Uniquely Satisfied: Exploring cyclist trip satisfaction

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INTRODUCTION

Many studies have found that cyclists are more satisfied with their commute than other mode users. However, the reason for this high level of satisfaction is rarely explored. Much of the literature on cycling concerns motivators and deterrents to cycling. These studies have found that built-environment (e.g. land use, density, connectivity, street network) and personal (e.g. motivations, attitudes, perceptions) characteristics affect the likelihood to cycle for transportation. Fewer studies, however, have explored how these same elements may impact cyclist satisfaction. This study attempts to see what affects trip satisfaction by clustering cyclists according to their values and preferences. It also makes explicit that cyclists, especially in Montreal, often use other modes of transportation throughout the year.

HYPOTHESIS

We hypothesize that a person who cycles simply because public transit is not a convenient or affordable option will experience her trip differently than a person who is actively seeking exercise or trying to engage in environmentally-friendly behaviour. In addition, we hypothesize that different types of cyclists will respond differently to distance, slope and elements of the built environment such as bike lanes and land use mix.

CONCEPTUAL FRAMEWORK

The general research framework is presented in Figure 1 showing that physical characteristics of a cycling trip (which include distance, slope, land uses, density, and connectivity), do not lead directly to trip satisfaction but are filtered through socio-economic factors (age, income, sex) and then though personal values, perceptions of, and attitudes towards, cycling which ultimately moderate the derived satisfaction from a cycling trip.

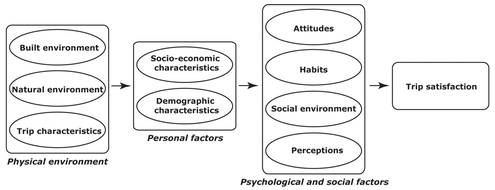


Figure 1: Conceptual figure explaining cyclist satisfaction as a function of the physical environment, personal factors and psychological and social factors

RESEARCH QUESTIONS

With these issues in mind, the present research aims to address two main questions 1) What types of cyclists can be identified based on motivations and alternate (winter) mode? 2) How do physical elements of the commute and cyclists' personal characteristics affect trip satisfaction?

DATA & METHODOLOGY

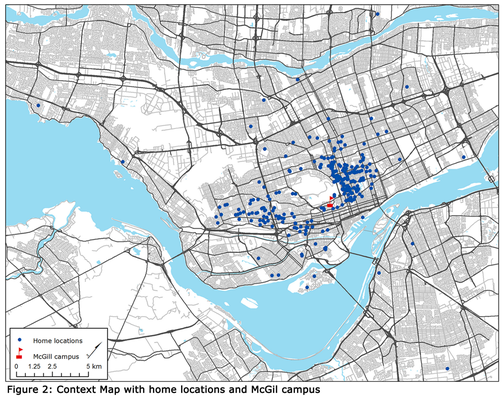
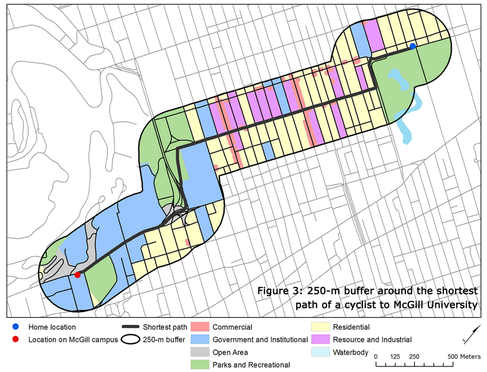


Figure 2: Context Map with home locations and McGill campus

A survey of McGill University students, faculty and staff was conducted during the months of March and April, 2011, collecting:

- Primary mode of transportation and details of last commute
- Mode of transportation and details of commute on a "nice fall day"
- Home postal code
- Primary and secondary reasons for using their mode
- Level of satisfaction with their most recent and fall commutes



The shortest path between each cyclist's home location and McGill campus was measured. To account for deviations from the shortest path, a 250-meter buffer around each route was created. The distance, slope and elements of the built environment were measured for each cyclist's commute. A built environment measure was created which took into consideration the proportion of local roads and bike paths, land use, intersection density and population density.

RESULTS

Cyclists in the McGill Travel Survey were significantly more satisfied than other mode users (88%). While their satisfaction dropped in the winter months, it did not drop as much as other modes. Only walkers were more satisfied than cyclists in the fall (91%).

Table 1: Satisfaction with commute for different modes

	Overall Satisfaction	Fall Satisfaction	Winter Satisfaction
Bicycled	88%	89%	83%
Walked	76%	91%	72%
Took transit	64%	81%	63%
Drove	60%	69%	59%

The next step was to see how personal characteristics of cyclists influence their levels of satisfaction. Age, gender, status at the university and car ownership were not significant in predicting one's satisfaction. Cyclists who stated the environment as their primary reason for cycling were significantly less "very satisfied" than average and cyclists who cycled only in the fall and took transit in the winter were significantly more "very satisfied".

