

SUPPORTIVE CYCLING ENVIRONMENTS FOR WOMEN

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For Ryan.

ABSTRACT

Cycling is recognized as an important mode of transportation. It is affordable, produces no greenhouse gases, provides a form of exercise, and requires infrastructure that is cheaper to build and maintain compared to personal vehicles. However, in low-cycling countries like Canada, women comprise a disproportionate share of total cyclists, between 20-30%, which has implications for equity, and the health of the population and environment. The academic literature offers few, and only theoretical, solutions to improve the gender disparity, all of which are theoretical. This practicum fills a portion of this gap by identifying real world interventions that assist women to cycle and asking how these could be implemented in Winnipeg. A precedent review returned ten interventions including women-specific cycling courses, events, rides, and mentorship programs. Key informant interviews with Winnipeg cycling advocates provided a better understanding of Winnipeg's cycling environment, and how the interventions could be implemented in the city. Some were considered feasible to implement while other interventions were too context specific. Two barriers hindering efforts to adopt interventions supportive of women who cycle or wish to, are the continued emphasis on physical bicycle infrastructure and the belief that programming targeted to the general population is sufficient. The findings provide several opportunities for further research including: completing the precedent review in additional languages and conducting a focus group with municipal transportation planners and bicycle advocates to better understanding the barriers identified in this practicum and determine the next steps for reducing the gender disparity in Winnipeg.

Key Words: *gender, women, cycling, mobility, precedents, Winnipeg*

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1 INTRODUCTION

Bicycling has become widely recognized as an important form of transportation. Bicycling produces no greenhouse gas emissions, provides its users with physical activity, and thanks to its affordability, can be available to nearly all individuals. Additionally, in comparison to personal vehicles, its infrastructure is cheaper to build and maintain, thanks to the bicycle's small size and weight.

1.1 Problem Statement

Over the past ten to fifteen years, Winnipeg's bicycle infrastructure network- its multi-use paths, on-road bike lanes, and separated bike lanes- has grown by over 100 kilometres. While the resulting environment has led to an increase in the total number of people riding a bicycle, the growth has not been evenly distributed throughout the population. Rather, men comprise the majority of people riding a bicycle in Winnipeg. Indeed, 70% was found to be the average for the city, according to the *Pedestrian and Cycling Strategies* (Urban Systems, 2014).

This gender disparity is not unique to Winnipeg. In countries where cycling is not common, such as Canada, the United States, and Australia, men comprise a disproportionate share of total cyclists. However, this gap is not innate or inevitable. In countries where cycling is common, for example in the Netherlands, Denmark, and Germany, men and women comprise equal shares of total cyclists.

The existence of this gender disparity is problematic for several reasons. First, it is an issue of equity. Cycling should be a transportation mode available to all

individuals. The street is a public space, one where all people have an equal claim. Women have a right to the city and its public spaces, one where they should have access to safe, affordable transportation options, including cycling. The gender gap in cycling rates also has implications for a country's public health care system. The exercise cycling provides reduces the risk of obesity and its associated health conditions, thereby reducing the burden on the health care system. Finally, the gender gap impacts the health of our environment. Women comprise approximately half of most countries' populations and as such, their choice of travel mode has a significant impact on the amount of greenhouse gases produced. As climate change progresses and governments move to reduce these emissions to meet national and international targets, women's travel mode becomes of increasing importance.

1.2 Research Questions

The following two questions have guided this practicum:

1. What precedents exist in cities, internationally, that assist female cyclists in overcoming the barriers identified in the literature?
2. How can these precedents inform planners, policymakers, and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?

1.3 Purpose of the Practicum

This practicum has three purposes. First, to serve as a catalogue of interventions from around the world that assist and support women who ride a bicycle or those who wish to start. A person can browse the interventions found in Section 4.1 of this document and learn basic information about a particular intervention, the context, why it

is noteworthy, and how it could apply in a particular setting (in this case, Winnipeg). The catalogue may be used as a starting point for individuals or organizations seeking to provide support to women riding bicycles, or act as a point of inspiration to continue the fight for infrastructure or space on our public roads.

The second purpose of this practicum is to highlight those interventions not related to the physical cycling infrastructure. While infrastructure is understood to be a crucial and necessary component to creating an environment where people (particularly women) feel safe and comfortable riding a bicycle, it is costly to build, slow to implement, and subject to changes in political interests. Infrastructure also is a more permanent installation, lacking the flexibility and adaptability of other interventions. In the meantime, the interventions highlighted in this practicum can be used to enhance the existing infrastructure and provide the needed support to those trying to navigate a less-than-ideal cycling environment.

The third purpose is to educate and bring awareness to the uneven use of bicycling as a method of transportation, with the gender disparity being just one of the uneven ways. While the academic literature has begun to address this gender gap in bicycling in the past ten years and Winnipeg's cycling advocacy community is aware of it, it is the opinion of the researcher that more is needed. The gender disparity illustrates just one example of how some people benefit from bike infrastructure while others don't. Conversations, sometimes tough ones, are required regarding who is using the bicycle infrastructure, who benefits from it, and how it can be used to create a more equitable transportation system.

Underlying these purposes is a desire to build upon the work of bicycle advocacy organizations and community bike shops in Winnipeg. Without their efforts, their dedication and generosity, the environment in which people bicycle would look much different.

1.4 Importance of the Practicum

This research occurred when Canada is working to meet its greenhouse gas emission reduction targets as required by the Paris Agreement. One of the largest sources of carbon emissions in Canada and in Manitoba comes from transportation. Reducing emissions from transportation is crucial. The federal government has mandated carbon pricing in support of this effort. The provinces are required to implement the price of carbon pollution, whether that is through a carbon tax, a cap-and-trade system, or another equivalent system. For the individual, this most notably increases the price of gasoline for personal vehicles and may therefore reduce their reliance on automobile use and increase their likelihood to take up bicycling as a mode of transportation.

This practicum identifies interventions that can assist women who are shifting their mode of transportation to the bicycle, or who are trying to use the bicycle more as a mode of transportation, and as women comprise half of the population, supporting them specifically has the potential to have a significant impact. It is hoped the insights provided in this practicum have a broad use and applicability. They may be useful for individuals working in various capacities in various organization, such as government, bicycle advocacy or environmental non-governmental organizations, or the private

sector. The practicum may provide a new programming idea or inspiration or assist in tweaking an existing program.

1.5 Limitations

As with any research project, limitations are present. The most notable limitation of this practicum was the researcher's monolingualism. This impacted the practicum in two ways. First, it limited what interventions were identified in the precedent review. All of the internet and academic database searches were conducted using English search engines, searching for English words in English documents. Given that the practicum's geographic scope was international, the researcher's monolingualism meant that any documents not written in or translated to English were not identified. This limitation was not expected to be significant, given English's widespread use in many developed countries.

The language limitation also influenced the analysis of the precedent review results. One of the criteria developed to limit the practicum interventions was the amount of information available. In a couple of instances, interesting and inspiring interventions were identified in the precedent review but not enough information could be found in English.

1.6 Chapter Outline

This practicum is organized in five chapters. Chapter 1 introduces the research problem and the questions guiding this research. It has provided the purpose of the

document, its underlying goals, and why this is an important topic to consider. It has also outlined the practicum's limitations.

Chapter 2 of this document provides an overview of the academic research conducted on the gender disparity of cyclists. First, the two dimensions of the problem statement are introduced, geography and gender, followed by why researchers think this disparity in cycling rates exists, and how the disparity could be addressed and remedied. The chapter also includes an introduction to the theoretical foundation on which the document sits, the concept of the 'Right to the City'.

Chapter 3, Research Methods, details the practicum's two research methods, the research question they are each intended to answer, and why they were selected as methods. Chapter 4, Findings and Analysis, provides the findings of the precedent review, followed by the findings of the key informant interviews. The two sets of findings are brought together in an analysis section. From this analysis, Chapter 5 Conclusions, Implications & Directions, takes the findings and analysis and distills them into a couple conclusions. Implications and opportunities for further study are identified to illustrate how the findings impact those working in the planning or bicycle advocacy field, and where additional study is required.

2 THE GENDER DISPARITY AND THE RIGHT TO THE CITY: A REVIEW OF THE LITERATURE

This chapter provides an overview of the academic and grey literature most pertinent to this practicum. The first section introduces the practicum's conceptual framework, the 'Right to the City'. The second section, 'Who Cycles and Where', describes the distribution of cyclists across geographies and demographics, and how they interact with one another. Next, 'Explaining the Disparity' provides the three common themes researchers have determined may explain why more men ride a bicycle. The fourth section, 'Narrowing the Disparity' describes how researchers and bicycle advocates propose to increase the presence of women on bicycles. Finally, the fifth section provides a critique of the literature presented in this chapter.

2.1 Right to the City

The concept of the 'Right to the City' is foundational to this practicum. The concept was first articulated by Henri Lefebvre, a French philosopher, in his 1967 work, *Le Droit à la Ville*. In this book, Lefebvre conceives the Right to the City as a "transformed and renewed right to urban life" (Lefebvre, 1967, p. 132, as cited in Attoh, 2011 and Boer & de Vries, 2009). A key component of this right was his idea of the city as an "œuvre", a collective piece of work or art, produced through the labours and actions of its inhabitants (Attoh, 2011; Boer & de Vries, 2009). Therefore, if the city is an "œuvre", its residents must be able to access and occupy their city, without the feeling of alienation, and be able to produce new urban life (Attoh, 2011). Boer and de Vries

(2009) highlight Lefebvre's emphasis on appropriation, particularly the appropriation or use of space in the city "in order to provide themselves with the necessities of daily life" (p. 1322). Lefebvre identified this as a higher priority than the use of space for the purposes of profit.

Wastl-Walter and Staeheil (2005) summarize the 'Right to the City' concept in a way that connects it directly to the urban environment.

"At the heart of much of the work on the right to the city is a critique of urban policy. Urban policy and urban design are increasingly implemented in way that are undemocratic, that exclude the poor and that create cities that 'prioritize the "needs" of business and the wealthy' over the vast majority" (as cited in Attoh, 2011, p. 674- 675).

If we accept this understanding, that urban policy and design are implemented in such a way that results in an uneven distribution of benefits, it is not difficult to see how this is possible for a city's transportation systems. Transportation systems are a crucial component of cities, providing residents with access to a range of needs, such as employment, education, healthcare, and leisure (Whitzman, 2013). If the transportation systems are produced in such a way that women do not use them, or face restricted or limited use of them, their mobility is impacted and their access to the city is restricted. They become unable to fully participate in their city, thereby curbing their 'Right to the City'.

2.2 Who Cycles and Where

This section provides a summary of the academic literature describing where bicycles are being ridden (their geographic distribution), and who rides these bicycles

(their demographic distribution). This body of literature provides the data upon which the practicum's research problem is based. The problem- that men make up a disproportionate share of all cyclists in low-cycling countries- comes directly from this section.

2.2.1 Geographic Distribution of Cyclists

The utilization of cycling as a form of transportation is not distributed equally at any spatial scale. Disparities exist between countries, and within countries, provinces, and cities (Garrard, Handy & Dill, 2012). Each scale will be discussed, from largest to smallest, to help illustrate the geographic distribution of cyclists.

Between Countries

Between countries, the difference is stark and well-known, particularly between some western European countries and North America, as shown in Figure 1 (Pucher & Buehler, 2010). The Netherlands has the highest percentage of trips taken by bicycles, 26% of the total trips made. Hungary and Denmark have the next highest percentages at 19 and 16 percentage respectively. This is appreciably higher in comparison to Canada or the U.S., where less than 2% of all trips are taken by bicycle.

Countries at the higher end of this bicycle mode share spectrum, with a bicycle mode share greater than 5%, are often referred to as 'high-cycling' countries (Garrard et al., 2012; Aldred, Elliott, Woodcock & Goodman, 2017). High-cycling countries tend to have extensive bicycle infrastructure, and pro-bicycle policies and programs (Pucher, Dill & Handy, 2010). Countries at the lower end are labelled 'low-cycling' countries

(bicycle mode share 5% or less) (Garrard et al., 2012; Aldred et al., 2017). Low-cycling countries typically have done much less to support riding a bicycle (Pucher et al., 2010).

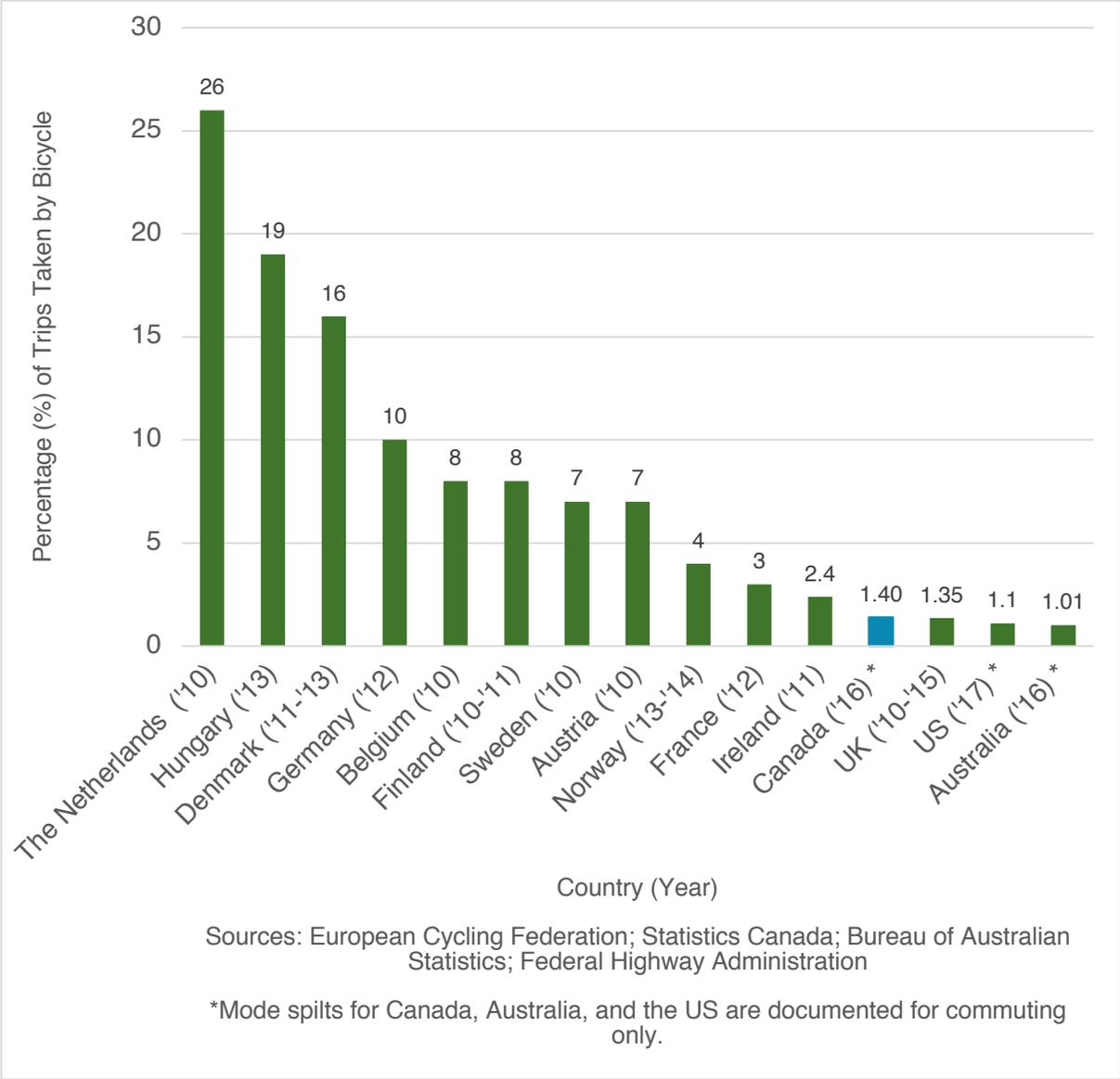


Figure 1: Mode Split for Select Countries

Variation exists between European countries and their use of bicycles. Norway, France, Ireland, and the U.K. all have percentages below 5%. In fact, the percentage of trips taken by bicycle in the U.K. is lower than Canada’s, albeit only slightly. This helps to illustrate that simply being a European city does not equate to high bicycle usage.

The location of Canada, the U.S., and Australia in this figure could be indicative of the type of data. As noted in Figure 1, and discussed in further detail below, Canada, the U.S., and Australia only collect national data for commuting trips. This could cause the number of total cycling trips to be underestimated, as utilitarian trips are not counted (Pucher & Buehler, 2006). However, because non-European countries have focused their cycling-related efforts on supporting and increasing the number of commuter cyclists, it seems likely that commuter cyclists comprise the majority of total cyclists and are therefore not underrepresented in this data but rather overrepresented. Therefore, the possibility that Canada, the U.S., and Australia have lower percentages because of the type of data collected can be dismissed.

While national-level cycling data serves an important purpose for both governments and researchers, the act of averaging at a national scale hides important local variation in cycling levels between provinces and cities (Pucher & Buehler, 2008). Most, if not all, of the cycling interventions are implemented at the municipal level, creating variations between cities (Pucher & Buehler, 2006; Pucher, Buehler & Seinen, 2011a). Therefore, the scale must be narrowed to improve the quality of the picture.

Within Countries- Provincial Level

Just as the percentage of total trips taken by bicycle varies between countries, this also varies significantly within countries (Pucher & Buehler, 2006; Pucher et al., 2011a). In Canada, the variation between the provinces is relatively small (Figure 2). Nunavut has the lowest percentage of trips (0.16%) while the Yukon has a highest (2.59%), giving a range of 2.43. Manitoba's percentage of commuting trips taken by bicycle falls just above the national average at 1.43%. Generally, the percentage of

commuting trips taken by bicycle increases the further west you go (Pucher et al., 2011a).

