

Evaluate the factors which encourage cycling facility use by tertiary students

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Introduction

In Auckland, according to the 2013 New Zealand census data, only 2% of the population use cycling as a means of commute. However cycling has shown to indicate health, social and economic benefits. This is a study of what should be done to increase the number of tertiary students commuting by bike to university.

Objective

The aim of the study was to find a set of key factors, which would satisfy the tertiary students' needs, to encourage cycling as a practical form of commute.



Methodology

An online survey was produced. The survey included questions relating to behavioural attributes of cycling and the influence of certain factors. The list of key factors (e.g. travel time and distance to destination) potentially influencing people were derived from various BLOS calculations such as that in the Highway Capacity Manual (HCM) 2010 - Full Facility cycling LOS Calculation (2010).

The survey split the participants into two groups based on if they cycled three or more times a week to university. This way they were defined as cyclists and non cyclists.

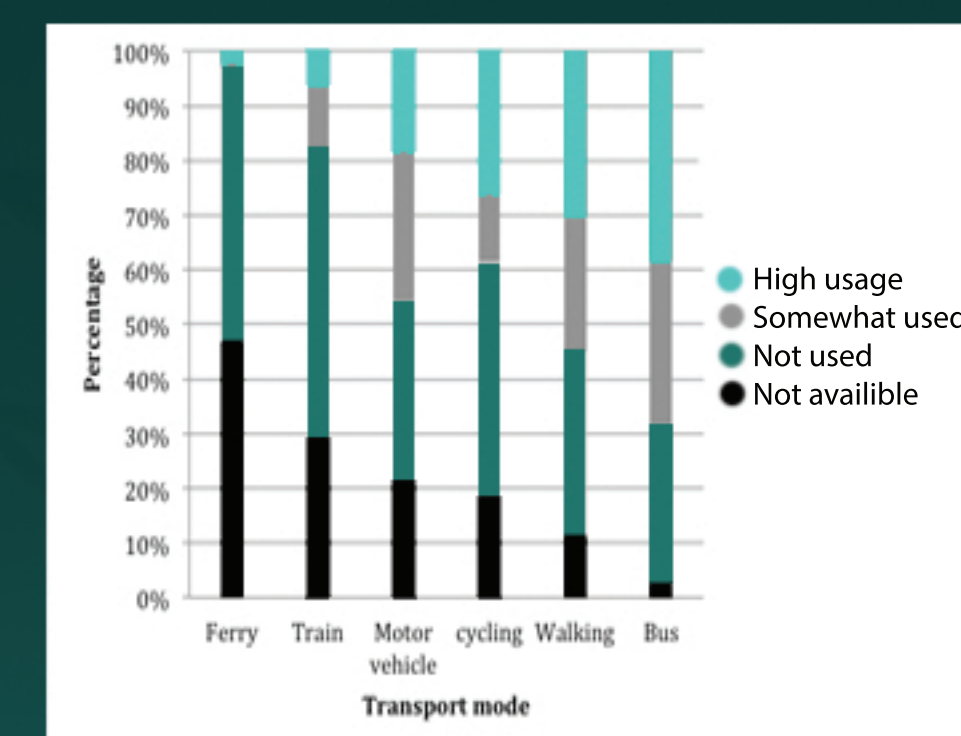
With the help of AUT and UoA the online survey was distributed to the students. Our facebook page "Auckland tertiary cycling community" was used as the central communication hub to publish the survey link.