RESULTS (CONT'D)

There was no clear relationship between level of satisfaction and distance, slope or built environment measure, but there is a strong relationship between satisfaction and season.

Table 2: Distance, built environment measure and slope for each cluster

Clusters		Distance cycled (km)	Built environment measure	Percentage of year-round cyclists	Percentage of cyclists with an uphill commute	Percentage of 100-m segments with slope greater than 5%	n
Transit riders	Cycling Enthusiasts	6.08	51.44	0%	61%	11%	41
	Exercise and Convenience-motivated transit riders	4.61	52.24	0%	48%	10%	42
	Convenience-motivated transit riders	3.99	55.57	0%	49%	11%	65
Non-Transit riders	Convenience-motivated walkers	2.78	58.75	0%	48%	12%	48
	Active Environmentalists	5.52	52.68	48%	52%	13%	25
Year-round	Year-round cyclists	3.50	56.98	100%	45%	12%	47

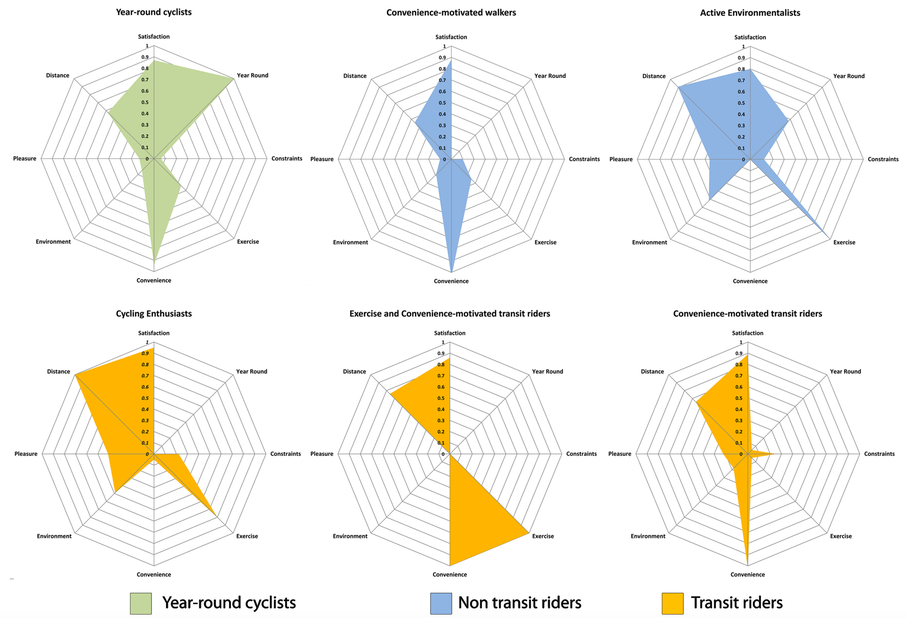


Figure 4: Clusters with their reasons for cycling, distance cycled, satisfaction and season cycled

RESULTS (CONT'D)

All clusters of cyclists were more satisfied with their cycling trip than with their alternate (winter) trip, be it by transit, walking or driving. On average, those who took transit in the winter months were more satisfied than those who drove, walked or cycled.

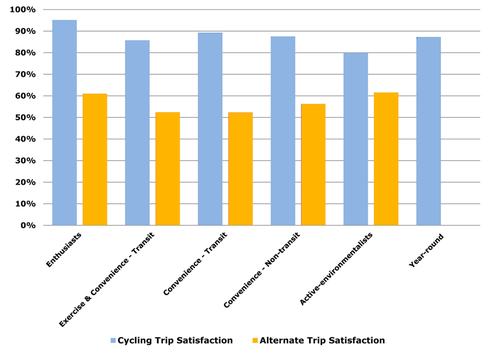


Figure 5: Cycling trip satisfaction and alternate (winter) trip satisfaction, by cluster

DISCUSSION: Why are cyclists so satisfied?

High levels of satisfaction among cyclists in this study and in past studies may be attributable to short commute times (16 minutes in our sample, compared to 20 minutes for walkers, 36 minutes for drivers and 38 minutes for transit riders), cost savings, exercise or the comparative independence afforded by having a bicycle. Cyclists can use the road like a car, go longer distances than walkers and with more flexibility than transit users, carry small to medium-sized loads and park close to their destination for free.

CONCLUSION

While the evidence is not conclusive, the higher (and statistically significant) satisfaction rates of *Cycling Enthusiasts* does lend support to the theoretical framework presented in Figure 1. Elements that have been found to affect likelihood to cycle, such as built environment, distance, slope, socio-economic status and gender were not found to affect levels of satisfaction in this study.

Still, cyclists are the most satisfied commuters. Future research should seek to further understand what makes cyclists so uniquely satisfied as satisfaction from daily travel surely affects future travel habits. Finally, just 22% of cyclists in our survey cycled in winter and reported lower satisfaction rates than fall cyclists. This suggests that more research and policy attention is needed if we are to increase cycling mode share in colder climates.

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