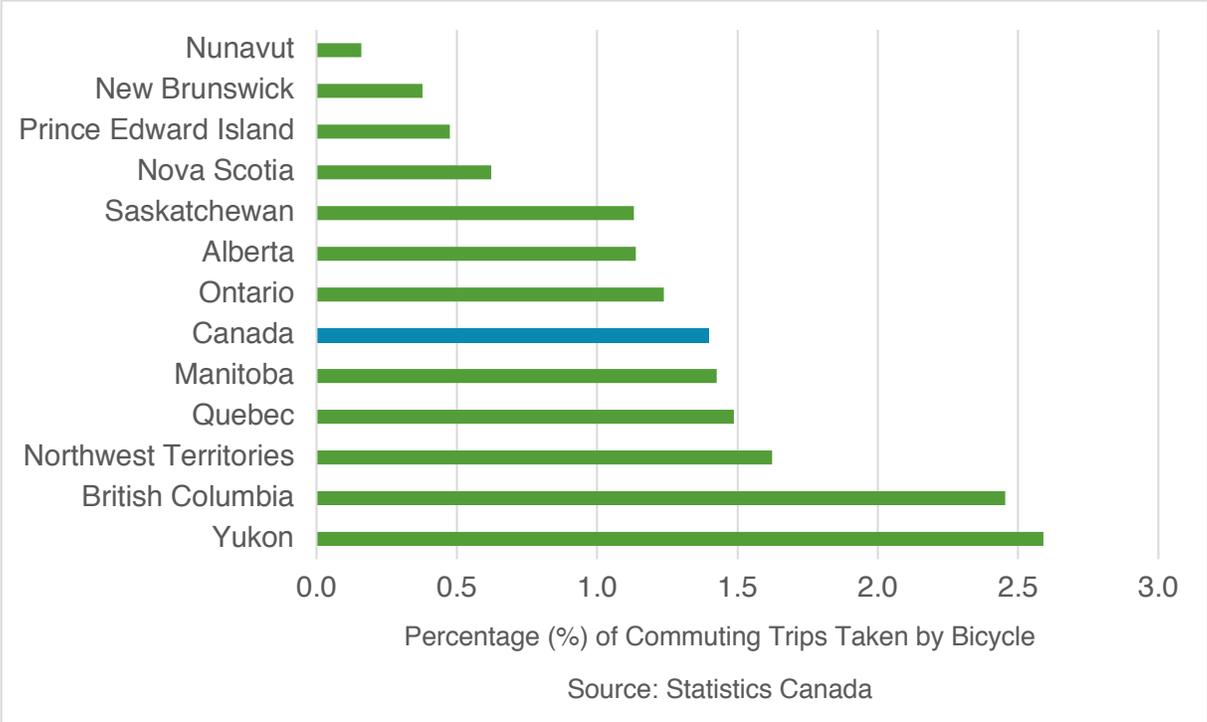


Figure 2: Commuting Mode Split by Canadian Province

Within Countries- Municipal Level

At the city level in Canada, the greater variation between municipalities is evident. Figure 3 shows the mode split for all bicycle trips taken in select Canadian cities using the most recent available data for both commuter and utilitarian trips. (Notes on the data used is found in the next section, *Data Comparability*.) As seen in the Figure, the range of the percentage of total trips taken by a bicycling is 6.5. At the high end of the range, Victoria sees 7.2% of all trips taken in the city made by bicycle. Winnipeg is found at the bottom of the range, with 0.7% of all trips taken by bicycle.

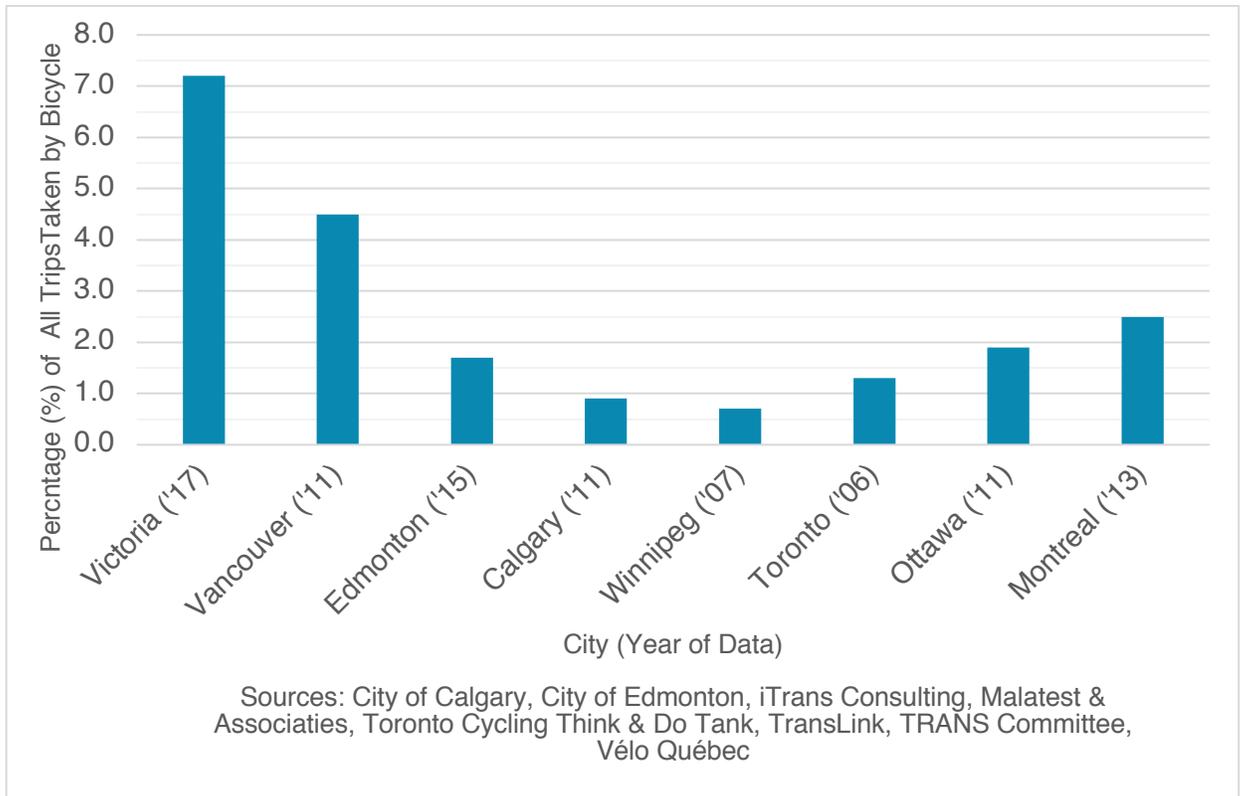


Figure 3: Mode Split – All Trips by Bicycle in Select Canadian Cities

Variations in the percentage of trips taken by bicycle also exist in countries where cycling is more common. Pucher and Buehler illustrated this in their 2008 article titled, *Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany*. Their research illustrates that cities within high-cycling countries can display a range of bicycle rates. For example, in The Netherlands, the greatest variation was a difference of more than 20%; residents of Groningen took 38% of their trips by bicycle while residents of Rotterdam only took 16% of their trips by bicycle (Pucher & Buehler, 2008). This chasm was evident in other high-cycling countries. In Denmark, Copenhagen residents used a bicycle for 29% of their trips while residents of Alborg only did so for 17% of their trips (Pucher & Buehler, 2008). German cities had an even greater

disparity. Muenster residents took their bicycle for 27% of their trips while Stuttgart residents only rode their bicycle for 6% of their trips (Pucher & Buehler, 2008).

Data Comparability

It is important to note while every effort was made to use comparable data in the above figures (Figures 1-3), it was not consistently possible. For the European countries' percentages, this included all trips taken by bicycle. Data gathered by the national governments of Canada, the US and Australia only count trips taken by bicycle for the purpose of commuting to work. Any other trip type is not measured at the national level, such as a utilitarian trip to shop or to go visit a friend.

Further, as noted first by Pucher and Buehler (2006), there is significant variation between municipalities regarding their classification and measurement of cycling infrastructure, and even the presence of information regarding their infrastructure. This makes comparing data difficult.

2.2.2 Demographic Distribution of Cyclists

Just as cycling levels are not distributed evenly geographically, cycling levels are not distributed evenly across the population. Some demographic groups cycle at greater rates than other demographic groups. Women are one such group and are the focus of this practicum. The following section primarily explores the uneven distribution of cycling rates between men and women.

Three additional characteristics are included in this section, including age, race and ethnicity, and class. With the exception of age, limited research has been conducted regarding how each of these characteristics impact a person's rate of

cycling. This research is first summarized. It is followed by research that examines how gender interacts with each of the three characteristics (age, race and ethnicity, and class) to influence a woman's cycling rate. The interaction is examined to illustrate how gender interacts with age, race and ethnicity, and class to further impact a woman's cycling rate.

Gender

“When a country isn't bike friendly, women are the first to be left behind.” (Velo Canada Bikes, 2018, pg. 1).

In low-cycling countries, countries where a small percentage of trips are taken by bicycle, women typically comprise less than 50% of the total number of cyclists (Garrard et al., 2012; Aldred, Woodcock & Goodman, 2015). Studies of different populations in the United States, Australia and the United Kingdom have illustrated this.

In the United States at the national level, Baker (2009) found the ratio between men's cycling trips and women's cycling trips to be 2:1; for every two trips a man takes by bicycle, a woman takes one. Likewise, in their examination of National Household Travel Survey data, a national survey conducted in the U.S., Krizek, Johnson and Tilahun (2005) found that men were twice as likely to complete their trips by bicycle as women.

At the city level in the U.S., Dill and Voros (2006) found in their study of Portland, Oregon residents that men were more likely to be a 'regular cyclists', someone who rides at least once a week year-round. Indeed, the ratio of male to female cyclists in Portland was 2:1 (Singleton & Goddard, 2016). This finding is reasonably consistent throughout the state (Singleton & Goddard, 2016). Finally, in New York City in 2008,

Pucher, Thorwaldson, Buehler and Klein report that 24% of the total cyclists in the city are women (2010).

Researchers have also examined university populations, who are thought to welcome bicycling as a low-cost mode of transportation (Abasahl, Kelarestaghi & Ermagun, 2018). However, the gender disparity is evident. In Baltimore, female university students commuting to school ride their bicycle 30% less than male university students, despite women on average living closer to their school (Abasahl et al., 2018). The researchers also eliminated accessibility and ownership issues, and lack of knowledge as potential explanatory factors for the disparity.

Similarly, in Australia, another low-cycling country, Bell, Garrard & Swinburn (2006) also found that men “were much more likely to cycle” to work, compared to women (pg. 65-66). In Sydney, 83% of commuting trips by bicycle were taken by men, while in Melbourne, that percentage decreased to 75% (Pucher, Garrard & Greaves, 2011b). Expressed in a different way, in 2001 in Australia, the bicycle mode share for commuting trips was 1.39% for men, and 0.40% for women (Bell et al., 2006). For women in Sydney and Melbourne respectively, the bicycle mode share for commuting trips was 0.27% and 0.76%, respectively (Pucher et al., 2011b).

Women in U.K. cities are half as likely to use a bicycle on a regular basis (defined as cycling at least once a week) as men (12% of women versus 24% of men) (Sustrans, 2018). A greater percentage of women also report that they never ride a bicycle, in comparison to men (73% for women and 55% for men) (Sustrans, 2018).

Researchers in the U.S. have also found that trip purpose can impact the percentage of men and women who cycle (Krizek et al., 2005). Men are more likely to ride their bicycle to work and for recreation than women. However, women are more likely to ride their bicycle to school, to run errands, go shopping, and to visit friends and relatives than men.

This gender differential in cycling rates is not innate or natural. In high-cycling countries, such as the Netherlands, Denmark and Germany, the gender differential is the opposite- women tend to cycle more than men (Aldred et al., 2015). 55% of all bicycle trips taken in the Netherlands was done so by women (Pucher & Buehler, 2008). That percentage is slightly lower in Germany and Denmark where 49% and 45% of all bicycle trips are taken by women, respectively (Pucher & Buehler, 2008).

Intersections

The previous section highlighted how cycling rate differ based on a person's gender. In the above literature, women were treated as a homogenous group with an identical experience. However, conceiving of gender without recognition of age, race and ethnicity, and class does a disservice to the complex environment in which women and men exist. It fails to recognize how a person's gender will interact with age, race and ethnicity and class to form a different experience, with different motivators and barriers to riding a bicycle. (The concept of intersectionality is further discussed below in Section 2.5 'Gender and Mobility'.)

To bring a more nuanced understanding of how gender impacts a person's cycling rates, the following three sections include brief discussions of how age, race and ethnicity and class impact a person's cycling rates, and if possible, how gender

interactions with age, race and ethnicity and class to impact a person's cycling rates. As is evident within these sections, limited research has been conducted on how gender interacts with each of these three characteristics to impact a person's cycling rates.

Age

Like women, older people who ride a bicycle are typically underrepresented in low-cycling countries. From early adulthood onward, residents of low-cycling countries have declining rates of cycling (Pucher & Buehler, 2008). In contrast, the rate of cycling for people in high-cycling countries falls only slightly as they age (Pucher & Buehler, 2008). The percentage of trips taken by Dutch elderly people is 60 times higher than that of the American elderly (Pucher & Buehler, 2008). In their 2006 study of Portland residents, Dill and Voros found that 80% of respondents aged 65 and older were non-cyclists, compared to 41% of those between the ages of 18 and 34. Likewise, in New York City, 93% of adults over the age of 65 had never ridden a bicycle, the highest for any age category (Pucher et al., 2010).

The above-noted research papers do not examine how age interacts with gender- that is how the cycling habits of elderly women differ from the cycling habits of elderly men. Therefore, no information is available regarding the intersection of gender and age.

Race and Ethnicity

Limited research has been conducted to examine how a person's ethnicity may impact how often they cycle, if at all (Brown & Sinclair, 2016). This is in spite of their growing presence on the streets. In the U.S., between 2001 and 2009, African American, Asian and Hispanic populations had the largest growth in the percentage of

total trips taken by bicycle, 100%, 80% and 50% respectively (League of American Bicyclists & Sierra Club, n.d.). Compare this to the growth in the percentage of total trips taken by the white population- 22% (League of American Bicyclists & Sierra Club, n.d.).

In the studies that have been conducted, a person's ethnicity has been found to be a factor in how much an individual rides a bicycle in Western countries. Green, Steinbach, Datta and Edwards (2010) found in their study of cycling in London, U.K. that the vast majority of cyclists were White; eight out of ten male cyclists are White and over nine of out ten female cyclists are White. Most pertinently, women who identify as Black or Asian are the groups least likely to cycle, forming 2.4% and 0.3%, respectively, of the total cyclists in London in 2005-2007 (Green et al., 2010).

The sole paper to discuss how race and ethnicity interacts with gender to impact a person's cycling rates is Lubitow's 2017 dissertation. In her qualitative study of women and people of colour in Portland, Oregon, she found that microaggressions, smaller and subtler forms of racism, impacted the cycling habits of participants. These microaggressions were perpetrated by both drivers and cyclists, examples of which include drivers not stopping when cyclists have the right-of-way, drivers not giving cyclists enough stopping room, and both drivers and cyclists passing too close. Conversely, most white women in that study reported that they didn't notice race as having an impact on their cycling habits.

Participants that identified as being a person of colour reported feeling both more visible and invisible while riding a bicycle. The following is one participant's description of how she feels more visible when riding a bicycle.

“I’d say I’m definitely a minority...if we were to go stand out on a street corner, like how many of the cyclists are ethnic?...I think it might be a bit more noticeable that you stand out, as a girl and as a girl of color, for sure.” (Lubitow, 2017, pg. 24)

At the same time, participants also felt invisible. The lack of diversity, or more specifically a lack of people of colour riding a bicycle also persuaded participants from riding a bicycle. Another participant:

“...there’s been times where I was like, ‘Oh, I should take my bike?’ [But I made a lot of excuses not to]...All of these excuses because I don’t see any Black people riding bikes, so why should I ride a bike?...”
(Lubitow, 2017, pg. 24)

Class

The sole article examining how class impacts a person’s cycling rate is Singleton and Goddard’s 2016 study. Using a large household travel survey data set from Oregon, the researchers found that,

“The differences between women bicyclists and nonbicyclists, and between bicycling women and men, painted a picture that revolves around issues of class and resources.” (p. 115)

Their analysis showed women were more likely to ride a bicycle if they have a higher income, are employed, have a driver’s license, and have access to a motor vehicle. Additionally, women with three or more bicycles in their household, and more than one bicycle per person, were more likely to ride a bicycle.

Conversely, Singleton and Goddard (2016) found that women who did not have a high-school degree, were not a worker, lived in low-income households, and made no

trips for work or school were less likely to ride a bicycle, while men in the identical situation were more likely to ride a bicycle.

These findings lead to their conclusion that the strongest explanation of this behaviour was a person's class, or access to resources.

“Women who bicycle are more likely to be bicyclists by choice, while women with fewer economic and mobility means are less likely to turn to bicycling.” (Singleton & Goddard, 2016, pg. 115)

This finding, that women's cycling rates are divided along class lines, is also one of the few examples of researchers taking an intersectional approach when studying who rides a bicycle.

2.3 Understanding the Disparity

A variety of factors contribute to the disparity seen in the gender of cyclists in low-cycling countries. Emond, Tang and Handy (2009) found that individual, social and physical factors all contributed to determining bicycle use, and their influence was often the same for men and women. However, they found several factors to be more persuasive for one gender over the other. Krizek et al. concur, stating that “gender may affect how strongly such factors are weighed” (2005, pg. 31).

These factors will be discussed below. For ease of understanding, they will be grouped into three categories, per Aldred et al. (2015). They categorise the potential factors behind this disparity in female cyclists into three groups: trip characteristics, cultural norms and infrastructure preferences. Each will be discussed in turn, and will draw from a range of studies, not just the three mentioned above.

2.3.1 Trip Characteristics

Women have different travel patterns from their male counterparts, being more complex and more constrained by time, as a result of their differing household roles (Garrard et al., 2012). When comparing these travel patterns, women's trip distances tend to be shorter, which makes cycling more feasible and attractive. However, a result of their differing household roles, including undertaking the majority of housework and childcare, women are more likely to trip chain and make escort trips, multi-purpose trips, and encumbered trips (Aldred et al., 2015). These trips are considered to be less well suited for using a bicycle (Aldred et al., 2015). Women report having difficulty finding time to use their bicycle, for either recreational or utilitarian trips, once they have children (Lubitow, 2017). However, in high-cycling countries, trip characteristics appear to be less of a constraint (Garrard et al., 2012).

2.3.2 Cultural Norms

Cultural norms are the second set of potential explanations why women cycle less than men (Aldred et al., 2015). In low-cycling countries, safety concerns, including personal safety, traffic safety and aggressive drivers, are present for women. Women report that when they're riding a bicycle, they have an increased level of awareness in certain surroundings because of their fear of violence (Lubitow, 2017). Lubitow (2017) also found harassment while bicycling to be a common experience for the women in her study. It is understandable then, that women are more likely than men to report traffic and aggressive drivers as a factor in their decision to ride a bicycle (Heesch, Sahlqvist & Garrard, 2012). Further, safety concerns are greater for and more impactful to women

in comparison to men (Garrard, Crawford & Hakman, 2006; Garrard et al., 2012; Akar, Fischer & Namgung, 2013).

Being the more risk-adverse gender, Krizek et al. (2005) argue that these safety concerns result in fewer women riding a bicycle. Indeed, Abasahl et al. (2018) found there was a statistically significant difference between how men and women viewed the risks associated with injury, collision, theft, poor weather, and darkness, and how these perceived risks negatively impacted their mode choice.

