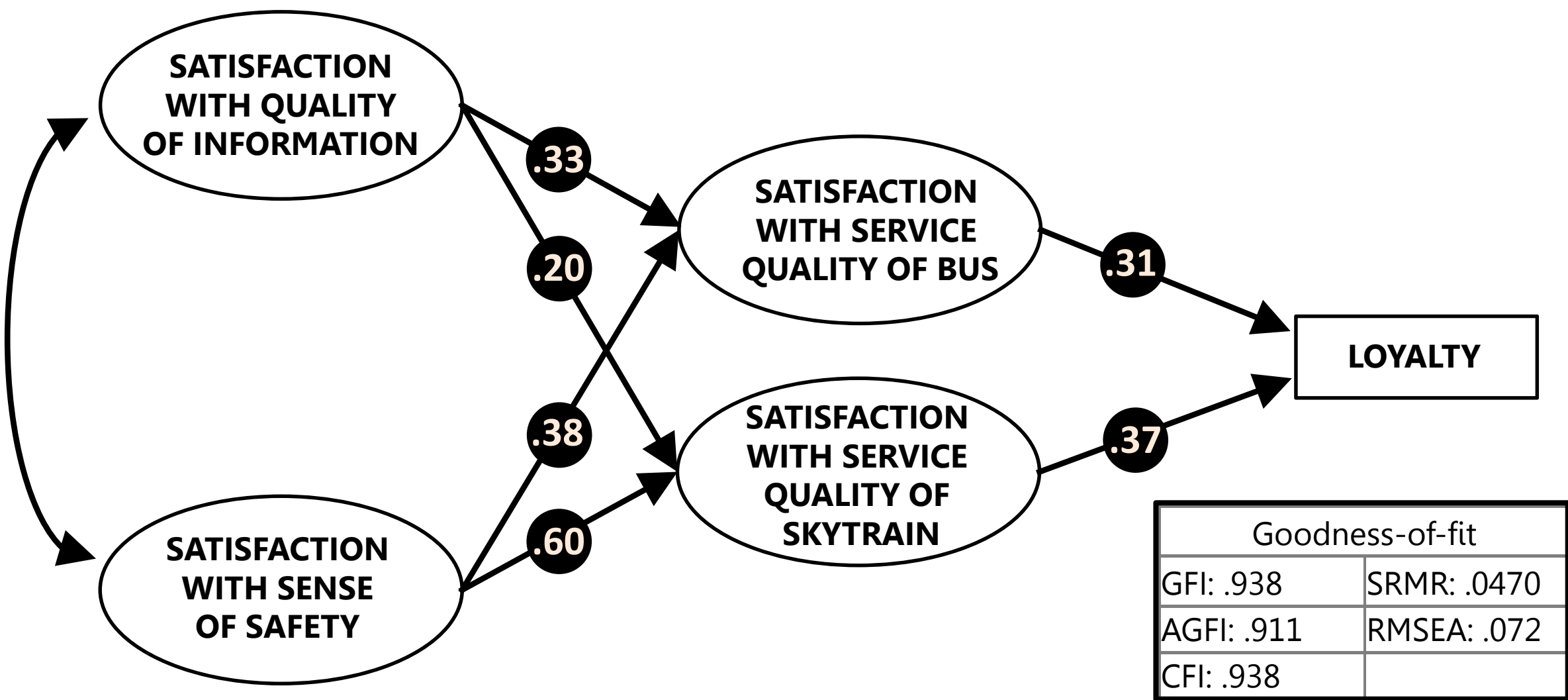
ANALYSIS

Loyalty variables:

TransLink:

“Based on your own experience in the past [seven/thirty] days, on a scale of one to ten, where ‘10’ means ‘excellent’ and ‘one’ means ‘very poor,’ how would you rate the overall service provided by the transit system in Metro Vancouver?”

“On a scale from 1 – 5 with one being ‘definitely not continue as often’ and 5 being ‘definitely continue as often as am now,’ how likely are you to continue to take transit as often as you do now



TRANSLINK	CAPTIVE		CHOICE		CAPTIVE BY CHOICE	
	Estimate (p<0.001)	Goodness-of-fit	Estimate (p<0.001)	Goodness-of-fit	Estimate (p<0.001)	Goodness-of-fit
Info->Bus	0.28		0.35		0.31	
Info->SkyTrain	0.16	GFI: .941	0.22	GFI: .934	0.20	GFI: .933
Safety->Bus	0.44	AGFI: .916	0.38	AGFI: .905	0.31	AGFI: .904
Safety->SkyTrain	0.67	CFI: .948	0.58	CFI: .935	0.58	CFI: .928
Bus->Loyalty	0.31	SRMR: .0472	0.31	SRMR: .0471	0.29	SRMR: .0527
SkyTrain->Loyalty	0.34	RMSEA: .069	0.38	RMSEA: .074	0.33	RMSEA: .072

