What are the Social and Physical Infrastructures that Encourage People to Cycle in Christchurch?

GEOG402 2020

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Executive Summary

This report provides an analysis of the social and physical infrastructure that encourages people

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1. Introduction

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The aim of tn

understanding of social infrastructure influences on cyclists across Christchurch. Analysing social infrastructure is important in understanding what could encouraga

workplace facilities which ei

nature of self-reported data and no comparison group, the reach of these programs is limited. Christchurch has a lack of adult training programs. Although BikeReady offers training, the reach is minimal as there is a lack of advertisement. A cycle skills system for adults in Christchurch would need to consider a new approach in order to facilitate participation (Mandic et al., 2019).

2.2. Physical Infrastructure

In New Zealand, cyclists are 15 times more likely to experience injury or fatality per hour of travel than a car user (Tin et al., 2010). In order for cycling to become a viable way of transport for everyone on a day to day basis, it must be made safe, convenient and feasible. International and local literature has found that cycling can be promoted and encouraged as a good transport option for everyone through several urban design techniques.

2.2.1. Cycling Facilities and Infrastructure

Both globally and in New Zealand, roads are often constructed for motorised vehicles which results in cycleways being an afterthought and worked into pre-existing roadways (International Transport Forum [ITF],

2.2.4. Safe and Convenient Bicycle Storage

Bicycle safety influences people's decision to cycle. An example of an innovative European parking facility is the bike station adjacent to the main train station in Münster, Germany which houses 3,300 bikes, offers repairs, hires our rental bikes and provides full access to the train network (Pucher & Buehler, 2008).

Transforming parking structures to house more bikes than cars is also economically beneficial. A cost-benefit analysis conducted in Melbourne, Australia found that although individual cyclists spent less to park their bikes compared to car drivers, more money can be made from bicycle parking compared to car parking per square meter (Rissel et al., 2013).

2.2.5. Coordinating Cycling with Public Transport

Cycling plays an important role as a feeder and distributor service for other public transportation, therefore, the connections between cycling and other modes of public transport is important in designing integrated transport networks (ECMT, 2004; Pucher & Buehler, 2008). Measures to improve this interface include the development of parking facilities at bus stops and renting bicycles at public transport stations (ECMT, 2004).

3. Methodology

3.1. Online Survey

Primary data was collected through an online survey and can be found in the appendix. The purpose of this survey was to identify the various social and physical infrastructures that encourage Christchurch to cycle. Respondents were limited to 18 years or older and the survey was open between the 2nd and 17th of May 2020. This survey was designed and produced using the online system SurveyMonkey. Our respondents pos

2013; Aldred & Jungnickel, 2014; Frater, 2015; NZTA, 2015; Frater et al., 2017; Mandic et al., 2019). Similarly, physical infrastructure encourages cycling through urban cycling network designs to make urban cycling safe, convenient and resilient through cycling facilities and routes, intersection modification, safe cycle storage and am integration of cycling and public transport (ECMT, 2004; Pucher & Buehler, 2008; Rissel et al., 2013; CSP, 2014). A question relating to how the COVID-19 lockdown during the pandemic affected respondents cycling patterns was also included due to the timing of the research.

Survey questions which were important in answering our aim were based upon these key infrastructure themes and techniques affecting people's decisions to cycle, how cycling can be encouraged

4. Results and Discussion

4.1. Demographics

Figure 3 below shows the amount of people within each age group as well as their gender-specific as male, female. The highest number of participants were in the 51-64 age group, followed by the 36-50 age group. Within each age group had a close to even split between genders. Of the 243 participants in the survey, one person did not respond to gender and one person preferred not to say. There were four participants who did not respond to age. We ₹d

4.2. Cycling Frequency

As seen in figure 4, the majority of participants (78%) cycled daily to more than twice a week with only a few participants (6.5%) commented that they never or ‘I’

comparison, social cycling tools such as the Confident Cycling resources, and the Bike Ready, Cycle Safe and Bike On programmes are educational tools, which are utilised more in school-aged children, who are below the age limit of the survey and research conducted by Johnson and Margolis (2013) found that adults are less likely to utilise such programmes. This lack of utilisation can be attributed to stigmas associated with learning to cycle at an older age, which may indicate why there was little response to these tools (NZTA, 2017). A greater participation by adults in cycle education programmes may be helpful in increasing usage and safety while

nse of safety increases as separation from traffic
ople surveyed feel very safe cycling on the road
on segregated cycleways. Bike lanes and shared
en these options with 17.8% and 25.2% of people
ly.

e people felt while cycling on these different
% of people surveyed feel very unsafe. Biking on
egregated cycleway only triggers this response in
pectively.

erent cycling infrastructures

Graph showing how safe people feel cycling on the road, a bike lane, a shared pathway and a segregated cycleway.

It is interesting to note that out of the three infrastructure types which are intended for cycle use, people feel the least safe on bike lanes, however, these are what the most people recorded as being present on their typical cycling routes. Additionally, segregated cycleways which people feel safest on, were seen less. Although

4.7.1. Urban design post-lockdown

As seen in the numbers above and from global reports, COVID-19 has radically changed travel habits

6. Recommendations

This research contributes to current literature gaps as the first step to developing cycling transport as a resilient and sustainable transport network in Ōtautahi Christchurch. After reflection upon the research process, there are several recommendations to make for future research into cycling infrastructure.

Future research could look into implementing more infrastructure where people feel safer and how it

These findings are supported by literature that suggests that health, fitness, environment, recreation and social culture are key social motivators as well as the overall importance of physical infrastructure such as road conditions and separation from traffic to encourage cycling. Areas for future research include how cycling infrastructure could be made more resilient, sustainable and safety conscious in response to what motivates and encourages cycling, school cycling education programmes and effective cycling and education marketing.

8. Acknowledgements

We would like to acknowledge and thank Rita Dionisia.

9. References

Aldred, R. (2010). "On the outside": Constructing cycling citizenship.

intentions?
250-259.

Genter, J. A. (2020).
Wellington, New Zealand: Beehive. Retrieved from https://www.beehive.govt.nz/release/govt-fund-temporary-cycleways-and-footpaths-post-covid-19-lockdown

Goodman, A., van Slujis, E. M. F., & Ogilvie, D. (2016). Impact of offering cycle training in schools upon cycling behaviour: a natural experimental study.
, (34), 1-12. https://doi.org/10.1186/s12966-016-0356-z

Gossling, S. (2013). Urban transport transitions: Copenhagen, City of Cyclists.
196-206.

Hodgson, C & Worth, J. (2015).
Retrieved from
at

International Transport Forum. (2013).

The Treasury. (2013). The Treasury's Living Standards Framework: Living Standards: A Short Guide to 'Social Infrastructure' The Treasury.

Tin, S. T., Woodward, A., & Ameratunga, S. (2010). Injuries to pedal cyclists on New Zealand roads, 1988-2007. , 10(1), 655.

Turner, S., Singh, R., Allatt, T., & Nates, G

10. Appendix

Survey Monkey Questions

Q1.Bicycle ownership

Q2.On average how frequently do you typically bike?

- Daily
- Up to twice a week
- More than twice a week
- Up to twice a month
- More than twice a month
- Seasonally - more than once every three months