Furthermore, cultural norms about the appropriate appearance and dress for riding a bicycle, as well as appropriate appearance and dress when arriving at work by bicycle, constraint women's cycling behaviour (Garrard et al., 2006; Lubitow, 2017). Steinbach, Green, Datta and Edwards's 2011 paper corroborates this. They found that for women, a set of choices around how to clothe the cycling body existed and was of importance. For some women with a 'feminine' gendered identity, being unable to resolve these choices was enough to eliminate cycling as a mode of transportation (Steinbach et al., 2011; Lubitow, 2017).

2.3.3 Infrastructure Preference

The third and final category of factors is infrastructure preference. The type of bicycle infrastructure present has been widely identified to contribute to the gender disparity of cyclists (Aldred et al., 2015). The most common infrastructure characteristic studied is the separation from motor vehicles (Aldred et al., 2017).

In Australia, when riding a bicycle for transportation, men expressed a greater preference for on-road bike lanes over off-road paths in comparison to women (Garrard

et al., 2006). Similarly, female commuters have been found to prefer off-road paths over on-road lanes or roads with no bicycle facilities (Garrard, Rose & Kai Lo, 2008). No preference was found between on-road lanes or roads with no bicycle facilities. More recently, Heesch et al. (2012) found that women in Queensland, Australia were more likely to use off-road paths, while men were more likely to use on-road facilities. Additionally, women were less likely to prefer cycling on the road than men.

Studies completed in the U.S. have corroborated this finding. In Minneapolis-St. Paul, women and men were found to equally value on-road bicycle lanes, separate bicycle paths, connected bicycle infrastructure, and secure bike parking (Krizek et al., 2005). They are also both willing to travel a longer distance if it meant using a preferred infrastructure type. Their preferences were the same: both preferred an off-road path. However, women are willing to travel an additional 5.43 minutes on top of a 20-minute commute to get to that preferred infrastructure, in comparison to men. Abasahl et al. (2018) also found that women prefer separate bicycle facilities. However, they found men's preference was bicycle lanes.

In their study of six small U.S. cities, Emond et al. (2009) found that while individual, social and physical factors all contributed to determining bicycle use, and are often the same for men and women, some had a greater influence on one gender. For women, the most important determinant of bicycling was their comfort while bicycling. While both men and women reported being equally uncomfortable using bicycle infrastructure that is not separated from heavier traffic, men indicated that they would ride on it anyway while women said they would not. For cyclists in New York City,

Pucher, Thorwaldson, Buehler and Klein found that between 2003 and 2008, the average percentage of women using off-road paths is three times greater than the percentage of women using on-road facilities (2010).

Finally, in Toronto, Mitra and Nash (2018) found that on-road facilities were associated with a higher likelihood of female university students using them for commuting on bicycle, but not men. Additionally, a high density of streets over 60 km/h was negatively associated with female university students commuting by bicycle. The above studies provide a consistent narrative of women preferring to be further away from vehicular traffic, and that it is more important to them in comparison to men.

However, these findings are not reflective of the entire body of literature. In their 2017 systematic review of the literature on this topic, Aldred et al. found that 57.5% (or 23/40) of the studies said women expressed stronger preferences for bicycle facilities separated from traffic than men. The remaining 17 studies reported no statistically significant difference between the genders. The authors' explanation for this finding was sample size. Smaller studies, those with sample sizes less than 100 participants, were less likely to report a gender difference in separated bike facilities preference and may have been underpowered to detect such a difference. Therefore, it remains a powerful explanatory factor.

2.4 Narrowing the Disparity

The disparity in the rates at which men and women ride a bicycle is problematic, as outlined in the Section 1.1 'Problem Statement'. This disparity has led researchers to suggest policies and programs that can address and improve the disparity.

The earliest suggestions identified in the literature review are from Garrard et al.'s 2006 study of Australian women. Based on their interviews, they found women frequently mentioned four supports: cycling programs, groups and events for women, supportive people, and supportive cycling conditions were crucial for increasing the number of women bicycling. Each is briefly explained below.

Cycling programs were important for both beginner and experienced female cyclists. For beginner cyclists, they liked programs that provided a supportive and patient learning environment, with a mixture of theory and practice and the right amount of technical information. More experienced cyclists wanted programming that provided more specialized skills, with advice on bicycle innovations and technologies. For both beginner and experienced cyclists, access to activities appropriate to their skill level, such as workshops, rides, and training sessions.

Cycling groups and events were important for women as group rides and training sessions provided 'safety in numbers', allowing women ride in a way that they didn't feel comfortable doing solo (e.g.: on the road). Beyond the enjoyment of the ride portion was the social aspect, as there is typically a social event before or after a ride. The biggest challenge for these types of groups is maintaining the interest of existing members while welcoming new members who may be at a significantly lower skill level.

Supportive people for these women were varied, and included bicycle program coordinators, cycling coaches or mentors, encouraging friends, family members or co-workers, and 'realistic' role models who they saw cycling to work or home from dinner. Finally, supportive cycling conditions would also provide supports for women who are

cycling or wish to begin cycling. These included safe cycling routes, preferably off-road paths, and facilities at work for those commuting.

The U.S. national bicycling advocacy group, 'The League of American Bicyclists', takes a slightly different approach with some similarities to Garrard et al.'s 2006 recommendation. Their women-centric project, "Women Bike", explains the '5 Cs' of bicycling for women: comfort, convenience, consumer products, confidence, and community (Szczepanski, 2013). The first 'C' aims to make the street more comfortable for women through the use of bicycle facilities. Convenience recognizes that with more complex travel patterns from childcare and household responsibilities comes greater difficulty using the bicycle as a mode of transportation. Bike share systems are identified as a convenience booster. The third 'C', consumer products, ranges from clothing and accessories to the styles of bicycles themselves. More and improved products that are designed for and targeted to women, rather than men, would provide assistance. Confidence is identified as the fourth 'C' and includes providing education and skill-building classes specific to women. Finally, community recognizes for many women, in all types of cycling, that community is an important motivator for participation in cycling activities.

Several policy implications were identified in the literature, as a result of researchers' findings. Emond (2011), in comparing and evaluating American and Dutch bicycle infrastructure measures, suggests including a gender-sensitive index when accessing bicycle infrastructure. They note, "Even the complete street movement, by

not taking gender differences in bicycle behavior into account, is not recognizing the needs of all transportation network users” (pg. 260).

Aldred et al. (2017) recommends focusing on the infrastructure needs and preferences of those under-represented groups, including older people, women, children, and those cycling with children or making decisions about child cycling. An earlier study by Aldred et al. came to a similar policy recommendation. After determining that simply increasing the amount of cycling in a particular area does not necessarily increase the ratio of women or elderly persons riding a bicycle, Aldred et al. (2015) stated that there was a “need to more explicitly consider the needs and preferences of under-represented groups”, including women (Aldred et al., 2015, pg. 13).

Lubitow (2017) confirms that focusing on women and minorities is important. She states,

“Given the consistent pattern of fear, anxiety and stress that women and minorities reported encountering when navigating public spaces, additional support must be given to cultivate and maintain a diverse biking population.” (p. 33)

However, she ultimately concludes that likely, “the most critical changes must take place at a social and cultural level” (p.17).

Some of these suggestions are not easily actionable or are beyond the scope of a municipal government or a bicycle advocacy group. Some may not be politically palatable in many North American environments or run counter to an organization’s lens. Additionally, no evaluations have been conducted (and released to the public) regarding the effectiveness of any one suggestion. Needless to say, there are a number

of barriers to implementation, however, this practicum does not dwell on barriers. The practicum is about highlighting what supports do exist for women to ride bicycles or who wish to ride bicycles and provides an analysis of how they could be implemented in Winnipeg.

2.5 Gender and Mobility

The literature informing this practicum has a few key limitations. The first limitation is the use of the male/female binary. In Ravensbergen, Buliung and Laliberte's 2019 review of the academic literature on cycling where gender is considered, they identified the literature's tendency to "focus on identifying male-female differences in behaviors, stated concerns, correlates, and barriers" (pg. 6). Gender is considered a binary characteristic and detailed travel metrics (such as trip mode, trip length, and trip purpose) are important for answering their research questions (Hanson, 2010). This portion of the literature produced important findings about women's mobility but has done so at the neglect of the 'gender' portion. Their assumption of a male/female binary is simplifying and does not allow for an understanding of the complexities of gender (Hanson, 2010). The male/female binary fits into the structuralist view that sees gender as an "innate source of fixed and universal male/female difference" (Hanson, 2010, p. 8). However, Hanson notes that a second view of gender circulates in the academic literature. The post-structural view sees gender as a "socially constructed system of dynamic differences" that are changing and are changeable (Hanson, 2010, p.8). This view of gender recognizes that "the meanings and practices of gender vary from place

to place (and among different groups of women and men in the same place)” (Hanson, 2010, p.8).

This last idea- that the meanings and practices of gender *vary among different groups of women and men in the same place* presents another limitation of the academic literature. It does not consider that the collective experience of each gender may be varied within themselves along class, race, and ethnic lines. Indeed, Ravensbergen et al. (2019) warn against such over generalizations just as feminist geographers have done before them. However, the treatment of gender as a singular experience has rarely been considered in the literature. Singleton and Goddard (2016) and Steinbach et al. (2011) are two of just five academic papers that include consideration for intersectionality (Ravensbergen et al. 2019). The academic literature on gender and cycling has failed to probe deeper into the processes that produce an environment where the gender disparity in cycling rates occurs in the first place (Ravensbergen et al., 2019).

It is important for the reader to be aware of these limitations, mindful of them as they read the document. This practicum has attempted to reduce some of these limitations through the use of the concept of intersectionality throughout the analysis, as suggested by Ravensbergen et al. (2019). However, this alone is not sufficient to overcome the limitations entirely. Additionally, the term ‘gender’ is used many times throughout this practicum. While its definition is not considered in most of the academic literature this practicum is predicated on, I concur with Hanson (2010) that readers should remain cognizant of the two views of gender. Finally, the terms ‘female’, ‘male’,

'woman' and 'man' are used throughout the document. This is done to accurately reflect the literature, which generally takes a structuralist view of gender.

3 RESEARCH METHODS

Two research methods were employed to answer this practicum's research questions: first, a precedent review followed by key informant interviews. Prior to starting the precedent review, a comprehensive literature review was conducted, as set out in Chapter 2. The literature review facilitated identification of keywords and search terms to use in precedent review, and in one case provided an intervention for the precedent review. Each of these two methods are next described.

3.1 Precedent Review

The precedent review was selected as the method to best answer the first research question. A common method of the architecture discipline, the precedent review mixes the case study approach with that of a literature review. It provides inspiration and ideas for a new project based on previously created designs (Milburn & Brown, 2003). This method was selected to search for and identify interventions (also referred to as precedents) in the environment that support women who currently cycle or wish to begin cycling. For this practicum, the term 'environment' was used in its broadest sense, allowing for a range of activities, programs or structures.

The precedent review began with a thorough search of the peer-reviewed academic literature. Comprehensive academic databases, such as ScienceDirect, Web of Science, Jstor and Ebscohost, were searched using various search terms and combinations, such as 'women cycling', 'gender cycling', and 'woman bicycle'. These

searches were then repeated without the peer-reviewed standard. The reference lists of relevant articles and books were examined.

Next, the grey literature was searched. The grey literature is distinguished from academic literature by the method in which it is published (for example: online or self-published versus in academic journals or books) and by the absence of a peer review process. Examples can include government documents and publications, reports, working papers, and some conference presentations, theses, and dissertations.

The precedent review of the grey literature involved searches on both broad and targeted websites. For example, magazines published online having content about city planning or transportation planning, such as CityLab or Streetsblog, were searched using simple search terms, such as 'cycling', 'equity' or 'gender'. This returned a wide range of articles to be examined, rather than generating a very small list of articles and risk excluding some who did not have the exact wording or terminology. Similarly, searches through the websites of national and local level cycling organizations, and transportation conferences featured broad search terms. For searches on general search engines, such as Google, Google Scholar and OpenDOAR, multiple and more specific search terms were used, given the wide range of results that could be returned.

At the point when the precedent review returned previously identified interventions, the key informant interview questions were drafted. This succession allowed information gathered in the precedent review to inform some of the interview questions.

3.2 Key informant Interviews

This method was selected for several reasons. First is the nature of the second research question itself. To answer this question, it was crucial to interview those individuals having a thorough knowledge of the Winnipeg cycling context and environment, gained through their employment or volunteer work. Organizations and employers were approached to participate based on their roles and activities in the cycling community. Further, it was assumed the organizations or employers put forward the most appropriate individual to discuss their work related to cycling being “in a good position to know the answer to these questions” (Farthing, 2016, pg. 127).

Additionally, Gray (2009) observes interviews are useful where the interviewees enjoy talking about their work. It was assumed most if not all individuals working or volunteering for bicycle advocacy organizations and community bike shops, do so out of passion for bicycling and their desire to get more cycling. Most do not enter this line of work to gain wealth or fame. Indeed, employees of non-profit organizations are typically paid less than those in the private sector, and volunteers do not earn honorariums.

Finally, interviews have the potential to provide more detailed responses than other methods, such as a questionnaire (Gray, 2009). They can allow for more in-depth discussions on a particular topic or give the researcher or the interviewees the opportunity to bring up new ideas and points of discussion that can be further explored (Farthing, 2016). Because of this potential benefit, a semi-structured style of interview was selected.

Using the information gathered in the literature review and precedent review, an interview schedule was drafted to act as a guide through the interviews (see Appendix A). The schedule underwent the review process of the University of Manitoba Joint-Faculty Research Ethics Board and received approval in January of 2019 (see Appendix B).

A total of twelve individuals and organizations were identified and invited to participate in the research project. The individuals were selected on the basis of their knowledge of Winnipeg's cycling environment, gained either through their employment or volunteerism. Organizations were selected based on their role in Winnipeg's cycling environment, and the services or programming they provide.

In January 2019, an email was sent to the publicly available email addresses of twelve individuals and organizations, inviting them to participate in this practicum. A brief description of the project was included, as well as the project's time requirement, the benefits to participating, and how confidentiality would be maintained (see Appendices C and D). If the individual or organization responded in the affirmative, they were supplied with the project's informed consent form (see Appendix E) and a date and time for an interview was arranged by email. Interviewees were also provided the opportunity review the project's proposal. Interviewees were not briefed with information about the interventions found in the precedent review prior to the interview, as none of the interventions were deemed complex enough to require a briefing. For those who did not respond to the initial invitation, a follow-up email was sent two weeks later to

request their participation and explain why they were an important individual or organization to speak with. After the second email, no further emails were sent.

Of the twelve individuals and organizations invited, seven agreed to participate, three did not respond, one declined but provided the researcher's contact information to a more appropriate person who subsequently agreed to participate, and one was unreachable. When an organization agreed to participate, the organization selected the individual who would be interviewed and speak for the organization. This ensured that the most appropriate person from that organization was selected.

Between February 6 and March 4, 2019, the eight interviews were conducted at a Winnipeg location and time convenient for the interviewee. The interviews ranged in duration from 30 minutes to over 2 hours. All interviewees signed the Informed Consent form and consented to being recorded by a personal audio recording device. Each interviewee received a \$10 gift card to a Winnipeg coffee shop, as a token of appreciation.

4 FINDINGS AND ANALYSIS

This chapter reports the findings from the precedent review and the key informant interviews. This is followed by an analysis drawing together the two findings to answer the second research question.

4.1 Precedent Review Findings

The precedent review involved a search of the academic literature, followed by the grey literature. A variety of search terms, and different combinations thereof, were used including 'women cycling', 'gender cycling' and 'women bicycle' (see Section 3.1 'Precedent Review'). The precedent review returned over forty interventions, too many to fit within the scope of this practicum. This was anticipated, therefore requiring criteria to be developed to eliminate those interventions occurring in a substantially different environment from that of Winnipeg. The proposed criteria to eliminate the interventions implemented in a substantially different environment could include population size and density, climate, and land use. Criteria were developed following the completion of the interviews, to allow the information gathered in interviews to partially inform the criteria, as interviewees were best positioned to consider whether an intervention would or would not be feasible in Winnipeg.

Two key criteria were applied to select the most relevant interventions identified in the precedent review. First, the intervention must specifically address women, as indicated in the literature review. Second, the intervention has sufficient published information available in English either online or in articles or books. 'Sufficient published

information' was defined for the purposes of this practicum as having at least two or three different sources providing information about the precedent. For example, 'sufficient published information' includes an organization's website and a newspaper article about them.

The precedent review findings are presented below. What are considered the top ten key interventions are each set out in three parts. First, the intervention is described including: its type, its geographic reach, and the individual(s) and/or organization(s) behind its creation. Second, the context in which the intervention developed, followed by a brief analysis of the intervention. The analysis sets out what makes this intervention unique or important and the lessons learned by the individual(s) and/or organization(s).

4.1.1 Cycling Course for Immigrant Women — Tilburg, Netherlands

Since 1991, the Centre for Immigrant Women (formerly known as the Centre for Foreign Women) offers cycling courses to newcomer women. The course consists of one hour-long lesson per week for ten weeks. The class size ranges from six to twelve women, and costs 25 euros (approximately \$36 CAD). The course attracts a wide range of newcomer women from various countries, with varying incomes, educational levels, and household structures (van der Kloof, 2003). Each lesson consists of three components: a cycling part, a theory part, and a social part (Presto, 2010). Participants learn how to ride a bicycle, navigate the streets, as well as learning traffic regulations and understanding traffic signs and signals. The course ends with an exam, and after passing, the issuing of a certificate of completion (Presto, 2010).

Context

Since the 1970s, The Netherlands has experienced immigration from countries where cycling is not a common form of transportation, notably Turkey, Morocco, and Suriname (van der Kloof, Bastiaanssen & Martens, 2014). This is in contrast to the Netherlands, where 27% of all trips made by Dutch residents are travelled by bicycle, making it the second most common mode of travel (Netherlands Institute for Transport Policy Analysis, 2018).

However, the use of the bicycle is not equal amongst Dutch residents. Residents from a non-western migrant background cycle less frequently compared to native Dutch residents (Netherlands Institute for Transport Policy, 2018; van der Kloof, 2015).

Newcomers tend to walk more, and take buses, trams, and subways at four times the rate of native Dutch residents (Netherlands Institute for Transport Policy, 2018).

Analysis

In providing cycling lessons to newcomer women, it is intended to contribute to their integration and emancipation (van der Kloof, 2003). Being able to cycle not only improves their mobility and assists them in adapting to local transportation norms, but it can also enhance their sense of equality and freedom in their new home (van der Kloof, 2003).

The Centre for Immigrant Women is not the only organization in the Netherlands to provide cycling courses to newcomer women, nor is it the first. Since the 1970s, cycling courses for women have been taught across the country (van der Kloof, 2015). No official data is kept regarding the number of courses taught or the number of newcomers participating. However, in 2003, it was estimated that over 6,000

newcomers had learned how to ride a bicycle at one of the over 300 locations across the Netherlands that year (van der Kloof et al., 2014).