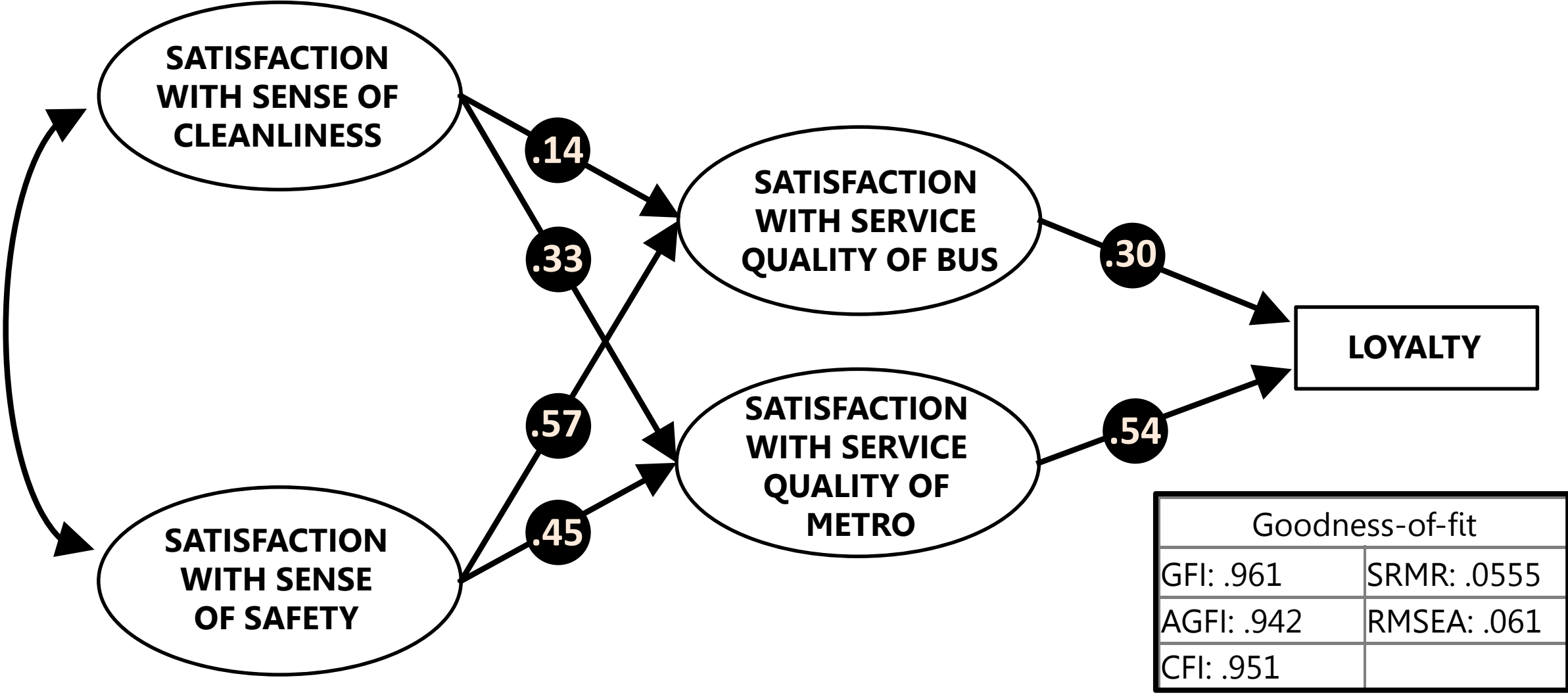


Société de transport de Montréal:

“Generally speaking, thinking about your experience with the STM public transit services in the 30 days, what is your level of satisfaction, out of 10, with all aspects of the STM services?”

“For how long are you planning to keep using STM public transit network? A few weeks, a few months, a few years, or many years?”

“On a scale from one to ten, would you recommend STM services to your friends or your co-workers?”



STM	CAPTIVE		CHOICE		CAPTIVE BY CHOICE	
	Estimate (p<0.001)	Goodness-of-fit	Estimate (p<0.001)	Goodness-of-fit	Estimate (p<0.001)	Goodness-of-fit
Cleanliness->Bus	0.18		0.13		0.34	
Cleanliness->Metro	0.27	GFI: .956	0.36	GFI: .951	0.51	GFI: .920
Safety->Bus	0.61	AGFI: .935	0.54	AGFI: .928	0.39	AGFI: .881
Safety->Metro	0.52	CFI: .951	0.40	CFI: .943	0.36	CFI: .956
Bus->Loyalty	0.32	SRMR: .0534	0.27	SRMR: .0628	0.35	SRMR: .0553
Metro->Loyalty	0.53	RMSEA: .061	0.54	RMSEA: .066	0.51	RMSEA: .063

Summary of effectiveness of strategies:

Strategies	Captive	Choice	Captive by choice
Service quality of bus	↑	↑	↑
Service quality of rail	↑	↑	↑
Reliability	↑	↑	↑
Safety	↑	↑	↑
Information	↑	↑	↑
Cleanliness	↑	↑	↑
↑ = medium impact ↑ = strong impact			

CONCLUSION

Service quality of bus

- Satisfaction with bus has a **lower** impact on loyalty than satisfaction with metro/Skytrain
- Develop bus services that better **integrate rail-like features**

Reliability

- **Reliability** is more influential than frequency
- Focus on developing consistently **reliable services**

Safety

- Satisfaction with **safety** is more important than satisfaction with cleanliness or information
- Ensure that drivers **operate the vehicles safely**, and implement services such as “between stops” services for night-time bus users and automatic platform gates at rail stations

Information

- **On-board information** contributes more to users’ overall satisfaction with the quality of info than info at stops
- Ensure that information is both **accessible** and **accurate** for all users regardless of socioeconomic background, languages spoken, or physical and mental ability

Cleanliness

- Satisfaction with overall cleanliness is strongly influenced by users’ **perception of cleanliness inside metro stations**, and not by their perception of cleanliness inside buses
- Transit agencies could increase the levels of **cleanliness**

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