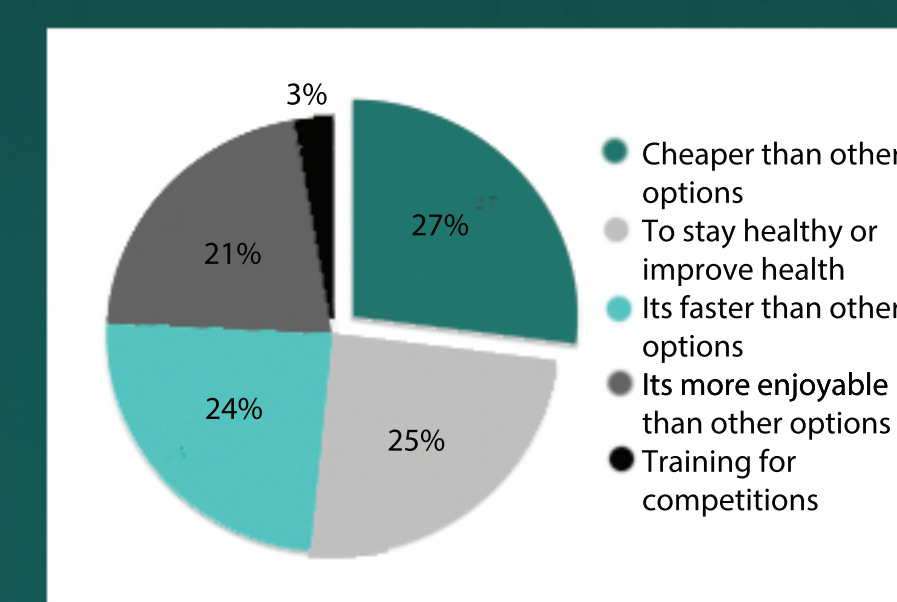
Results and Discussion

Cycling is the third most used form of transport. It was perceived to be convenient, cheap and flexible. Cycling is ranked below buses because students feel that cycling is not safe and the distance to travel is too far. If students are aware of travel time and if safety is increased an increase in cycling numbers could be expected.

Transport mode usage by tertiary students



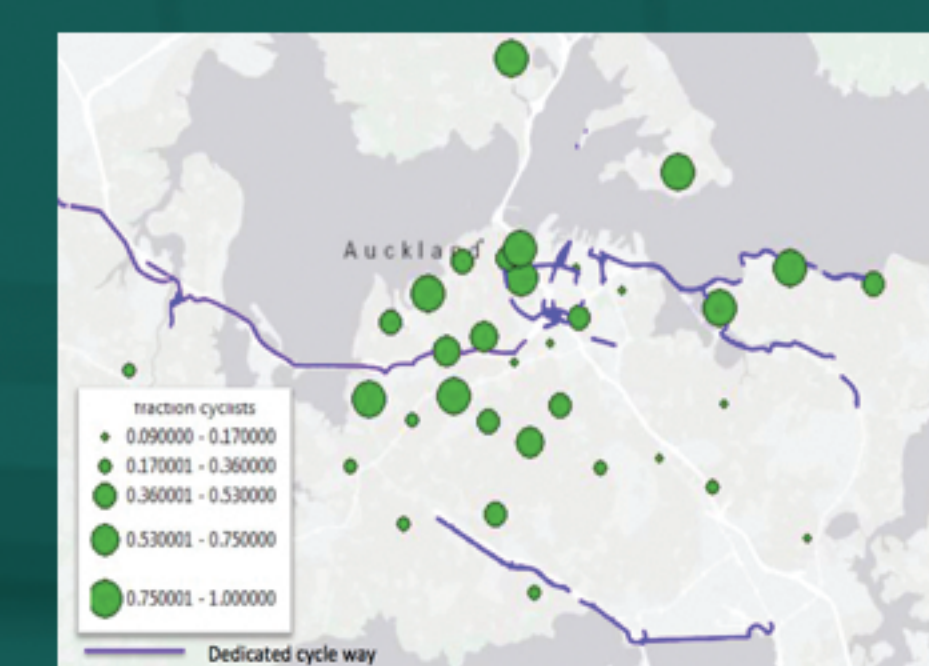
Cyclists – Motivational factors



The governing demotivating factor from a non-cyclist's perception was that the distance from their origin to university was too far. Some other demotivating factors include:

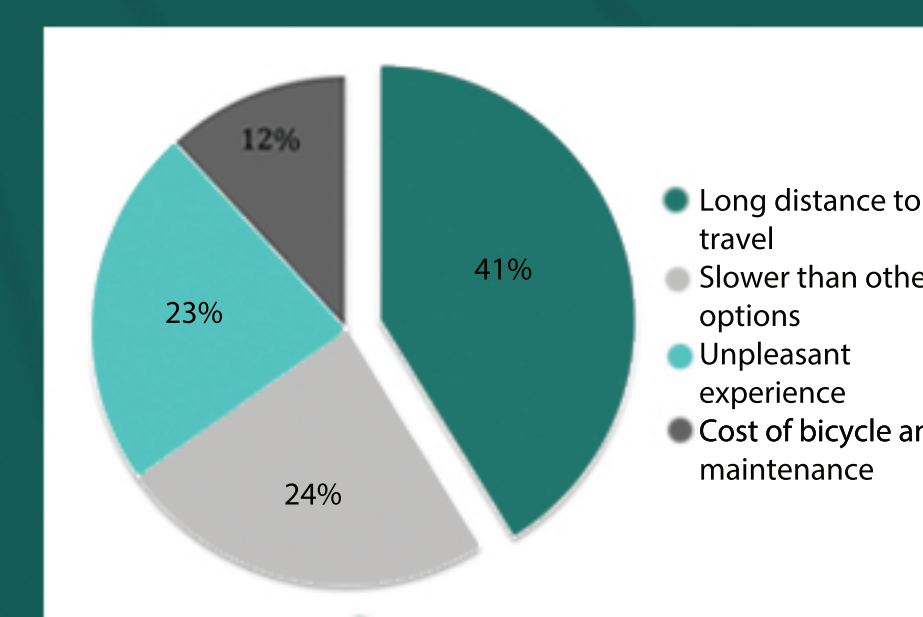
- o Gaps in the cycle network
- o Poor driver cyclist relationship
- o Cold or wet weather