Cycling courses are organized at the local level by the sports departments of city boroughs, women's centres, community centres, and adult education centres (van der Kloof et al., 2014). These organizations must find their own instructors, create their own course material, locate their own funding, and even provide their own bicycles for lessons. This has and continues to create challenges for those organizations. Furthermore, the quality of the lessons varies, based on the organization's access to resources, such as qualified instructors and good selection of bicycles.

4.1.2 Fietsvriendinnen (“Cycle Friends”) — Tilburg, Netherlands

In 2004, the Centre for Immigrant Women, along with several other NGOs in Tilburg, The Netherlands, began a pilot project called *Fietsvriendinnen*, or “Cycle Friends”. The project partnered newcomer women who recently learned how to cycle with experienced cyclist volunteers, mostly Dutch women. At their initial meeting, the partnered individuals developed a cycling schedule. This schedule consisted of a weekly cycling excursion to a destination in the city, such as a museum or tea house. The couple would then meet weekly for one year, at which point they could decide to continue or stop cycling together (German Institute of Urban Affairs, 2009).

The *Fietsvriendinnen* project was overseen by a project leader who held a variety of responsibilities. The project leader recruited newcomer women and cyclist volunteers and matched the cycling couples based on their knowledge of the individuals from previous interactions. The project leader, along with an individual with experience in

cross-cultural communications, also trained the cyclist volunteers over the course of two evening sessions. The training addressed a variety of elements that ranged from cultural awareness to cycling with a beginner cyclist. Finally, the project leader connected with the cyclist volunteers every couple of months to monitor the results and resolve any problems that arose (German Institute of Urban Affairs, 2009).

Context

Fietsvriendinnen is a continuation of the Centre for Immigrant Women's efforts to support newcomer women in their cycling habit, building upon the work of their earlier cycling program, Cycling Course for Immigrant Women. Cycle Friends Project Leader, Angela van der Kloof, recognizes that learning how to cycle and integrating it into one's life may require more than just learning how to cycle. Rather, it is a process with stages that build on previously learnt skills (Mobycon, 2013). Teaching someone to cycle does not necessarily result in cycling becoming their everyday transportation mode. Some women may require continued support to more completely utilize cycling in their day to day life.

Analysis

Fietsvriendinnen was evaluated after its initial session, and some key components and successes were identified. The start time of the program was seen as ideal as both volunteers and newcomers were eager to explore the city after winter. The flexibility of the project did not preclude working women from volunteering. Therefore, recruiting volunteers was not difficult. The training was also appreciated by the cyclist volunteers and was practical. Additionally, the cyclist volunteers found that within six months, their newcomer cycling buddy reported cycling for a variety of trip purposes.

There were several lessons learned in the initial session. First, many newcomer women interested in joining the project did not have a bicycle. Extra time was needed to support them in procuring a bicycle. Additional time was also needed to match and introduce the cycling couples for the session as these two tasks were performed by the same person, the project leader. Finally, cycling couples ceased meeting after approximately six months of cycling together. Therefore, the time commitment required of participants was reduced from twelve months to six (German Institute of Urban Studies, 2009).

The strength of this project is its recognition of the need for additional assistance and support. On the cycling excursions, new riders may navigate routes that make them feel uncomfortable or nervous, or cycle to activities that they usually take public transit to. By exposing new cyclist to these situations with the physical and emotional support of an experienced cyclist, they may move up the cycling ladder X to a place where they can fully integrate cycling into their daily life. The frequency of the cycling excursions, coupled with the minimum time commitment, assists in cementing this skill and establishing new habits.

4.1.3 Black Girls Do Bike — United States of America

Black Girls Do Bike was founded in May of 2013 by Monica Garrison (Blue, 2016). Its purpose is to grow and support a community of women of color who share a passion for cycling for function, fitness, freedom and fun (Black Girls Do Bike, n.d.). Originally a Facebook group, *Black Girls Do Bike* has grown into an organization with over 80 chapters across the United States and one in Antigua. Each chapter maintains

their own Facebook page which provides a platform for the sharing of advice, the provision of support, and the promotion of skill-sharing (Black Girls Do Bike, n.d.). The leader(s) of each chapter, or “Shero(s)”, also organize(s) a monthly ride, in addition to any other ride members wish to organize.

Context

The idea of *Black Girls Do Bike* came as Garrison began to cycle regularly and saw very few women of colour on the roads and trails. Searches on the internet revealed few images of women of colour riding bikes, and no national organization dedicated to encouraging women of colour to ride (Blue, 2016). Garrison decided to fill this gap, by starting a Facebook group.

Analysis

An important element of *Black Girls Do Bike* is how it expands the perception of who cycles. Along with the visibility that comes from group rides, each *Black Girls Do Bike* chapter has a significant social media presence showing activities of the group and highlighting members’ accomplishments on Facebook, Instagram, and Twitter. Additionally, a Strava club was created so all *Black Girls Do Bike* members can track their ride distances and times on the app.

Expanding the perception of who cycles and creating genuine images of those underrepresented groups is crucial when attempting to grow the number of cyclists. As Garrison notes, “If you don’t see women who look like you using bikes for recreation, as alternative transportation or racing professionally, you also might not consider it” (Glass, 2016, n.p.).

4.1.4 Women Bike — United States of America

Women Bike was formed in 2009 as an initiative of the *League of American Bicyclists*. Their mission is to,

“change the face of bicycling by getting more women on bikes and participating as riders, advocates and leaders to create strong communities and celebrate the job of riding a bike.” (League of American Bicyclists, n.d., n.p.)

To this end, *Women Bike* organized and produced a host of resources aimed at female cyclists. From 2012 to 2015, *Women Bike* held an annual forum for women engaged in bicycling advocacy to get together to share experiences and stories and listen to new research and best practices. They also produced resources in various mediums. This includes webinars and webcasts on topics ranging from ‘How to Start and Sustain A Women’s Bike Club’ to ‘Getting More Moms and Families on Bikes’; blog posts about inspiring female cyclists; and reports on women’s engagement and involvement in the cycling community (League of American Bicyclists, n.d.). Finally, *Bike Women* created a mini-grant program that selected innovative programming aimed at getting more women on bicycles and provided them with a one-time infusion of cash to support their efforts.

Context

Women Bike was developed as a response to the finding that in 2009, women’s trips comprised only 24% of the total bicycle trips taken across the U.S. (League of American Bicyclists, n.d.). This finding occurred around the same time as the interest in and popularity of bicycling rose across their country, the United States. They organized

a variety of events, such as conferences and forums, and produced informative documents, some of which were used in this document's literature review. However, since then, this arm of the *American League of Bicyclists* has undergone a period of silence. At the time of writing in 2019, the League's home page, and its drop-down menus, makes no mention of Women Bike, or any of their written materials. It requires some digging to locate the materials in the 'About the League' section, in the 'Equity, Diversity & Inclusion' subsection. The 'Women Bike' programs appear to have been subsumed into the League's broader 'Equity, Diversity & Inclusion' focus.

Analysis

For the first several years after its formation, *Women Bike* as a branch of the *American League of Bicyclists* was very active. Since that time, the League itself pivoted to better address inequities in cycling in general, and in their organization in particular. The interest for this shift came from individual staff and Board members (Lugo, 2014). In 2013, they undertook an internal equity assessment and change process (League of American Bicyclists, 2014). Their objectives were threefold: to change the organization's strategic plan and programming to support equitable bike outcomes that include diverse users; to create an inclusive work environment; and to establish organizational structures that support the first two objectives (Lugo, 2014).

Since the completion of this process in 2015, the League has worked to incorporate equity, diversity, and inclusion principles into its mission and vision, its plan, and its programs. This coincides with an increased awareness of equity issues as it is related to biking (see PeopleForBikes and Alliance for Biking & Walking, 2015; Hoffman, 2016 and Lugo, 2018).

4.1.5 Süslü Kadınlar Kisiklet Turu (“Fancy Women Bike Ride”) — Turkey

Süslü Kadınlar Kisiklet Turu is Turkish for “Fancy Women Bike Ride”. This women-only event was first held in 2013 in Izmir, Turkey, on World Car Free Day. It was started by Sema Gür as a Facebook event, drawing over 300 women to its inaugural 3km bike ride (Süslü Kadınlar Kisiklet Turu, n.d.). Participants dressed in their fanciest clothes, decorated their bikes, and toured around the city centre, smiling for cameras and waving at onlookers and bystanders. The ride has since become an annual event, expanding to new cities each year. In its first few years, Fancy Girl Bike Ride expanded to cities across Turkey. By 2017, the event was held in 50 cities in Turkey, drawing 30,000 women (Pinzuti, 2018). In 2018, events were organized in 70 cities including Italy, Germany, and Switzerland, and was recognized by the European Union Commission as a global women’s movement (Süslü Kadınlar Kisiklet Turu, n.d.). In 2019, *the Fancy Women Bike Ride* was held in over 100 cities around the world, including Vancouver, and Washington, D.C.

Context

Süslü Kadınlar Kisiklet Turu was first organized as a response to the male-dominated world of cycling in Turkey (Pinzuti, 2018). Sema was frustrated with bicycle scene in Izmir where men chose the route, the speed, and the attire (Pinzuti, 2017). She invited some friends to an easy afternoon bike ride, purposefully on World Car Free Day, to make a statement that women exist, ride bikes and can do so in a dress or more formal attire (Süslü Kadınlar Kisiklet Turu, n.d.). Since then, the event has developed

two purposes: to encourage more women to ride a bicycle and to demonstrate the demand for safe roads for cyclists (Süslü Kadınlar Kisiklet Turu, n.d.).

Analysis

One of the largest motivators behind this event is visibility (Süslü Kadınlar Kisiklet Turu, n.d.; Pinzuti, 2018). Their manifesto states,

“Woman’s visibility in urban spaces is key to claim the right to the city. Cycling is a particularly powerful way for women to become visible in the society and a complete new way to interact with the city” (Süslü Kadınlar Kisiklet Turu, n.d., n.p.).

Bringing women into a contested public space of the street asserts their ‘right to the city’ while simultaneously creating an environment that is comfortable, safe and welcoming. This is accomplished by three means. One, a day is selected where fewer cars are on the streets, ensuring both personal and road safety. Two, a large group of women ride together providing ‘safety in numbers’, including personal and road safety. Three, while the rationale behind the event is more serious, the event itself- dressing up and adorning one’s body and bike in flowers- is light-hearted, colourful, and fun. Women are happy to be in each other’s company and it shows.

4.1.6 WE Bike NYC — New York City

WE Bike NYC is a not-for-profit, volunteer-run organization in New York City for women, female-identifying, and gender non-conforming individuals who like to ride their bike. Since 2012, *WE Bike NYC* has offered a variety of programming and events to ‘break down barriers to cycling and build community’ (WE Bike NYC, n.d., n.p.). They have three distinct initiatives, each with their own rides, events, and workshops. First,

WE Ride is their general programming targeting all women, female-identifying and gender non-conforming adults. Programming includes field trips, mechanic workshops, social rides, and training rides for longer bike tours. These events are free of charge.

Moms on Wheels is their second initiative, aimed at mothers trying to get around the city on bikes with their children. Their programming includes child-centric rides, which includes opportunities to exchange stories and tips, and events for moms to try out different child seats, trailers and bicycle (WE Bike NYC, n.d.). Again, these events are free of charge.

Their third initiative, *Mujeres en Movimiento* or 'Women in Movement', was formed by Queens resident Veronica Ramirez in 2012. Initially, this was a group of Spanish-speaking Latino mothers who got together for aerobic classes at a local community space called Immigrant Movement International. In 2013, WE Bike NYC partnered with the immigrant resource centre to host a series of free Spanish-language bicycle maintenance workshops (Abraham & Cibils, 2016; Meyer, 2015). The workshops include community rides and mechanics classes (WE Bike NYC, n.d.). While it is not clear if these workshops are still being held, *Mujeres en Movimiento* remains active in their community's bicycle advocacy.

Context

WE Bike NYC was formed in response to one New Yorker's inability to find a women's cycling group in a city of millions (WE Bike NYC, n.d.). Like many cities, the New York City bike culture was dominated by men or individuals interested in racing and competitions. Finding neither of those options appealing, founder Liz Jose emailed a few friends to gauge their interest in cycling together. Those friends, in turn, emailed a

few of their friends, and a short time later, Jose had a group of women who were interested in riding together (WE Bike NYC, n.d.). In their first year as *WE Bike*, they organized women-only rides and a couple of mechanical workshops. As interest grew, so too did their programming. In 2013, they broadened their initiatives to include programming targeted to mothers and Latino women. In relation to Latino women, *WE Bike NYC* realized the lack of engagement could have been the result of a language barrier, as any information was provided in English only or from their promotional materials, as all the photos were of white women in spandex (League of American Bicyclists, 2014).

Analysis

Reaching out to immigrant or newcomer organizations does not appear to be a common practice in North America. As shown by Sections 4.1.1 and 4.1.2, this engagement occurs with greater frequency and intensity in European countries. The Netherlands, for example, has worked together with immigration organizations for decades to provide training and lessons to newcomers, particularly women.

The League of American Bicyclists (2014) identified several key elements of the *Mujeres en Movimiento* program. First, *WE Bike NYC* formed partnerships with well-placed community organizations, like the Immigrant Movement International. These types of partnerships allowed for classes that were conveniently located while aligning with both partners' goals and audience. Second, they had the appropriate resources. The program provided participants with the appropriate tools for basic bicycle maintenance. At the end of their first earn-a-bike program, a local bicycle shop donated bicycles appropriate to the needs of the participants. Third, *WE Bike NYC* encouraged

graduates of the earn-a-bike program to teach others to ride a bicycle, in the hopes of creating a self-sustaining movement of Latino women supporting each other in cycling. Finally, *WE Bike NYC* produced Spanish-language outreach material and resources.

4.1.7 Grease Rag & For Us by Us — Minneapolis-St. Paul, Minnesota

Grease Rag, and their sister organization *For Us By Us*, are each a volunteer-run, community-funded collective of individuals located in Minneapolis-St. Paul. Each collective organizes their own events and are targeted to a population that has traditionally been marginalized in bicycle culture. *Grease Rag* and their events are open to all FTWs (Femme, Trans, Women, Non-Binary, Two-Spirit people) while *For Us By Us* events are for BIPOC+ (Black, Indigenous, People of Colour, those with a complicated relationship with their race) who are also FTWs (*Grease Rag*, n.d.).

Grease Rag and *For Us By Us* provide a variety of events and programs. Their core event is their open shop nights, but they also host group rides, bike camping trips, educational seminars, and social events (*Grease Rag*, n.d.). They do not have a physical space of their own. Rather, their open shop nights rotate between four community bike shops who they've partnered with. Each shop night has at least one facilitator, a volunteer trained by *Grease Rag*, and a mechanic, provided by the community partner (Regan, 2013).

Context

Grease Rag was formed in 2009 by Erin Durkee, a bike mechanic, after being inundated with requests from friends to fix their bikes. She decided to organize an event where they could all get together and teach each other what they know about bikes

(Regan, 2013). It began as a monthly open shop and a very slow group ride. The collective coalesced around the lack of safe space for people who aren't male (Regan, 2013). In recent years, the collective has adjusted its focus. In 2017, they began to use their current acronym, FTW, rather than WTF (Women, Trans, Femme) to decentre from cis-gendered women (Grease Rag, n.d.). *For Us by Us* was also formed around this time to create a specific space for BIPOC+ FTW.

Analysis

Grease Rag and *By Us for Us* recognizes something the academic literature has just begun to grapple with and address- intersectionality. Intersectionality describes the concept that “forms of oppression associated with axes of identity [gender, class, race, ability, etc.] do not exist independently” (Ravenbergen et al., 2019). Rather, they build upon, and amplify each other, and must be considered together. Hoffman (2016) references the rarity of recognizing intersectionalities in bicycle-related research, explaining,

“Literature on bicycling culture tends to begin from one standpoint such as gender, social movements, history, advocacy, or technology. The focus on one-dimensional, celebratory, and apolitical research has created a body of work that has ignored major cultural and socioeconomic factors that impact what bicycling looks like in various spaces.” (p. 7)

The absence of consideration for intersectionality in the cycling literature is problematic. “When difference is not incorporated into our study of women’s experiences, the women’s voice we do hear tend to be from White, middle-class, heterosexual, women” (Ravensbergen et al., 2019).

Another notable characteristic of the *Grease Rag* and *By Us for Us* is its use and enforcement of 'safe spaces'. One of their central undertakings is to provide what they call "safer spaces".

"The most important thing to know about safer spaces is that we are constantly learning how to make our spaces safer for the most historically marginalized in our community. Safety means spaces where we reduce harm for people who experience violence or discrimination due to their appearance or identity." (Grease Rag, n.d., n.p)

They follow through on their commitment to providing safer spaces by staff training and the enforcement of their rules. *Grease Rag* facilitators and volunteers receive safety training, so they are able to defend the safe space. Abusers are banned. The facilitators play an important role in creating a safer space by being the de-facto leader for enforcing safer space rules. They also receive training in de-escalation and self-defence to assist them in their role (Grease Rag, n.d.).

4.1.8 HSBC UK Breeze — United Kingdom

HSBC UK Breeze is an initiative of British Cycling, the United Kingdom's national cycling body. Since 2013, they have offered free bike rides for women of all ages and abilities across England, Scotland, and Wales (British Cycling, n.d.; Everett, 2019). The rides vary in length, from a couple kilometres to fifty kilometres or more, and difficulty, from easygoing to challenging. Trail conditions also vary so a specific type of bicycle is required for some rides. Each ride has a capacity, typically 8 or 16 riders and a leader called a Breeze Champion. Further information about available rides can be found on their website.

The expansion of *HSBC UK Breeze* rides has come from the participants. The rides expand to new communities, and take on different lengths, routes, and degrees of difficulty when a woman comes forward to be a Breeze Champion. Becoming a Breeze Champion is not difficult. Champions attend a one-day course that gives each woman the tools to deliver bike rides, and British Cycling provides ongoing support to the Champions. In return, each Breeze Champion is supposed to hold a minimum of eight rides a year, and promote their rides on their social media accounts (British Cycling, n.d.)

Context

HSBC UK Breeze is part of British Cycling's broader #OneInAMillion campaign, whose goal is to get one million more women cycling by 2020 (British Cycling, 2019). Its development and implementation were a result of the sporting body's finding that men comprise a greater percentage of people riding bicycles, compared to women. Their research found over two thirds of frequent cyclists in the UK are men (69%) (British Cycling, 2019). They also found "a vast disparity in confidence levels amongst women and men" (British Cycling, 2019, n.p). In their research, 64% of female respondents indicated they don't feel confident riding their bike on the roads, while only 38% of men reported feeling the same (British Cycling, 2019).

Analysis

The *HSBC UK Breeze* program was initiated centrally by an organization working at the national level. However, the program implementation occurs at the community or local level. This structure has a couple benefits. First, by being initiated by a national-level organization, it is likely the program has better access to resources and support

(e.g.: funding, training sessions, etc.) than if it were organized at the local level. Second, implementation at the community or local level allows for rides and routes to be created by those who know them best. Community-based implementation may also result in a more sustainable program. Breeze Champions are volunteers who create rides that suit their preferences and are adjustable as the preferences of the Breeze Champion or the participants change.

4.1.9 #BIKEYGEES e.V. — Berlin, Germany

#BIKEYGEES e.V. (or *Bikeygees* for short) is a non-profit organization in Berlin, Germany. They offer free bicycle lessons to newcomer women and girls over the age of fourteen, every third Sunday of the month. Registration is not required; any interested individuals can show up at the sessions, with or without a bicycle. Every student has at least one instructor assisting them, holding their handlebars or their seat, and providing tips and words of encouragement. As part of the lessons, *Bikeygees* provide multilingual lessons on German traffic rules, and basic bike repair (Bikeygees, n.d.). The organization also offer exclusive lessons, upon request, for large groups or at different locations through Berlin (Bikeygees, 2018). As a non-profit organization, volunteers and donations are crucial to its success. Fortunately, they are able to rely on graduates of the program to assist with training and translation (Bikeygees, 2018). Donations of money or bicycles allows the *Bikeygees* to provide bicycle, helmets, maintenance tools, and locks to participants who need them (Bausells, 2018).

Context

Bikeygees started as a small-scale empowerment project in 2015, following the influx of refugees into Germany (Dundon, 2018). Founders Annette Krüger and Dr. Anne Seebach were volunteering at a local refugee centre, and being bicycling enthusiasts, saw the opportunity to teach newcomer children how to ride a bicycle. They arranged to meet any interested children with their parents in a local grocery store parking lot. As the mothers watched their children learn how to ride a bike, they were motivated to learn themselves (Dundon, 2018). With such demand, Krüger established the *Bikeygees*, and moved the lessons to a traffic school adjacent to large greenspace. Krüger says,

“We have one million new citizens in Germany, so the question is: do we want to have one million car drivers, or can we get one million new cycling fans?” (Bausells, 2018, n.p.)

Since its inception, *Bikeygees* have taught over 700 women to ride a bicycle, provided nearly 200 bicycles and taught over 150 lesson (Bikeygees, n.d.). Their work has been recognized in Germany with several awards including the Hatun-Sürücü Prize, an award for initiatives that promote the self-determination of women and girls; the Aktiv-Wettbewerb award, from the Alliance for Democracy and Tolerance against Extremism and Violence; Respect Wins!, honouring projects and people who work for democratic and peaceful coexistence in Berlin; and the German Cycling Award (Bikeygees, 2018; Bikeygees, n.d.)

Analysis

Bikeygees is similar to the Dutch ‘Cycling Course for Immigrant Women’ program described in Section 4.1.1 of this chapter. Like them, *Bikeygees* take advantage of the new environment in which newcomer women and girls find themselves, offering the opportunity to try something they may never have had the opportunity to try in their home country. In learning how to ride a bicycle, navigate the roads and complete basic bike repairs, the women and girls gain a set of skills that can provide freedom and empowerment, and give them access to an inexpensive form of transportation.

4.1.10 Queen Mary Hostel Cycling Project — London, United Kingdom

The *Queen Mary Hostel Cycling Project* is an initiative to run a cycling club for residents of the Queen Mary Hostel, a supportive living facility for vulnerable women in London. The cycling club runs in 10 week-blocks for 10 women per block. Once a week, participants get together with the two hostel staff members to practice their bicycling skills. Each session begins with a check-in: how are they feeling; how their cycling session last week was; and what do they hope to gain in this week’s session. They then head to a nearby park and practice. Most have not ridden a bicycle in years, so instructors start at the beginning. They use the Bikeability scheme, England’s national standard for cycling training, to measure and track participants’ progress (Packham, 2018). Other elements are introduced to the sessions, such as trip planning, map reading, and basic bicycle maintenance (Colbeck & Charlesworth, 2018). Lunch and snacks are also provided to encourage participants to attend. In addition to these

weekly sessions, participants have access to their bike at any time, once they are competent riders.

Context

In 2017, the Queen Mary Riverside approached the U.K.-based transportation charity, *Sustrans*, to provide support in setting up and running a cycling club for their residents (Packham, 2018). As a facility for women with complex needs, including mental illnesses, one of their priorities is to focus on the well-being of their residents (Walking and Cycling Grants, n.d.). Staff felt cycling would be a good fit, as it would provide residents with physical activity and help them gain access to other spheres of society, such as paid employment and community groups (Colbeck & Charlesworth, 2018). A 10-week pilot was conducted, funded primarily by the hostel. The pilot was considered to be a success by both staff and participants. To continue the program, the hostel applied for funding from Cycling Grants London, a grant program funded by transportation authority Transport for London (Walking and Cycling Grants, n.d.). In 2018, they received close to £10,000, allowing the project to continue for another three years (Walking and Cycling Grants, n.d.). The grant also provides training to two staff members to learn how to plan and lead bike rides, organise a bike loan system, and perform basic bicycle maintenance (Walking and Cycling Grants, n.d.). The agency that runs the Queen Mary Hostel would like to initiate a similar project at their male-only hostels.

Analysis

This type of program appears to be unique among interventions identified in the precedent review. The *Queen Mary Hostel Cycling Project* provides residents, some of

whom experience multiple intersections of marginalization and may otherwise not have access to cycling, with the opportunity to (re)learn a skill and explore their city by an affordable mode of transportation. Additionally, residents are able to get some physical activity which improves their mental well-being. The renewal of funding indicates the popularity and success of this program, not to mention the positive reviews provided by participants. Colbeck and Charlesworth's article in the Guardian recognizes the importance of this type of programming, and the need to provide marginalized persons with support to obtain mobility.

“The expanding network of dedicated bike routes and schemes has increased cycling levels in London, yet the ‘build it and they will come’ approach ignores the fact that not all individuals start from the same point. Targeted social interventions are an important, yet often forgotten, part of the package to achieve equity of access to cycling.”
(Colbeck & Charlesworth, 2018, n.p.)

4.1.11 Summary

The findings from the precedent review returned ten precedents or interventions: Cycling Course for Immigrant Women, Fietsvriendinnen ('Cycle Friends'), Black Girls Do Bike, Women Bike, Süslü Kadınlar Kisiklet Turu ('Fancy Girl Bike Ride), WE Bike NYC, Grease Rag & By Us For Us, HSBC UK Breeze, #Bikeygees e.V., and Queen Mary Hostel Cycling Project. The interventions fall into one of six categories of bicycle programming, as illustrated in Figure 4.

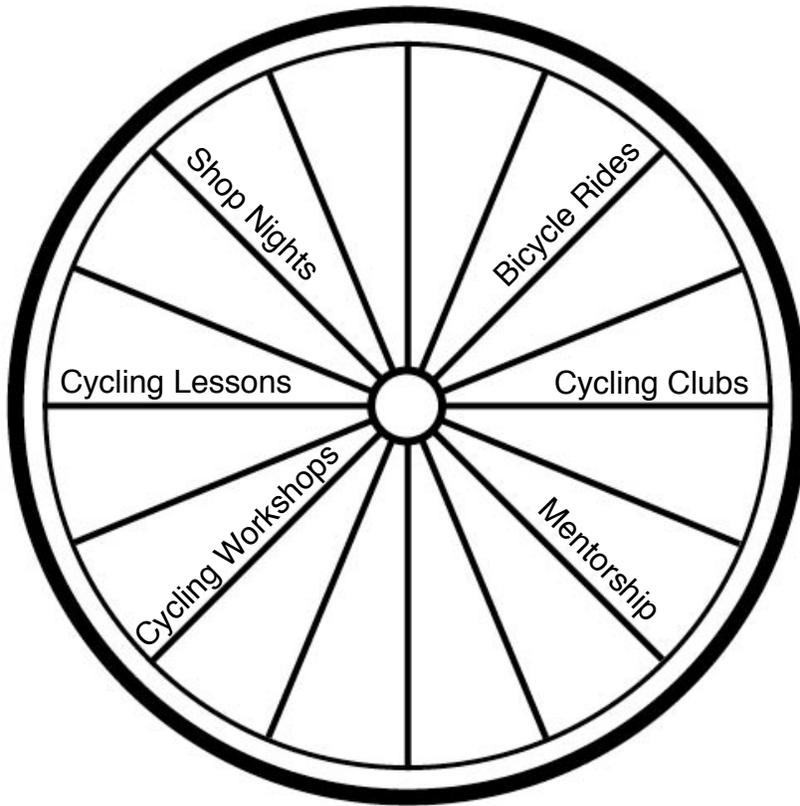


Figure 4: Typology of Interventions

Between the six categories of the precedent review’s typology, a range of services is provided to meet a wide array of needs and assist women as they incorporate cycling into their life. This includes lessons for women and girls who do not know how to ride a bicycle, a mentorship program to help new women get comfortable and gain experience bicycling on the streets and cycling clubs to provide community and encourage women to continue cycling. Bicycle rides, another category in the typology, provides another opportunity for women to ride their bicycles on the streets, this time in a large group, providing a feeling of ‘safety in numbers’. The typology also includes two categories for bicycle maintenance and repairs: cycling workshops where

women can learn about the bicycle and how to maintain and repair it and open shop nights where women have access to bicycle shop tools in a safe, comfortable space.

All of these interventions were implemented outside of Winnipeg, outside of Canada. How they could be implemented in Winnipeg is explored in the key informant interviews. The findings from the interviews are discussed in the next section.

4.2 Key Informant Interview Findings

The key informant interviews were conducted with eight individuals who work to advance cycling as a mode of transportation in Winnipeg. The individuals were either employed by a bicycle advocacy organization or a level of government or volunteered with a bicycle advocacy organization. As described in Section 3.2, the interviews were transcribed, coded and analysed to identify prominent or common themes. The nine themes are listed in Table 1. Each will be explored in the subsequent sections.

City Characteristics	Normalization of Women Riding Bicycles
Physical Infrastructure	Programming
Risk & Safety	Organizational Capacity
Diversity, Equality & Equity	Cultural Shift
Perceptions of Bicycling and ‘Bicyclists’	

Table 1: Themes from Key Informant Interviews

4.2.1 City Characteristics

Interviewees were very positive about Winnipeg as an environment in which to ride a bicycle. Its physical geography was the most commonly mentioned characteristic.

The flatness was mentioned as an “ingrained advantage” that is often ignored by the population. Winnipeg’s climate was also cited as an advantage, even the winter season.

“It [Winnipeg] also has good cold winters which is actually very handy for maintenance, keeping year-round cycling open. Cities that hover in and around zero run into having to have a lot more equipment and really slushy bad day.” (Interviewee 8)

The city’s tree canopy was also seen as a positive feature for people riding bicycles as it helps to reduce the heat of the summer and the wind in the winter.

Winnipeg’s human geography also provided qualities that helped to make cycling feasible. Interviewees felt the city’s small physical size and limited sprawl were positive, resulting in a conducive cycling environment as a high percentage of trips are a bikeable distance. The widths of Winnipeg’s roads were also a positive feature. The larger width was seen as more adaptable than a smaller width, having the potential to accommodate multiple modes of transportation without expanding the footprint of the road. As one interviewee explained,

“In many ways, it’s a lot trickier to retrofit Paris than it is Winnipeg for cycling.” (Interviewee 8)

Winnipeg’s population size was not seen as a negative quality. Interviewees indicated that the smaller population size did not make it difficult to find volunteers for, or attract members to their organization, or garner enough participation to run successful events. Some interviewees felt Winnipeg’s population size enhanced its cycling environment as it was easier for individuals or organizations with common goals to connect and work together, and lobby municipal leaders and officials.

4.2.2 Physical Infrastructure

Despite the practicum's stated focus being on interventions that are not physical bicycle infrastructure, physical bicycle infrastructure was frequently mentioned and discussed by interviewees. Bike infrastructure was seen as something that has improved over the past ten to twelve years, enough so that several interviewees now felt comfortable and confident commuting and performing utilitarian trips by bicycle.

“...so, when I moved to Winnipeg, the idea of biking in the city was crazy...then we had the painted bike lanes on the road so for me, being a young person who is quite athletic, I could do it [ride a bicycle] with that.” (Interviewee 3)

Some interviewees mentioned they felt the City was working to improve the bicycle infrastructure and that consideration was being given to cycling when roads were rebuilt. However, all interviewees agreed more infrastructure was needed to improve the cycling landscape in Winnipeg. Interviewees mentioned separated bicycle lanes and protected bicycle lanes as the best forms of physical bicycle infrastructure.

“... Getting a protected bike lane just makes all the difference.”
(Interviewee 2)

Several interviewees mentioned the new bike infrastructure on Pembina Highway, where the on-street bicycle lane is separated from traffic with two white lines and intermittent white poles. Interviewees felt this buffered bicycle lane was insufficient, or “stretching it” (Interviewee 1). As another interviewee explained,

“Literally the way you can think about it is go for a walk down that bike lane with a group of eight year olds, and if you're like ‘Woah, I don't

want to do this with a group of eight year olds,' you're never going to see a critical mass of people on that bike lane because it's just not enough." (Interviewee 2)

A child walking or running down that bicycle lane on Pembina Highway could easily run into traffic or trip and fall into traffic. The importance of designing with children in mind was discussed by two other interviewees who referred to the *All Ages & Abilities* criteria for physical bicycle infrastructure design. The *All Ages & Abilities* criteria provides guidance on the development and design of bicycle infrastructure that is built for a wide range of users including, but not limited to women, children, seniors, people with disabilities, and people of colour. Interviewees noted that their organization references the *All Ages & Abilities* framework when evaluating Winnipeg's bicycle infrastructure.

Another important aspect of improving the physical bike infrastructure in Winnipeg was its degree of connectivity.

"There are some really nice trails but then they don't necessarily connect up very well to other things. There are definitely a lot of bridges that are not super easy to cross by bike." (Interviewee 1)

Connectivity to and from downtown Winnipeg was specifically mentioned as a part of the physical bike infrastructure requiring improvement.

"I guess it's just the connections to places. So like downtown, they're really trying to get more, just safer bike lanes and all that good stuff but maybe the connections aren't really there...So getting from suburbia to downtown is a little more challenging, and then even if you aren't going anywhere near downtown and you're just cycling around downtown, that gets a bit more challenging because there isn't that infrastructure there." (Interviewee 4)

“We’ve these nice bike lanes in the Exchange but they’re not connected to anything. So, you can put up a really nice lane on a street but if people can’t get from their neighbourhood to that street, it will never see that critical mass.” (Interviewee 2)

In the absence of connected bicycle infrastructure, “...you’re forced to kind of ride in a little bit more dangerous places.” (Interviewee 4)

4.2.3 Risk & Safety

Risk and safety are two related concepts that repeatedly came up in the literature review. However, interviewees did not discuss risk frequently. However, it was mentioned by most of the interviewees as it relates to the difference between men and women. Several interviewees referred to men as being risk takers.

“Men seem to be a bit more willing to take the physical risk of crashing on and riding in traffic and that sort of thing.” (Interviewee 6)

“Men are much more willing to launch themselves into traffic...and see if they come out the other side okay or not.” (Interviewee 8)

Some interviewees also noted that men are encouraged to be risk takers from a young age, that they are socialized to be, and are rewarded for it.

Safety was discussed with greater frequency and at a greater depth. Interviewees repeatedly emphasized the importance of feeling safe while riding a bicycle. It was highlighted similar to risk, women and men are different.

“There is that feeling that it [cycling] is unsafe and women typically- just seems to be the way that people, women want to put themselves in safer scenarios.” (Interviewee 6)

This idea of safety can be thought of as having two dimensions: personal safety or road safety, as highlighted by the following quotation.

“If I’m a female, I’ll probably feel more comfortable cycling on a divided land on an actual roadway, where there is some traffic, so people are around. Versus my other thing [off road paths], it’s divided from traffic so it feels safe and I’m not going to get plowed over by a car, but I don’t feel necessarily safe as somebody’s going to jump out of the bushes.”
(Interviewee 4)

This also illustrates how complicated the topic of safety can be. What is safe from a road safety standpoint is not necessarily safe from a personal safety standpoint, and vice versa.

4.2.4 Diversity, Equality & Equity

Most interviewees demonstrated an understanding of the lack of diversity in many aspects of cycling, and the importance for diversity, either within their organization’s ranks, within the population their organization serves, or both.

“If you go to [a Winnipeg cycling advocacy organization] meeting or any, you’re going to see a lot of white people there, like it’s a predominantly Caucasian movement”. (Interviewee 2)

“Certainly from our organization’s standpoint, expanding our geographic reach would be good and to make sure we’re more diverse, both in our membership and our leadership.” (Interviewee 3)

“We’re wanting to have time for marginalized groups, what other groups would consider themselves marginalized or not well represented in the cycling community...” (Interviewee 1)

One interviewee highlighted this need for increased diversity in the cycling community by relating their experience of being the only female member at a bicycling-related meeting. Another interviewee discussed the difficulty hiring women and the approach the interviewee takes to nurture potential candidates.

“Hiring women is an issue because like, I’ll put out a call to hire...and I will get all male applicants, sometimes. So that’s tricky. I want to hire women but I’m finding that what I’m needing to do is have women-specific workshops and then let those people know I’m interested in hiring...and it would be great to come by and volunteer so they can build their skill set, and then, you know, let them know I would be open to hiring...” (Interviewee 1)

Despite the recognition of and consideration for the importance of diversity, only one interviewee reported their organization as having a specific goal to improve diversity within their organization and the population they serve. (Barriers mentioned by interviewees are discussed below in Section 4.2.8 ‘Organizational Capacity’.)

As with diversity, several interviewees discussed equality as it relates to bicycling. They highlighted the need for equality in the distribution of physical bicycle infrastructure. One interviewee stated,

“We’re also making sure that we’re not just building the facilities where we’re hearing the loudest voices, you know? Because it’s easy to do that and there’s a fair bit of demand to do it.” (Interviewee 3)

Similarly, two interviewees noted the unequal allocation of bicycle infrastructure in Winnipeg. In referring to one of Winnipeg’s lowest-income neighbourhoods, an interviewee noted the missed opportunity.

“There’s no protected bike lanes in the North End at all... You can bike down Scotia Avenue and there’s plans...to go down Arlington and through into the North End but like, *those are communities that would benefit the most because biking, it’s healthy, it’s very cheap, affordable, it’s quick.*” (Interviewee 2, emphasis mine)

Some interviewees highlighted how issues of equity arise when considering what mode of transportation to use. One interviewee noted how an environment that drives its residents to rely on the personal vehicle impacts some segments of the population more than others by using an example with newcomers. Newcomer and refugee organizations often host programming to teach and assist participants in the purchasing of a personal vehicle. They are told that a personal vehicle provides access to their city, including employment and volunteer opportunities. However, a vehicle is an expensive purchase, particularly for a person who has limited financial means. The cost of a vehicle is felt more acutely by such as person, as it takes up a larger portion of their monthly income, in comparison to a person with greater financial means.