Proportion of cyclists V. Facilities



There is approximately an even split between the four key motivational factors; cheaper than other modes, health benefits, faster than other modes and more enjoyable than other modes. The "training for competitions" factor was seen as the least influential.

Non-Cyclists – De-motivational factors



A pattern is shown indicating that there are large proportions of cyclists where dedicated and segregated facilities already exist. This proves that good cycle ways impacts the growth in cycling numbers. The map shows the North Western, Tamaki Dr, Grafton Gully and Beach Rd cycle ways.

These tables show the prioritised BLOS and several other factors which influence people when/if cycling. The top five factors for cyclists were similar to the rankings of non-cyclists except for the availability of dedicated cycle ways. Non-cyclists ranked it in 5th place while cyclists ranked it in 14th place. A difference in confidence levels and perception is what separated the two groups on this aspect. Having more dedicated facilities should increase the overall number of cyclists.

Cyclists perception		
Rank	Influential factors	Score
1	Travel time	3.95
2	Distance to destination	3.99
3	Secure bike parking	3.94
4	Weather	3.82
5	Presence of large vehicles (e.g. Buses, Trucks)	3.41
6	Steepness of route	3.41
7	Speed of vehicles	3.40
8	Availability of on road cycle lane	3.39
9	Width of traffic lane	3.38
10	Even road surface	3.34
11	Width of shoulder (e.g. for passing)	3.28
12	Availability of segregated facility (separation from traffic e.g. Beach Road)	3.23
13	Amount of traffic	3.23
14	Availability of dedicated cycleway (e.g. Grafton Gully)	3.17
15	Maintaining a good average cycling speed	3.17
16	Static obstructions (e.g. intersections, bus stop, parked cars, driveways)	3.05
17	Lighting at night	2.89
18	Shower facilities	2.68
19	Bike repair facilities at the University	2.57
20	Visual appeal of facilities	2.33
21	Presence of pedestrians	2.29
22	Friends to cycle with	1.99
23	Signs (e.g. to parking facilities, directions)	1.93

Non - cyclists perception		
Rank	Influential factors	Score
1	Weather	4.16
2	Distance to destination	3.95
3	Travel time	3.91
4	Secure bike parking	3.90
5	Availability of dedicated cycleway (e.g. Grafton Gully)	3.83
6	Presence of large vehicles (e.g. Buses, Trucks)	3.77
7	Availability of segregated facility (separation from traffic e.g. Beach Road)	3.76
8	Amount of traffic	3.72
9	Speed of vehicles	3.65
10	Availability of on road cycle lane	3.63
11	Steepness of route	3.61
12	Width of traffic lane	3.59
13	Lighting at night	3.50
14	Width of shoulder (e.g. for passing)	3.31
15	Even road surface	3.20
16	Static obstructions (e.g. intersections, bus stop, parked cars, driveways)	3.18
17	Shower facilities	3.17
18	Maintaining a good average cycling speed	2.94
19	Signs (e.g. to parking facilities, directions)	2.64
20	Presence of pedestrians	2.59
21	Bike repair facilities at the University	2.50
22	Visual appeal of facilities	2.45
23	Friends to cycle with	2.44



Conclusions

A combination of good infrastructure, education and attitude are key elements needed to see an increase in cycling numbers.

Infrastructure:

- o Safe cycle paths
- o Secure bike storage

Education:

- o Proper use of cycle facilities
- o Travel time maps

Attitude:

- o Change the perception of cycling so people understand the benefits of cycling.

Acknowledgements

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References

AucklandCouncil. (2014). Census Auckland. Retrieved 2015, from <http://www.censusauckland.co.nz/>