“Why do we have to run these programs to help people to finance and maintain a car? Why can’t their city be built so that they just don’t even have to have that very expensive item in order to access their city?”
(Interviewee 2)

Another interviewee suggested there was the need to go beyond equality-related actions and utilize an equity analysis to change who we are planning for and focusing on.

“I feel like the last six or seven decades have been focusing on Dad driving into work, and maybe we just, for the next six or seven decades, just don’t do that for a bit.” (Interviewee 8)

Rather, they suggested focusing on those who have,

“gotten the short end of the stick for a while, whether it’s somebody traveling with a mobility aid, or a seven-year old, or an elderly pedestrian who doesn’t move as quick as they used to, or newcomers to Canada, or women” (Interviewee 8).

In doing so, space will be created for people using all types of modes to complete a variety of trip types at all hours of the day and night.

4.2.5 Perceptions of Bicycling and ‘Bicyclists’

Several interviewees described riding a bicycle as an activity that is perceived to be ‘hardcore’.

“...my thought in Winnipeg is that cycling, to people as a commuting option, is like a hardcore option, even in the summer. (Interviewee 4)

Another interviewee noted that this could be a function the city’s bicycle infrastructure.

“The people that you get cycling when you don’t have separated bike lanes are people who think of cycling as a hardcore sport.” (Interviewee 1)

One of the implications of cycling being perceived as a ‘hardcore’ activity was identified by an interviewee.

“The hardcore nature often lends itself to more a male-focused group of people. And then we definitely reinforce it with all the spandex clothing ...Making it look like a hardcore thing when really, you could bike to work in your dress. You could bike in whatever, it’s just that’s what people are choosing to cycle in.” (Interviewee 4)

This was echoed by other interviewees, who described the ‘typical cyclist’ as follows.

“I think overall in North America, we have seen who bike as these like- it’s young people, it’s for athletic people, it’s for people wearing crazy helmets and Lycra, you know, neon from head to toe.” (Interviewee 2)

Another interviewee described a common perception of cyclists, as seen through “a typically North American lens of some guy in an MEC jacket deciding to do good for the planet.” (Interviewee 8) Compare these descriptions to that of an actual winter cyclist typically seen in one interviewee’s neighbourhood.

“I see people, lots of people, winter cycling in my neighbourhood, like Downtown and West Broadway, who are not wearing helmets, do not have fancy bikes, are going like they’re not all in Lycra. They’re not driving fat bikes, they’re not, kind of, the typical winter cyclists that you see.” (Interviewee 1)

The description of ‘the typical cyclist’ was consistent amongst interviewees. They described ‘the typical cyclist’ as white men that engage in riskier or more intensive activities, are sporty or athletic in nature, ride a specific type of bicycle, and wear a specific type of clothing. This description does not suggest that cycling attracts a diverse group of Winnipeg residents. Rather, it describes only one segment of Winnipeg’s otherwise diverse population. This perception is limiting. It has the effect of restricting who thinks of them self as a person who rides a bicycle. If a person’s perception of them self falls outside of the perception of ‘the typical cyclist’, they may not feel that cycling is something they should do, that it is for other people, not them. If this perception of ‘the

typical cyclist' is then reinforced by the experience is only seeing the embodiment of 'the typical cyclist', then 'the typical cyclist' is normalized.

4.2.6 Normalization of Women Riding Bicycles

For nearly all female-identifying interviewees, seeing other women cycling was a critical component to narrowing the gender disparity of cyclists. As one stated,

“You keep seeing only men riding and then that just kind of reinforces it.” (Interviewee 2)

They felt that as women see other women cycling, they have the opportunity to see that women in Winnipeg ride a bicycle too; it is not just men.

“It could be getting more females on the road so other females see that there's females on the road. (Interviewee 4)

Additionally, these women riding bicycles become the role models for other women riding bicycles or contemplating riding a bicycle. They contribute to the normalization of bicycling in general, and in particular, the normalization of women riding a bicycle.

“Seeing people like you doing it and seeing, you know, making it cool and making it fun.” (Interviewee 2)

Several interviewees indicated seeing women riding a bicycle was particularly important for young girls. One interviewee explained,

“I think it's 'you have to see it to believe that you can be it' aspect of the more women that young girls see cycling, they will see themselves as somebody who can be that person in the future.” (Interviewee 1)

Ensuring that bicycling is normalized for young people is important. Being in their formative years, young people are impressionable and open minded as their values, attitudes and beliefs are forming. An ideal place to introduce bicycling to young people is through the school system, as explained by an interviewee.

“I think too what’s going to help encourage more women to cycle over time is that we have to normalize it at a young age. So something like putting cycling into the education system. It kind of levels that playing field. But not in the education system in a recreational way, but on the road which it means to be a cyclist” (Interviewee 2)

The emphasis on ensuring bicycling is introduced in a transportation or utilitarian way, rather than a recreational way, ensures that young girls don’t begin to think it’s an activity for *sporty* girls and women.

4.2.7 Programming

Interviewees discussed programming that is targeted to both the general population and to women and other marginalized groups. Events, such as women-only group rides, and women and LGBTQ*-only open shop nights were highlighted, as were mentorship programs for women. The commuter application, Go Manitoba, was cited as providing a network for an informal type of mentorship, which was seen as a positive by interviewees.

“I think what would be the best way for that [mentorship or buddy system] to work would be if you had a work- like a co-worker or a neighbour, something that made it pretty simple...” (Interviewee 6)

Most interviewees considered programs that support women who ride bicycles, or wish to ride bicycles, necessary or useful.

“It’s one thing to build the infrastructure but you need programming to reach out and make people aware of it, but also to break down the barriers and perceptions.” (Interviewee 3)

“I think it [mentorships for women] does lower that barrier again for people who might just feel more uncomfortable having an older dude showing them how to do stuff...” (Interviewee 2)

Specific nights at bike shops for women and other marginalized groups were highlighted by interviewees as being of particular importance.

“Those nights [women, trans, femme, two-spirited only shop nights] really help, and I think are super valuable.” (Interviewee 1)

“I think what you’re raising is super valuable programming...Any community bike shop with women only or trans, LGBTQ* friendly stuff, that’s about making those demographics feel comfortable in a bike shop, which can be a really ‘dude-ly’ set-up place, and you need to combat that and make everybody feel welcome.” (Interviewee 8)

Location of Programming

Some interviewees discussed how to best enable women to by providing programming and support through their workplace. Interviewees identified simple things employers could do to support female employees with little or no cost to themselves, such as providing a bike rack in an underutilized storage room to eliminate the concern over bike theft or allowing for a staggered start and end work time so nervous riders can avoid rush-hour traffic. Employers could also redirect funds dedicated to their

employees' fitness and health to assist employees in purchasing a bicycle for their commute.

An emergency ride home program was identified to specifically target women. An emergency ride home program provides employees who use active transportation to commute a certain number of free taxi rides per year. These rides are to be used when they need to leave unexpectedly and have to get to their destination quickly in the event of an emergency. This takes away the worry of how they're going to get to their family member quickly, and what it will cost them to do so, thereby removing one barrier to commuting by bicycle. This type of program specifically benefits women as they remain the family member,

“...who are just primarily still the go-to. Like if that kid throws up at school or if something happens to your senior parent, that most often it's going to be the woman that has to deal with that situation, and she is going to feel more at risk.” (Interviewee 2)

Several interviewees also mentioned schools as a location to provide support and programming to the female gender, young girls and tweens in this case. Interviewees considered it important that the programming occur within the school curriculum (so it's mandatory) and on the road (so it's not seen as recreational). The B.E.S.T. program (Bicycle Education and Skills Training) was mentioned by a couple interviewees as an example of programming in schools. However, one interviewee noted,

“If you don't make the effort to make it a welcoming space for women or girls that it ends up being dominated by boys.” (Interviewee 1)

General vs. Targeted Programming

A few interviewees questioned how effective general population programming was at creating an atmosphere for everyone.

“I think unless you are paying really close attention to how to make things more cycling accessible and how to include specific groups, that if you’re going to run kind of a general campaign you hit the same...people who are already, like, inclined to think of themselves as cyclists or to be interested in biking, and so that usually is the same kind of demographic that you already have represented in the cycling community.” (Interviewee 1)

“It’s not too much different than any other social pursuit where people are, for some reason, being marginalized...Yeah maybe women need support, especially in a toxic environment like it is now.” (Interviewee 8)

The concern expressed by some interviewees recognizes that barriers may exist for people unfamiliar with, or new to cycling. For example, they may require additional support or attention before they feel comfortable commuting by bicycle or joining a group ride. In the absence of being cognizant who the event or program draws, there is a risk of reinforcing existing perceptions of who rides a bicycle or what type of person cycling is for.

However, the sentiment about generalized programming was not a unanimous among interviewees, or even for the same interviewee.

“I think it’s just a matter of like, making people feel welcome and invited.” (Interviewee 4)

“If we can focus more on that ‘interested but concerned’ population, we’ll bring up, sort of, the number of people, the gender differential, sort of eliminating that just through the act.” (Interviewee 3)

“In terms of what people actually need, they’re not babies, like they don’t need anything special...What you need is a good, safe, good city, and when they’re built well, the numbers start to reflect everyone. That’s the main thing.” (Interviewee 8)

Challenges

It was noted that all of these programming efforts don’t correct the underlying problem, a city where the movement of personal vehicles is prioritized over the movements of humans.

“Definitely a lot of interventions and programs are symptoms of a people who badly want to do something, not being able to, and then need some support and community in order to gain the confidence and courage to kind of get involved. Because the thing is, it does take courage.” (Interviewee 8)

Additionally, providing programming for women is not without its challenges. As discussed in Section 4.2.8 ‘Organizational Capacity’, limited resources are a serious constraint to program offerings. Beyond the limitations of resources, providing open shop nights for specific demographic groups was identified by some interviewees as particularly challenging.

“Some of the other community bike shops are just like really small and really volunteer-run, and it’s a little bit harder because just having open hours is a hard thing to do.” (Interviewee 1)

“Having the shop hours just for women, I mean that’s still creating some challenges. People will come and really not feel like it’s fair that they don’t have access to the shop hours.” (Interviewee 6)

Improvements

Interviewees reflected on potential improvements to the provision of programming in Winnipeg. Suggestions for improvements to existing cycling programming included better dissemination of information:

“Getting more information on what’s available, I think especially as we grow that infrastructure is something where we haven’t, as a city, necessarily done a great job promoting.” (Interviewee 3)

“I guess there are learn-to-cycle type of classes that maybe they aren’t marketed to the right population.” (Interviewee 4)

And clear expectations:

“Ideally, all [open shop] hours would feel comfortable to everybody... So I think the only way in my mind to make that possible is for everybody that uses the shop to be asked to follow the same norms and better signage.” (Interviewee 6)

Suggestions also included opportunities for cycling-related programming that governments and cycling organizations have not taken.

“I think more targeted marketing and targeted support system would really help people because then they feel that they’re a priority. They’re listened to versus part of the general masses of ‘Hey! Just try it out!’.” (Interviewee 4)

“Certainly I think looking at what places, other places, other cities and other countries are doing, that has been a focus is really getting out some of that adult training. And it’s a level that [Winnipeg community bike shop] picks up somewhat. They’re probably more focused again on youth. So it’s probably a gap that, what I’d like to do but it’s- it requires a funding commitment to the time committed, and that’s a bit hard for us to manage.” (Interviewee 3)

4.2.8 Organizational Capacity

The theme of Organization Capacity came up in most interviews. The capacity of any given organization is only so large. Organizations set limits for themselves, to avoid stretching themselves too far and too thin. Some participants reported their organizations have to decline invitations to participate in events and opportunities to expand their programming.

“Some of the programming, if we had more resources, it’s an area we would. Getting more people, we get requests for, you know, ‘How can we train adults to bike, and bike safe’...as well as lots of people saying, ‘How can I get my kid trained’. And right now, we’ve basically had to say sorry, we can’t- we don’t have the ability to reach out and do that. (Interviewee 3)

Even with these limits, bicycle non-profit organizations are busy.

“In the summertime, they’re run off their feet, like they don’t have any extra time. And they have lines out the door and they have to turn people away.” (Interviewee 1)

Volunteers were often at the crux of delivering more periphery services or expanding programming. In their absence, additional services and programming stalled, as illustrated by the following two quotes.

“It’s a pretty intensive thing...doing the physical counts. We’ve done that in the past. We did for, I think, ten years but the volunteer that was really coordinating... [They] are kind of feeling tired of doing it.” (Interviewee 3)

““Okay, that [a particular program or event] sounds like something that would be useful information for not just this one person, but many other people. Who want to do that?’ Then it comes down to- because you

know, we're all volunteers, right...And then we either find someone who's like, 'Hey, I would love to do that. Let's get this done' and so it just happens. Or people are like, 'No, I don't', and then it doesn't happen. (Interviewee 5)

If they were to expand their mission or their programming, it would require more staffing, funding, space or volunteers, or all of these. A comment from a participant regarding missed opportunities:

"I think a lot of it is just not having the resources to get and to do, sort of, that where you focus your limited resources on." (Interviewee 3)

Furthermore, most organizations did not have the capacity to monitor and evaluate the efficacy or impact of their programming. As one interviewee explained,

"We don't really have any measurements set up because we don't have, like, we don't have a great capacity to measure outside of ourselves because we're pretty little." (Interviewee 1)

Those organizations that reported having the capacity to conduct evaluation of their programming or monitor its impact, they did not gather sufficient demographic information to determine its impact on women or other demographic groups.

4.2.9 Cultural Shift

Several interviewees felt a cultural shift in how Winnipeggers' perceived cycling was an important and necessary change.

"I also think still there are things like a big cultural shift that needs to happen, and at the city still too, I think. Also, just for people in general about that *cycling is for everyone*. (Interviewee 1, emphasis mine)

“We don’t associate it in our brains that you can literally in which you’re wearing to the office, hop on a bicycle and get where you’re going. That it’s a need to have special equipment and to be a special person. As opposed to just, it’s a tool to get you from A to B and *anybody can do it*. So it’s like, it’s a mental cultural shift.” (Interviewee 2, emphasis mine)

This cultural shift would assist in changing what we consider is a normal activity, as highlighted by Interviewee 2.

“We’ll go down to The Forks and we’ll skate on the riverfront. You know, like we see going down to a river and strapping blades to your feet and skating around as more, like culturally appropriate than just riding a bicycle down a bike lane.” (Interviewee 2)

Winter cycling was highlighted as a place where it was particularly apparent that a cultural shift was needed.

“I think Winnipeg’s biggest leap is cultural. That it’s a mental barrier. We think that because we have snow that we can’t do anything, really.” (Interviewee 2)

“For sure for winter cycling, there is still a lot of culture shift that needs to happen. (Interviewee 1)

Education and awareness building were seen as a way to start that shift. It could also help to achieve other adjacent goals by providing information to the public about new forms of bike infrastructure (see Section 5.2.2 Physical Infrastructure) and introduce new ideas about what a person riding a bicycle looks like (see Sections 4.2.5 Perceptions of Bicycling and Bicyclists and 4.2.6 Normalization of Women Riding Bicycles). The following quotation provides an example of how education could achieve more goals than contributing to a cultural shift.

“It [education] would really...provide an opportunity to try and start a bit of a culture shift too because you can, in that, educate people too why-why driving slower is safer and why, you know, just letting people understand it.” (Interviewee 6)

4.3 Analysis

This section brings together the findings from the precedent review and the key informant interviews to answer the second research question.

Q2: “How can these precedents inform planners, policymakers, and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?”

In Winnipeg, there is some recognition that a portion of the population may require additional support to ride a bicycle. This is evident in two respects. First, existing programming offered in the city includes some that are similar to the interventions found in the precedent review. Community bike shops like the W.R.E.N.C.H, Bike Dump, and UMCycle provide women, trans, femme-only open shop nights where women or female-identifying people can bring their bicycle in and use the tools available to alter or fix their bicycle, under the supervision of a mechanic. Some also provide women’s mechanic workshops and courses, where women can learn how to build or fix bicycles. The second respect in which there is recognition that a portion of the population may require additional support to ride a bicycle is through the interviewees’ understanding of diversity and equity issues around cycling and transportation more generally, as illustrated by the ‘Diversity, Equality & Equity’ theme (see Section 4.2.4). The ‘All Ages & Abilities’ framework was referenced by some interviewees as a way of ensuring a

more inclusive design of bicycle infrastructure. This also illustrates their understanding that not all people start at the same place.

However, two major barriers were revealed from the key informant interviews. First, a consensus was not found amongst interviewees regarding the need for programming and events specifically targeted at women. As stated in Section 4.2.7 'Programming', some interviewees felt that specific programs and events were required to assist women in riding a bicycle and overcome the gender disparity. They felt generalized programs or events were not sufficient to address the gender disparity, as typically these programs or events draw those individuals already comfortable and secure riding a bicycle. Other interviewees agreed that additional support is required to help some groups of people ride a bicycle, such a new or nervous cyclist. However, this agreement came without reference to a person's gender (or any other marginalizing factors). They felt that programs or events that are targeted to the general population were sufficient. There was no need to divide a group of nervous cyclists along gender lines and provide specific programming to each gendered group.

This finding is both good and bad for the struggle to reduce the gender disparity in cycling. While there is support amongst organizations to provide programming and support to new, nervous, apprehensive or concerned cyclists, the support of these cyclists results in the provision of programming that does not recognize the differences and nuances amongst people. For example, a new or apprehensive male cyclist may not be concerned about an unlit, isolated bicycle path along the banks of the Red River. A new or apprehensive female cyclist may be concerned, given the potential risks (see

Section 4.2.3 'Safety & Risk'). Alternatively, a new or apprehensive female cyclist may wonder how best to respond to harassment from drivers (sexual or otherwise). A new or apprehensive male cyclist may not be concerned about harassment or feel threatened by it. In the absence of recognition of the differences between people, such as those mentioned earlier, there is a risk of leaving behind a portion of the population that already bicycles at a lower rate, women.

Furthermore, a large emphasis was placed by interviewees on the provision of physical bicycle infrastructure in Winnipeg (see Section 4.2.2 'Physical Bicycle Infrastructure'). While demonstrably a crucial component of Winnipeg's cycling environment and required to facilitate riding a bicycle for a significant portion of the population, interviewees placed importance on both the provision of separated or protected bicycle lanes and the improved connectivity of those lanes. For some, the physical bicycle infrastructure was the only thing that mattered. Others felt the infrastructure was very important, but that programming was also required alongside it.

Regarding infrastructure as crucial does not necessarily preclude the provision of and support for programming targeted to women. Individuals and organizations advocating for bicycling can press for both. However, those individuals involved in bicycle advocacy do not have unlimited energy and time, and the bicycle advocacy organizations only have limited resources. If the build out of new infrastructure and the improvement of existing infrastructure is prioritized, it is very possible that this task exhausts the energy, time, and resources of individuals and organizations. This is particularly pertinent as interviewees expressed the significant constraints they and their

organization experience related to funding and staffing (see Section 4.2.8 'Organizational Capacity').

Should the appetite for targeted programming and events for women increase, practitioners can employ one of the interventions identified in the precedent review. For example, a program similar to *Cycling Lessons for Immigrant Women* (Section 4.1.1) or *Bikeygees* (Section 4.1.9) could be implemented in the Winnipeg context to assist women in learning how to ride a bicycle. Like cities in Germany and the Netherlands, Winnipeg has welcomed an increased number of newcomers and refugees in recent years, from countries where there is no cycling culture. Giving newcomer and refugee women the opportunity to learn how to ride a bicycle could provide mobility in a time of change and stress, without the financial implications of purchasing a personal vehicle. This practicum is unable to envision what this programming may look like as this is beyond its scope. More critically, this practicum did not involve speaking with newcomers and newcomer organizations to determine what type of cycling lesson programming they would be interested in. However, the findings of the practicum can offer the following. A program can be initiated by someone who is not a member of the newcomer community. Both *Cycling Lessons for Immigrant Women* and *Bikeygees* were initiated by women who were not newcomers themselves, rather they were bicycle enthusiasts. The initiator ideally would be a person who has received training in teaching people to ride a bicycle and has some experience with newcomers. However, the precedent review demonstrated that neither were necessary. An interested person could partner with an organization that provides resources and assistance to

newcomers, such as the West Central Women’s Resource Centre, Mosaic- Newcomer Family Resource Network, or N.E.E.D.S. (Newcomers Employment and Education Development Services). A more convenient option for participants would be if the cycling instructor formed a partnership with an organization that provides housing to newcomers, such as IRCOM (Immigrant and Refugee Community Organization of Manitoba) or Manitoba Housing. That way, the lessons could be anchored at building in which they live. If an organization that provides assistance to newcomers approaches a community bike shop or a bicycle advocacy organization to partner together to provide cycling lessons, it is likely that such a request would receive support from these groups, provided they have the resources and capacity to be a partner.

A newcomer cycling program could be accompanied by something similar to *Fietsvriendinnen* (“Cycle Friends”) (Section 4.1.2), a mentorship program to help women gain confidence in riding their bicycle around Winnipeg. A made-in-Winnipeg version of *Fietsvriendinnen* could be structured like the original version with formal registration and required weekly rides. However, interviewees indicated an informal program would work better, where mentors and mentees meet and ride together when it is convenient for them (see Section 4.2.7 Programming). Additionally, participation in the mentorship program would not have to be restricted to newcomer women. Given the interest in and demand for cycling programming, as described by interviewees, it is likely this type of arrangement could be attractive to non-newcomers.

A program similar to WE Bike NYC’s *Mujeres en Movimiento* (Section 4.1.6) would take cycling education for women in Winnipeg full circle by providing a very useful

skill set, basic bike mechanics. This is not a new concept in Winnipeg. Community bicycle shops, such as The W.R.E.N.C.H. and UMCycle have offered mechanics training, including classes and workshops for women and LGBTQ* individuals. However, WE Bike NYC's program highlights a feature not yet utilized in the Winnipeg context and another feature that is underutilized: classes and workshops in non-English languages and at community hubs, respectively. WE Bike NYC conducted their *Mujeres en Movimiento* programming and workshops in Spanish and translated their training materials. In Winnipeg, classes could be offered in languages such as French or Tagalog, or languages common amongst new Winnipeggers. *Mujeres en Movimiento* also offered their basic bike mechanics class at a known community hub. This is already done in Winnipeg on a small scale. Open shop hours are provided by the W.R.E.N.C.H. at two community centres, Ralph Brown and Orioles. This type of programming could be expanded to other community centres like Central Community Centre or other community hubs like Central Park. In addition to being more convenient for participants, it also has the added benefit of increasing the class's visibility.

The types of programming described above could be delivered through existing non-profit and non-governmental organizations in Winnipeg. However, as demonstrated in Section 4.2.8 'Organizational Capacity', the community bike shops and bicycle advocacy organizations are stretched very thin. The demand for their existing programming already exceeds their ability to deliver. Any increase in workload resulting from the addition of new programs, such as a newcomer bicycle class or an

intensification of current programs, such as a women-only basic bike mechanic class would require additional resources, including funding and staffing.

Süslü Kadınlar Kisiklet Turu ('Fancy Girl Bike Ride') is one of the interventions identified that would not require a significant amount of additional funding or resources. 'Fancy Girl Bike Ride' was created and organized by a single individual without sponsors or financial assistance (see Section 4.1.5). A similar type of event, or even a 'Fancy Girl Bike Ride', could be organized by a couple interested individuals in Winnipeg and held in the summer. Because visibility is an important element of this event, the route should be relatively busy so drivers, pedestrians, and other people riding bicycles have the chance to witness the event. It would showcase riding a bicycle as a fun, relaxing activity that is not just for commuting men. Additionally, because *Süslü Kadınlar Kisiklet Turu* is an event where women dress up in some of their best clothes (including dresses), it would illustrate that no special clothing is required- women can ride a bike in any outfit. Getting this across to the general public was noted as being important to improving the gender disparity as well as shifting the attitudes of Winnipeggers so riding a bicycle is a normal, everyday activity (see Sections 4.2.5 'Perceptions of Bicycling and Bicyclists', 4.2.6 'Normalization of Women Riding Bicycles' and 4.2.9 Cultural Shift).

The group rides held as part of the *HSBC UK Breeze* program (see Section 4.1.8) would also serve a similar purpose in Winnipeg as 'Fancy Girl Bike Ride'. However, the *HSBC UK Breeze* program has an advantage over the 'Fancy Girl Bike Ride' event because the rides occur on a more regular basis at greater frequency (e.g.: every week

or every month) and year-round, thereby providing an increased opportunity to see women riding bicycles (see Section 4.2.6 'Normalization of Women Riding Bicycles'). This type of program could be initiated by a provincial or national sport association (e.g.: Manitoba Cycling Association), as was the case for *USBC UK Breeze*. To ensure these rides do not reinforce the perception that riding a bicycle is for 'sporty' people, or that riding a bicycle must be done in specific clothing, the organizing organization could encourage participants to wear clothing that is not athletic/athleisure wear and explain to them why doing so is important. Moving away from the perception that bicycling is an activity for sporty people wearing a specific type of clothing was something interviewees advised needed to occur in the Winnipeg context (see Section 4.2.5 'Perceptions of Bicycling and Bicyclists'). If women in Winnipeg are interested in the competitive, sportier side of cycling, *Velodonnas*, a women-only cycling club, provides group rides and races in Winnipeg.

Some interventions identified in the precedent review are distinct and unique to the context in which they originated, such as *Black Girls Do Bike*, *WE Bike*, and *By Us For Us*. Each was formed at the grassroots level by a woman who observed an unmet need. Because their formation occurred organically, it would be difficult to force together a comparable group in Winnipeg. However, once such an organization exists, they can be supported to continue and expand their work by, for example, the provision of consistent funding.

The likelihood of implementation of the noted interventions would be boosted by a cultural or attitudinal shift similar to the type discussed by interviewees and detailed in

Section 4.2.9 'Cultural Shift'. Such a shift, described as necessary by interviewees, would increase the demand for such programs as cycling becomes a more normal, everyday activity appropriate for a broader range of people. While interviewees could not say for certain what could initiate such a shift, many pointed to education and awareness-building as an important step. A noteworthy advertising campaign showing the different faces of people who ride bicycles in Winnipeg could be a good first step.

All of the intervention identified in the precedent review are initiatives of non-governmental organizations, most of which are also not-for-profit organizations. The local level of government is not involved in the planning, design, or implementation of interventions that support women who ride a bicycle, other than providing some funding to support the organization. This is an interesting gap, particularly given the involvement of government in the teaching, licensing and regulation of other road users such as automobile drivers.

The application of the interventions identified in the precedent review into the Winnipeg context is not straightforward. Rather, there are barriers to the interventions' uptake. This includes the belief that programming for the general population is sufficient, the continued emphasis placed on the development and improvement of physical bicycle infrastructure, and the organizational capacity of the bicycle advocacy organizations and community bike shops, specifically limited resources. Should any one of these barriers shift or an appetite for a gender-specific program or event arises, some of the interventions identified above may be employed in the Winnipeg context.

5 CONCLUSIONS, IMPLICATIONS AND DIRECTIONS

Cycling has become recognized as an important mode of transportation because of its health benefits, affordability, and low impact on the environment. However, in many low-cycling countries, including Canada, those riding bicycles are disproportionately male. This has negative repercussions for the health of the population, the health of the environment, and the healthcare system, in addition to equity. The issues associated with equity and the concept of one's 'Right to the City' provides the foundation for this practicum. While the academic literature has addressed what this gender disparity looks like, and how researchers have come to understand this disparity, there is limited information regarding the ways to remedy the situation and how cities are addressing are trying to address it.

This practicum intended to fill a portion of these gaps by highlighting interventions from around the world, such as programs, events or policies that have been implemented to support women who are cycling or those who wish to cycle. The first research method, a precedent review, returned ten interventions that were one of four types: women's cycling clubs, rides, lessons, and mentorship programs.

There was variation in what women these interventions were addressed or targeted to. Some were for all women, such as *HSBC UK Breeze*, *WE Bike*, *Grease Rag*, and *Süslü Kadınlar Kisiilet Turu*. Others recognized the existence of intersectionalities and conceived interventions strictly for women of colour, such as *Black Girls Do Bike* and *For Us By Us*, or newcomer women, like *Cycling Lessons for Immigrant Women*,

and *Fietsvriendinnen*. One intervention, *Mujeres en Movimiento*, was for women whose first language was Spanish but who live in an English-speaking country.

The key informant interviews, conducted with eight people working to advance cycling in Winnipeg, highlighted how some interventions could be useful and purposeful if implemented in the Winnipeg context, such as *Cycling Lessons for Immigrant Women* and *Süslü Kadınlar Kisiklet Turu*. Other interventions were not considered for implementation in Winnipeg as they were unique to their context and formed organically by a member of that community, such as *Black Girls Do Bike* and *By Us For Us*.

The key informant interviews also revealed barriers to the implementation of interventions targeted for women who do, or wish to, ride bicycles in Winnipeg. The identified barriers included the organizational capacity of community bike shops and bicycle advocacy organizations, who would require additional resources (including funding and staffing) if they were to provide any additional programming, and the continued emphasis on building out new and improving the existing physical bicycle infrastructure. Additionally, there was no consensus amongst interviewees regarding the need for programming targeted to women who ride a bicycle or wish to start.

The challenge in overcoming each of these three barriers is different. Improving the organizational capacity of community bike shops and bicycle advocacy organizations is relatively straightforward and could include providing the community bike shops and bicycle advocacy organizations with predictable, consistent, sufficient funding. Finding a source for that funding is its own challenge. The emphasis placed on physical bicycle infrastructure is deserved and required. Indeed, ensuring continued

government funding for physical bicycle infrastructure is crucial to reducing the gender disparity in cycling. However, resolving the disagreement over the need for targeted programming is challenging. As the findings from the literature review show, there is little evaluation of the effectiveness of various interventions in improving the gender disparity in cycling. Researchers have not been able to show whether general programming is able to increase the rate of women cycling, or whether targeted programming is required. If this divergence of opinion could be settled, that information would assist those working to encourage and support cycling as a mode of transportation by ensuring they are working as effectively as possible.

As the physical bicycle infrastructure in Winnipeg continues to be built and improved over the coming decades, it is hoped that greater attention will be paid to who is using the infrastructure and for what purposes. This will help to ensure equitable access to, and benefit from cycling.

5.1 Implications

The findings from this practicum are made more useful by identifying how they can impact current practices, programs or policies, planning and otherwise. Implications for the planning practice are discussed first, followed by the implications for those working to advance bicycling as a valid mode of transportation, and decision makers.

Urban planners are often at the forefront of calls for the increased use of cycling and walking, and the decreased use of personal vehicles. Planners recognize cycling's benefits for both the individual and the city and seek to support cycling as a fully legitimate and planned for mode of transportation. The findings of this practicum

highlight the continued need for improved physical bicycle infrastructure, something planners already know and advocate for. However, the findings also illustrate that until the time when Winnipeg has an ideal cycling environment, other kinds of interventions, beyond physical bike infrastructure, will be needed to encourage and support the population to ride a bicycle. Planners should advocate for these types of interventions as well, as the supportive interventions can assist in creating more equitable access to cycling. Urban and transportation planners working at the municipal level could also help the municipality play a larger role in the effort to reduce the gender disparity in cycling rates by pushing for government-provided bicycle programming. Just as the Province of Manitoba provides driver education programs through high schools, and the City of Winnipeg provides low-cost swimming lessons to residents, a city could also teach its residents how to ride a bicycle or partner with bicycle advocacy organizations to run free clinics on bicycle maintenance.

The practicum also has implications for organizations active in the cycling community or providing programming, rides, or events. The precedent review findings reveal an occasional connection between cycling and equity-related initiatives. For example, the *Queen Mary Hostel Cycling Project* connects access to a bicycle and the support to learn how to use one with improved mental and physical health outcomes and the potential to increase a woman's independent and self-reliance and the ability to financially and emotionally support herself independent from government assistance. The programs that result from these types of connections help to broaden the scope of people who ride a bicycle and illustrate how cycling can contribute to a more equitable

society. Unfortunately, the key informant interviews did not reveal these types of connections in Winnipeg. Therefore, organizations that offer cycling programs should consider reaching out to like-minded for- and non-profit community organizations to search for opportunities to support cyclists while assisting those organizations in achieving their goals. Such 'like-minded for- and non-profit organizations' could include women, newcomer and seniors resource centres, community-based residential support programs, or after-school programs.

The final noteworthy implication to come from this practicum is addressed to decision makers in Winnipeg but could also be addressed to decision makers in other municipalities across Canada. The findings indicate that the provision of physical bicycle infrastructure remains absolutely crucial to creating a supportive environment for women to cycle in. Decision makers need to continue to allocate funds to the building and improvement of Winnipeg's cycling infrastructure to reduce the gender disparity and create a cycling environment suitable for everyone. However, given the amount of capital required to achieve such an environment, it is important for decision makers to support cycling advocacy organizations, and their programming and events in the meantime. As shown in the key informant interviews, these organizations and the services they provide are useful to the population and aid in making cycling an accepted mode of transportation. Interviewees indicated there is demand for their services and programming they are unable to meet due to fiscal and staffing constraints. In the absence of a swift and concerted effort to improve Winnipeg's physical bicycle

infrastructure, and even if there were, consistent and sufficient funding should be provided to these organizations as they help to create an equitable cycling environment.

5.2 Directions for Further Study

There are several opportunities for further study that come from the findings of this practicum. The first is the opportunity to answer the first research question using different languages for the search . The research design for this practicum could be repeated by researchers who are fluent in languages other than English to conduct a precedent review in that language. A Dutch, Danish or German speaker would not only gain access to additional information about the precedents already identified here, but also gain access to new precedents published online in the native language. Turkish and Spanish are another two languages that would be useful to conduct a precedent review in, as the precedent review conducted in this research returned a couple interventions where there was not enough information in English to include it in the findings.

The second and third opportunities for further study come from the finding that interviewees are not unanimous in their support for bicycle programming targeted to women. That is, some interviewees did not feel targeting programming was needed to reduce the gender disparity in cycling rates, while others did (see Section 5.2.7). The second opportunity comes from the disagreement which appears to exist due to a lack of information and data regarding the effectiveness of each type of programming. Further research could be conducted to ascertain how effective targeted programming

is at increasing the rate of cycling amongst women, and how much more or less effective it is in comparison to general bicycle programming.

The finding also provides a third opportunity for further study research. Using a focus group, researchers could bring together municipal active transportation planners and key individuals in bicycle advocacy organizations such as Bike Winnipeg, the W.R.E.N.C.H., Green Action Centre, Winnipeg Trails Association, and UMCycle to investigate why this disagreement exists, and how it can be overcome. The findings of this practicum could also be presented for educational purposes. The findings can also act as a starting point for discussions regarding the implementation of select interventions identified in the precedent review and what are appropriate next steps for addressing the gender disparity in cycling rates.

Another opportunity for further study was identified by an interviewee as a data gap pertinent to this research topic. Referring to the available data in Winnipeg and Canada, the interviewee stated there is an absence of information about women's non-work bicycle trips, and non-peak travel hour bicycle trips. Additional research could include physical counts during evenings and weekends, as well as specific research questions aimed at gaining a better understanding of women's non-work and off-peak travel behaviours, and the motivators and barriers for cycling use at these times and for these trip types.

A final important avenue for further study comes from the body of literature on which this practicum is based. As detailed in Section 2.5, the literature on the gendered disparity of cycling rates has two significant limitations. First is its use of the

male/female binary and second is its lack of consideration for the varied experiences of women, including how a woman's experience may differ based on their age, ethnicity and race, and class.

To overcome these limitations, Ravensbergen et al. (2019) suggests "folding feminist theories used in geography into research and policy on gender and cycling" (pg. 6). To do so, they suggest researchers employ three theoretical concepts found in feminist geography: performativity, intersectionality, and embodiment. Performativity as a concept was developed by philosopher Judith Butler to explain how gender is socially constructed. Butler argued that gender is a normative ideal, illustrated or 'performed' through practices of masculine or feminine behaviours. Ravensbergen et al. (2019) suggests this concept could be used in the gender and cycling research to "understand how the bicycle fits into the identity performances of some people, and not others" (pg. 7). This is particularly pertinent in locations where cycling is performed to display masculine qualities, like in North America.

Intersectionality, as previously explained in Section 2.5 and discussed in Section 4.3, asserts there is no singular 'woman's experience'. Rather, age, ethnicity and race, class, ability or sexuality, impact a woman's (and a man's) experience. In the absence of this recognition, "the women's voices we do hear tend to be from White, middle-class, heterosexual, women" (Ravensbergen et al., 2019, pg. 7). This concept can be used in the gender and cycling research to expand which voices are heard and whose experiences are reflected.

Finally, embodiment theory argues that the discourse of the interpretation of the differences between the movement of the male and female bodies focuses on the biological difference rather than the patriarchal environment in which the bodies exist. This biological emphasis results in women not being encouraged to use their bodies to its fullest capacity and develop a range of bodily skills. Embodiment theory could contribute to the tendency of women “to have less confidence in their cycling abilities, a factor which may be voiced as greater concern over safety” (Ravensbergen et al., 2019, pg. 8).

Employing any one of these three concepts would improve the gender and cycling research. As Ravensbergen et al. states,

“Using feminist geography frameworks could broaden the scope of cycling studies, and transport research more broadly, as scholars not are only free to explore the many societal reasons behind the observed gender-based patterns identified in the current literature but can also examine how intersection axes of identify influence experiences of cycling.” (2019, p. 9)

It is the opinion of the researcher that the use of such concepts by planners, researchers, and bicycle advocates is critical to increasing the use of cycling as a mode of transportation for women.

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APPENDICES

Appendix A: Interview Schedule

Appendix B: Research Ethics Board Protocol Approval

Appendix C: Interview Initiation Letter- Organization

Appendix D: Interview Invitation Letter- Individual

Appendix E: Informed Consent Form

Appendix F: Final Presentation PowerPoint

Appendix A

Appendix A: Interview Schedule

Interview Schedule – **Bicycle Activists/Advocates**

1. a. What do you consider to be Winnipeg's greatest strengths in terms of its cycling environment?
b. Where do you consider are some opportunities for improvement?
2. The Winnipeg Pedestrian and Cycling Strategies (2014) found that the majority of cyclists in Winnipeg are men (72%). How do you understand the disparity between male and female cyclists?
3. a. Winnipeg bicycle organizations have identified the different needs of male and female cyclists, for example with female/trans/femme-only bicycle repair nights. Have you or your organization noticed a need to establish women-centric programming / expand women-centric programming beyond this?
b. What kind of interest in expanding women-centric programming to other parts of the bicycling experience are you aware of, either in Winnipeg or elsewhere?
4. Can you tell me about initiatives that have occurred in other cities that try to increase the number of female cyclists or support women in their efforts to use cycling as a form of transportation?
5. a. What do you or your organization consider to be measures of success for cycling in Winnipeg?
b. As Winnipeg's cycling infrastructure improves, how will the measure of success shift focus, if at all?
6. In my research, the organizations that provided programs tailored to female cyclists were typically found in large metropolises- New York City, Los Angeles, Washington, DC, Chicago, Toronto. What are your thoughts regarding how the size of our population may impact our ability to deliver more specialized programs and supports?
7. Partnerships with non-profit organizations were often identified by cycling organizations as an important part of creating successful, female-focused programs. How would you describe the connections between Winnipeg cycling organizations and or businesses and other non-profit groups, such as women or newcomer resource centres?
8. Beyond bicycling infrastructure, what do you think female and female-identifying people in Winnipeg need in order for their cycling rates to increase?

Interview Schedule – **City Planners**

1. a. What do you consider to be Winnipeg's greatest strengths in terms of its cycling environment?
b. Where do you consider are some opportunities for improvement?

Appendix B



Human Ethics
208-194 Dafoe Road
Winnipeg, MB
Canada R3T 2N2
Phone +204-474-7122
Email: humanethics@umanitoba.ca

PROTOCOL APPROVAL

TO: Jessica Russell-Edmonds (Advisor: David van Vliet)
Principal Investigator

FROM: Julia Witt, Chair
Joint-Faculty Research Ethics Board (JFREB)

Re: Protocol [REDACTED]
A Precedent Review of Supportive Cycling Environments for Female Cyclists

Effective: January 18, 2019

Expiry: January 18, 2020

Joint-Faculty Research Ethics Board (JFREB) has reviewed and approved the above research. JFREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

This approval is subject to the following conditions:

1. Approval is granted for the research and purposes described in the application only.
2. Any modification to the research or research materials must be submitted to JFREB for approval before implementation.
3. Any deviations to the research or adverse events must be submitted to JFREB as soon as possible.
4. This approval is valid for one year only and a Renewal Request must be submitted and approved by the above expiry date.
5. A Study Closure form must be submitted to JFREB when the research is complete or terminated.
6. The University of Manitoba may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

Funded Protocols:

- Please mail/e-mail a copy of this Approval, identifying the related UM Project Number, to the Research Grants Officer in ORS.

Appendix C



Department of City Planning
201 Russell Building
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9458
Fax (204) 474-7532

Dear bicycle enthusiast,

Hello! My name is Jessie. I am a Master's Candidate in the City Planning program at the University of Manitoba. I am currently working on my Master's practicum under the supervision of Dr. David van Vliet.

I am writing to invite you to participate in my research project titled, "A Precedent Review of Supportive Cycling Environments for Female Cyclists". The project seeks to first discover interventions used elsewhere in the world that support female cyclists and the uptake of cycling by them, and second, how these interventions could be applied in the Winnipeg context.

Your involvement in the project would consist of a single interview lasting approximately 30 minutes. You will be asked questions about Winnipeg's cycling environment. The interview will be conducted in person at a convenient time and location in Winnipeg. With your consent, it will be recorded and transcribed.

Care will be taken to protect your identity. No personal identifiers will be used in the interview script or in the final document; a pseudonym will be used. Data collected as part of this project will be held on a password-protected personal computer, and seen only by myself and my research supervisor. As a token of my appreciation, you will receive a \$10 gift card to a Winnipeg coffee shop at the onset of the interview. It is yours to keep, even if you withdraw from the study.

The risks in participating in this project are no different than what you experience in your everyday life. You may end your participation in this study at any time for any reason. This may be done by simply contacting me. All information that you have provided for the project will be destroyed at the project's completion.

This project was reviewed by the University of Manitoba Joint-Faculty Research Ethics Board. It received approval on January 18, 2019.

If your organization is willing to participate in this project, or if you have any questions or want more information, I can be reached at [REDACTED]

Sincerely,

Jessie Russell-Edmonds

Appendix D



Dear bicycle enthusiast,

Hello! My name is Jessie. I am a Master's Candidate in the City Planning program at the University of Manitoba. I am currently working on my Master's practicum under the supervision of Dr. David van Vliet.

I am writing to invite you to participate in my research project titled, "A Precedent Review of Supportive Cycling Environments for Female Cyclists". The project seeks to first discover interventions used elsewhere in the world that support female cyclists and the uptake of cycling by them, and second, how these interventions could be applied in the Winnipeg context.

Your involvement in the project would consist of a single interview lasting approximately 30 minutes. You will be asked questions about Winnipeg's cycling environment. The interview will be conducted in person at a convenient time and location in Winnipeg. With your consent, it will be recorded and transcribed.

Care will be taken to protect your identity. No personal identifiers will be used in the interview script or in the final document; a pseudonym will be used. Data collected as part of this project will be held on a password-protected personal computer, and seen only by myself and my research supervisor. As a token of my appreciation, you will receive a \$10 gift card to a Winnipeg coffee shop at the onset of the interview. It is yours to keep, even if you withdraw from the study.

The risks in participating in this project are no different than what you experience in your everyday life. You may end your participation in this study at any time for any reason. This may be done by simply contacting me. All information that you have provided for the project will be destroyed at the project's completion.

This project was reviewed by the University of Manitoba Joint-Faculty Research Ethics Board. It received approval on January 18, 2019.

If you are willing to participate in this project, or if you have any questions or want more information, I can be reached at [REDACTED]

Sincerely,

Jessie Russell-Edmonds

Appendix E



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Informed Consent Form

Research Project Title: A Precedent Review of Supportive Cycling Environments for Female Cyclists

Principal Investigator: Jessica Russell-Edmonds [REDACTED]

Research Supervisor: Dr. David van Vliet [REDACTED]

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. This form should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Project Description:

In countries like Canada where cycling is less common, men comprise a disproportionate share of all cyclists, despite its universal benefits. This is problematic for reasons related to equity, personal health, and environmental health. While researchers have identified several possible explanations for this gender disparity, far fewer studies have identified and highlighted projects implemented to improve it. This research project seeks to add to this body of knowledge. The project has two purposes:

1. To identify real-world examples of how women are being assisted and supported to use cycling as a mode of transportation, whether they are new or seasoned cyclists; and
2. To understand how these examples could be applied in the Winnipeg setting.

I conducted a precedent search to identify real-world examples. Interviews are being held with Winnipeg cycling advocates and planners to better understand whether and how these examples could be applied in the city. In the course of the interview, I will ask you questions about the Winnipeg environment and culture for female cyclists.

Time Requirement:

If you decide to participate in this research project, your participation will consist of a single interview, approximately 30 minutes in length. The interview will occur at a convenient time and location, as determined by you and myself.

Supportive Cycling Environments for Women

Final Presentation for Jessica Russell-Edmonds

Master in City Planning

Faculty of Architecture
University of Manitoba

December 17, 2019

Outline

- Overview of the Literature
- Research Problem
- Research Questions
- Research Methods
- Findings
- Analysis
- Conclusion
- Implications and Directions



Cycling and Gender- The Literature

Theme 1: Who Cycles & Where

- Where
 - Bicycling in 'High-Cycling Countries'
 - Mode share greater than 5%, supportive infrastructure, bicycle culture
 - Bicycling in 'Low-Cycling Countries'
 - Mode share less than or equal to 5%, shortage of supportive infrastructure, car culture
- Who
 - Gender
 - A disparity or 'gap' between women and men who ride bicycles
 - Not innate or natural
 - Age, Race and Ethnicity, and Class
 - Limited knowledge regarding intersectionalities



Cycling and Gender- The Literature

Theme 2: Understanding the Disparity

- Trip Characteristics
 - Less suited to using a bicycle
- Cultural Norms
 - Safety concerns and risk aversion
 - Appearance and dress
- Infrastructure Preference
 - Separation from traffic



Cycling and Gender- The Literature

Theme 3: Narrowing the Disparity

- Solutions
 - Cycling programs, group rides and events, supportive people, and supportive cycling conditions
 - 5C's
 - Gender-sensitive equity index
- Limitations:
 - Unactionable
 - Not politically palatable
 - Theoretical realm



Research Problem

- Gender disparity exists in Winnipeg
- Associated negative repercussions
 - Environment
 - Population health and healthcare system
 - Equity
- Theorized solutions remain in the realm of theory



Research Questions

1. What precedents exist in cities internationally that assist female cyclists in overcoming the barriers identified in the literature?

2. How can these precedents inform planners, policymakers and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?



Research Methods

1. What precedents exist in cities internationally that assist female cyclists in overcoming the barriers identified in the literature?

Precedent Review

2. How can these precedents inform planners, policymakers and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?



Research Methods- Precedent Review

- A mixture of case study and literature review
- Provides ideas and inspiration from previously created designs
- Selected for its exploratory nature
- Involved searches of:
 - Academic Literature
 - Grey Literature
 - Targeted websites
- Search terms such as 'cycling', 'gender', 'women', and 'equity' (and combination thereof)



Research Methods

1. What precedents exist in cities internationally that assist female cyclists in overcoming the barriers identified in the literature?

Precedent Review

2. How can these precedents inform planners, policymakers and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?

Key Informant Interviews



Research Methods- Interviews

- Conversation between researcher and participant
- Semi-structured
 - Provided loose framework while allowing for probing
- Key informant
 - Required specific knowledge
 - Organizations and individuals providing programming to cyclists
- Eight organizations or individuals participated
- Approval from JFREB received



Findings- Precedent Review

- Returned over 40 precedents or 'interventions'
- Initial criteria rejected
 - Too narrow and restrictive
- New criteria created:
 - Must specifically address women
 - Must have at least two sources in English
- 10 interventions



Findings- Precedent Review

1. Cycling Course for Immigrant Women- Tilburg, Netherlands
 - Cycling lessons includes theory, cycling and socializing
 - Mobility and freedom, while adapting to new transportation norms



Findings- Precedent Review

2. Fietsvriendinnen (“Cycling Friends”)- Tilburg, Netherlands
 - Mentorship program for women, partnering new cyclists with experienced cyclists for weekly rides
 - Recognizes needs for additional support and assistance



Findings- Precedent Review

3. Black Girls Do Bike- United States of America

- Monthly rides, skill-sharing and supportive community for women of colour
- Expands perception of who rides a bicycle

“If you don’t seem women who look like you using bikes for recreation, as alternative transportation, or racing professionally, you also might not consider it.”

Founder Monica Garrison in Blue (2016, n.p.)



Findings- Precedent Review

4. Women Bike- United States of America

- Resources (books, webinars, conferences, grants) for women who ride bicycles or those who wish to
- Pivot in direction to address other inequities in cycling



Findings- Precedent Review

5. Süslü Kadınlar Kisiklet Turu ('Fancy Women Bike Ride')- Turkey

- Annual bicycle ride where women dressed up, decorated their bicycles and paraded around their city
- Found in over 100 cities across the world (including Vancouver)
- Visibility and expanding what is bicycle attire

“Woman’s visibility in urban spaces is key to claim the right to the city.”
Süslü Kadınlar Kisiklet Turu, n.d., n.p.



Findings- Precedent Review

6. WE Bike NYC- New York City, NY

- Rides, events and workshops within three initiatives:
 - WE Bike- women
 - Moms on Wheels- mother
 - Mujeres en Movimiento ('Women in Movement')- Spanish-speaking Latino women
- Mujeres en Movimiento the result of partnership



Findings- Precedent Review

7. Grease Rag & For Us By Us- Minneapolis-St. Paul, MN
 - Open shop nights, groups rides, educational seminars and social events for those traditionally marginalized, FTWs and BIPOC+
 - Create a 'safer space' through enforcement and training
 - Intersectionality



Findings- Precedent Review

8. HSBC UK Breeze- United Kingdom (U.K.)
 - Trains women to lead bicycle rides for women in their communities
 - Rides vary in type, length, difficulty
 - Combines national strengths with local strengths



Findings- Precedent Review

9. #BIKEYGEES e.V.- Berlin, Germany

- Free, drop-in bicycle lessons once a month for newcomer women and girls
- Includes multilingual lessons on traffic rules and bicycle repairs
- Comparable to 'Cycling Course for Immigrant Women'



Findings- Precedent Review

10. Queen Mary's Hostel Cycling Project- London, UK

- Cycling club in supportive living facility for vulnerable women
- Includes sessions on trip planning, map reading, and basic bicycle maintenance
- Unique target population



Findings- Key Informant Interviews

- Participants employed by or volunteered with bicycle advocacy organizations, or employed by government
- Recorded, transcribed, and coded
- Nine prominent themes

1. City Characteristics

- Geographies make for conducive cycling environment



Findings- Key Informant Interviews

2. Physical Infrastructure

- More protected and physically-separated bicycle lanes
- Improved connectivity, particularly outside of and to downtown

3. Risk & Safety

- Men as 'risk-takers'
- Importance of feeling safe
- Dimension of safety: personal versus road



Findings- Key Informant Interviews

4. Diversity, Equality & Equity

- Recognition of diversity's importance with no action
- Unequal distribution of infrastructure
- Equity- helping those not typically benefiting from commuter 9-5

5. Perceptions of Bicycling & Bicyclists

- A 'hardcore' pursuit
- The 'typical cyclist'
- Stereotype reinforced through experience



Findings- Key Informant Interviews

6. Normalization of Women Riding Bicycles

- Women need to see other women riding bicycles
 - “See it to believe that you can be it” – Interviewee 1
- Role models, particularly for young girls

7. Programming

- Location
- General versus Targeted
- Challenges and Improvements



Findings- Key Informant Interviews

8. Organizational Capacity

- Reported by many interviewees
- Impact of limited resources:
 - Missed opportunities; No evaluation of effectiveness

9. Cultural Shift

- Cycling as a normal, everyday activity
- Education and awareness-building



Analysis

▪ Returning to Research Questions:

“How can these precedents inform planners, policymakers and decision-makers in the City of Winnipeg to assist female cyclists in overcoming the identified barriers?”



Analysis- Winnipeg Environment

- Receptive- recognition of differing needs:
 - Existing programming in Winnipeg
 - Interviewee understanding
 - Supportive policy document



Analysis- Barriers

Two barriers identified:

1. Lack of consensus regarding the need for targeted programming to improve gender disparity

- Generalized programming is sufficient to help those who require more support and improve gender disparity

Versus

- Generalized programming is not sufficient; more targeted programming is needed to provide support and improve gender disparity



Analysis- Barriers

Two barriers identified:

1. Lack of consensus regarding the need for targeted programming to improve gender disparity
2. Continued emphasis on bicycle infrastructure

- The only thing that matters

Versus

- An important piece in a larger puzzle



Analysis- Barriers

Two barriers identified:

1. Lack of consensus regarding the need for targeted programming to improve gender disparity
2. Continued emphasis on bicycle infrastructure

- Barriers don't preclude programming for women
- Organizations, individuals and funders have limitations
- Specialized programming overlooked



Analysis- Implementation

▪ **Cycling Lessons**

Intervention: *Cycling Lessons for Immigrant Women or Bikeygees*

- Newcomer women and girls whose families may not be able to afford a car but have no cycling experience
- Unsure of interest
- May be initiated by local women without teaching experience
- Connect with established resource organization or organization providing housing



Analysis- Implementation

▪ **Mentorship Program**

Intervention: *Fietsvriendinnen ('Cycle Friends')*

- More informal structure
- Open to non-newcomer women



Analysis- Implementation

▪ **Basic Bicycle Mechanics Workshops and Classes**

Intervention: *Mujeres en Movimiento* ('*Women in Movement*')

- Currently provided in Winnipeg
- What can be learnt: language and location



Analysis- Implementation

▪ **Women-Only Rides**

Intervention: *Süslü Kadınlar Kısıklet Turu* ('*Fancy Girl Bike Ride*')

- Implemented without sponsors or funding
- Showcase new normal

Intervention: *HSBC UK Breeze*

- May (or may not) attract a sportier crowd
- Already occurring in Winnipeg



Analysis- Implementation

- Interventions that are distinct and unique, for example:
 - *Black Girls Do Bike*
 - *WE Bike*
 - *By Us For Us*
- Formed organically at grassroots level
- Supported to continue and expand



Conclusion

- Cycling as an important mode of transportation
- Gender disparity in low-cycling countries
 - Associated repercussions
- General understanding of why the gender disparity exists, relatively little about how to remedy it
- Precedent review and key informant interviews used to fill gap:
 - Interventions that support women, and
 - Implementation in Winnipeg



Conclusion

- Ten interventions returned
 - Classes and workshops, clubs, rides
- Many could be implemented in Winnipeg
 - Tweaks, additional resources sometimes required
- Others formed organically
- Barriers to implementation
 - General versus targeted programming
 - Emphasis on infrastructure



Implications

- Planners and Planning Practice
 - Reinforce importance of infrastructure
 - Reminder of other interventions that support use of infrastructure; improves equitable access to cycling
- Cycling Advocacy Organizations
 - Connections with organizations serving women
- Decision Makers
 - Reinforces crucial role of infrastructure; allocate funding
 - Illustrates cycling organization operate under constraints



Directions for Further Study

- Precedent review in different languages
- Focus Group with AT planners and bicycle advocates to better understand barriers to intervention implementation and identify next steps forward
- Greater information about women's non-work bicycle trips and off-peak hour travel behaviours



Thank you!

- Questions

